CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
3550 N. Central Ave, 2nd floor
Phoenix, AZ, 85012
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

The following file is part of the Walter E. Heinrichs, Jr. Mining Collection

ACCESS STATEMENT

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

CONSTRAINTS STATEMENT

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

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

QUALITY STATEMENT

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

HEINRICHS GEOEXPLORATION COMPANY

P.O. BOX 5964. TUCSON. ARIZONA 85703. 806 WEST GRANT ROAD. PHONE: (602) 623-0578

July 6, 1983

Argosy Mining Company
5244 N. 25th Street
Phoenix, AZ 85016

Attention: Mr. Hendricks

Re: GEOEX Proposal #1650
Vekol Mine & Vicinity
Pinal County, Arizona

Dear Mr. Hendricks:

In response to our recent meeting at the Argosy Mine on June 28, 1983, Heinrichs GEOEXploration will, as discussed, supply two geologists for the purpose of mapping the surface and the subsurface at the Argosy mine in order to plan and execute exploration, and particularly that which would help guide the choosing of drill targets.

You have requested a proposal which considers a three phase approach more or less as follows:

1. General geology:
   a. Literature review and compilation
   b. New surface geologic mapping - six claims, approximately 100 acres
   c. Underground geologic mapping, approximately 2500' of workings.

2. Site specific additional detail geology as may be indicated by phase one, including geophysics and geochemical prospecting, as and if warranted.

3. Drilling.

Time required to complete phase 1(a) would be approximately ten days elapsed time at a cost of about $1,000.00 including reproduction expenses etc. Our rates for this type office work are $25.00 per man hour, plus directly incidental expenses at 120% of our invoiced costs.

A quick review of our files indicates considerable possibly useful data of fair quality, including some IP, resistivity, seismic and magnetic geophysical methods, and with some plan geology and geochemistry. Most of the data

is GEOEX proprietary. However, it will be most helpful for us to also receive from you right away an inventory of pertinent data you have which we can borrow for use in our review. Included in this would be such items we discussed as topo maps, cross sections and geology and written reports, etc. Altogether, these data may simplify and expedite phase 1(b) below - including reducing the total costs involved and improving the overall results.

Phase 1(b) is difficult to estimate until 1(a) is completed but, as an outside guess we would say about five man weeks may represent an approximate order of magnitude. This takes into account the considerable apparent complexity of the inferred structure but that considerable help will be provided by phase 1 (a) above. Total costs here should not exceed $16,500 and could be less than $15,000. Conceivably, an adequate job might be done for $10,000 to $12,500, at least on a preliminary basis.

Phase 1(c) is tentatively estimated at about two man weeks over a two weeks lapsed time period at a cost of about $7,500. Both phases 1(b) and 1(c) cost estimates are based on $35.00 per hour (maximum $350.00 per day) for professional and $45.00 per hour (maximum $450.00 per day) for senior professional, plus expenses in both cases.

Phase 2 scope will depend, of course, entirely on results of phase 1. Most expensive work in this phase if required would be IP which costs roughly $1100 per crew working day and yields production costs of from $4,000 to $5,000 per profile mile including everything - report, etc. Almost everything else which might be required under phase 2 should be less expensive than IP.

Phase 3, drilling, may vary from $2,000 to $3850.00 per week depending on the calibre of geological help required to supervise and routinely log results and whether full time or part time proved satisfactory and whether 5 days or 7 days per week are required, etc. Complexity of drill results and related geology will dictate what is needed here. It usually proves best to start with maximum experience at first and then "ease off" if results become routine enough to allow it.

The estimates above reflect costs based on daily commuting from Tucson. Certain savings may be achieved by staying in Casa Grande or by setting up trailer accommodations at the Mine - assuming that is feasible. Surface and underground work could perhaps be done concurrently by two different people in order to save time but there are technical disadvantages to that approach. Also, availability of qualified personnel may dictate this schedule - at least to some extent.

Field work and/or outside consulting charges are based on: per diem for personnel being $40.00 per day or at cost whichever is greater. An additional 25% per hour is charged for any labor over forty hours during a given week. Work days are estimated at 10 hours per day and 60 hours per week on the average. Vehicles are charged at $35.00 per day and $0.40 per mile.

Field or office routine data reduction when done exclusive of field operations, like at night or on weekends on the job or in Tucson is $25.00 per man hour. Directly incidental job expendible supplies and expenses such as communications, reproductions, field and drafting supplies, and additional labor if needed, trailer rental etc., is charged at 120% of our invoiced or payroll cost.

As customary an advance statement in the amount of $500.00 or 1/2 of estimated costs for phase 1(a) is enclosed. This will be allocated against subsequent detailed billings. Similar statements will be submitted with regard to subsequent phases.Our receipt of the above amount will serve as firm notice from you for us to proceed on your behalf. Interim billings are then submitted periodically and final billing accompanies final data and report.

Ideally, we understand initial preliminary field work, as recommended by us and accepted by you should start in mid to late July, 1983.

If this letter correctly reflects our mutual understanding and meets with your approval, for our joint convenience, this may be indicated by executing as provided below and returning to us the executed copy of the duplicate of this letter provided.

Sincerely,

Heinrichs GEOEXploration Co.

Walter E. Heinrichs, Jr.
Geological Engineer - Geophysicist
P.E. & C.P.G.

Approved and accepted:_____Date

Argosy Mining Company

by:_____Signature

Title:_____

WEH: MT
ENCLOSURES: Copy of proposal
2 copies of statement
self-addressed envelope

HEINRICHS GEOEXPLORATION COMPANY

P.O. BOX 5964. TUCSON, ARIZONA 85703. 806 WEST GRANT ROAD. PHONE: (602) 623-0578

July 13, 1983

Argosy Mining Company
5244 N. 25th Street
Phoenix, AZ 85016

Attention: Mr. Arthur Hendricks

Re: GEOEX Amended Proposal
#1650
Vekol Mine & Vicinity
Pinal County, Arizona

Dear Mr. Hendricks:

This will confirm our conversation over the phone last Monday when you called our office and is further to our original proposal letter to you of 6 July 1983. The latter you felt was more of a final or complete second stage type proposal rather than a preliminary study and appraisal of the basic economic geologic potential as might be gained from immediately available data, and preliminary mapping of claims surface and underground workings. Objective is to try and determine what additional geologic, geophysical, or geochemical prospecting may be warranted, if any, and why and how much of each should be considered and in what order to hopefully lead to the earliest viable drill targets.

On this basis we still recommend item 1(a) of our earlier proposal and revise items 1(b) and 1(c) as follows:

1(b) Preliminary surface geologic mapping of approximately 100 acre claim area and immediately adjacent geology which may indicate an economic bearing on the volume represented by the claims.

1(c) Preliminary underground geologic examination and mapping of approximately 4100 feet of apparently accessible workings.

Costs of 1(b) and 1(c) to be arbitrarily limited to $13,500,00 on a preliminary basis. An assumption or estimate is made that approximately $3500.00 of this will be related to item 1(b) and the remainder, ($10,000), to item 1(c). It should be possible to better define this proportion after completion of 1(a). Mapping would be done by a senior professional assisted by a professional or helper. In some instances a professional and helper may handle the more routine aspects under direction and/or supervision of a senior professional. Underground and surface work may be done separately or concurrently. In any event, a minimum elapsed time of three weeks will be required, approximately two field weeks and one office week.

Charge rates and other related discussion would remain the same as in our original proposal. As indicated, an advance of $4500 is requested whenever you would like to start the field work. I notice that I failed to indicate clearly that the literature review and compilation (1(a)) would include a brief written summary report with recommendations and list of references utilized. Any such recommendations would of course bear at least partly on items 1(b) and 1 (c).

If you have further questions please don't hesitate to call.

We will look forward to hearing from you further.

Sincerely,

Walter E. Heinrichs, Jr., President

WEH:mt

Approved and Accepted:_____(date)

Argosy Mining Company

by:_____(Sig)

Title:_____

Enclosure: Extra Copy

GEOLOGIC AND TOPOGRAPHIC MAP
OF
THE VEKOL SILVER MINE AREA
PINAL COUNTY, ARIZONA

BY ROBERT H. CARPENTER (1947) (PLATE 8)

GRAPHIC SCALE

0 100 200 300

1 INCH = 100 FEET 5% (LARGER) ERROR
1:1200

Contour interval 50 Feet

EXPLANATION

QUATERNARY — Qal
ALLUVIUM
Coarse, angular, alluvial debris Often cemented by caliche

TERTIARY — Ta
ANDESITE
Well altered, brownish, porphyritic andesite

LOWER PENNSYLVANIAN — Cn — CORAL MARKER SHALE MEMBER 210 FEET FROM BASE
NACO LIMESTONE 415 FT.
Light grey, generally aphanitic limestone with red shale partings

BASE OF NACO LIMESTONE
CONTACT SHALE
Five to ten feet thick red shale

LOWER MISSISSIPPIAN — Ce
ESCABROSA LIMESTONE 410 FT.
Thick bedded light to dark grey, granular, cliff forming limestone

UPPER DEVONIAN — Dlo? — MARTIN UPPER MEMBER 57 FT.
LOWER OURAY FORMATION
Thin bedded, soft, pinkish brown limestone

UPPER DEVONIAN — Dm — MARTIN MIDDLE MEMBER 120 FT.
MARTIN LIMESTONE 250 FT.
Cliff forming, massive, buff limestone and thin bedded brown limestone

UPPER DEVONIAN — Dpc? — MARTIN LOWER MEMBER
PICACHO DE CALERA FORMATION 70 FT.
Remark: ADD ARROYO CORAL MARKER BLACK DOLOMITIC LIMESTONE
Blue and tan, cliff forming dolomite and sandy limestone

UPPER CAMBRIAN — €o — ABRIGO UPPER MEMBER
ABRIGO FORMATION 95 FT.
Thin bedded brown limestone and sandy shale

MIDDLE CAMBRIAN — €sb — ABRIGO MIDDLE MEMBER
SOUTHERN BELLE QUARTZITE 30 FT.
Cross bedded, brown, calcareous quartzite

MIDDLE CAMBRIAN — €sc — ABRIGO LOWER MEMBER
SANTA CATALINA FORMATION 265 FT.
Thin bedded, impure, micaceous shale and sandstone

MIDDLE CAMBRIAN — €b
BOLSA QUARTZITE
Does not outcrop on this map

37° — strike and dip of beds

FAULTS
1. Observed
2. Possible — POSSIBLE
3. Projected from underground workings — PROJECTED
Arrow shows dip, U on Upthrown Side, D on Downthrown Side, with amount of throw in feet

Geological Contact

Shaft — Tunnel — Roads

Trails — Mine dump

DH — Drill Hole By ~~Previous Lessee~~ SEVEN CITIES MINING CO.

PDP (5) — Proposed Drilling Pad

GCS-1 — Geochemical Sample By Geoex

EX-1575-46 — Geochemical Sample By Duval Corp.

PREPARED FOR

ARGOSY MINING COMPANY

BY

HEINRICHS GEOEXPLORATION COMPANY — PROJECT No. 1668

810 W. GRANT ROAD, P.O. BOX 5964, TUCSON, ARIZONA 85703 PHONE (602) 623-0578

GEOLOGIST	TOPOGRAPHY	DRAFTSMAN
R.H. CARPENTER (1947) R.B. LEISURE (1983)	R.W. CARPENTER (1947)	S.W. Beebe
SCALE 1:1200 1 INCH = 100 FEET	DATE 4 NOVEMBER 1983	PLATE No. 1 PRELIMINARY FIRST INTERMEDIATE

Santa Inez 3'x6'x1973

COPPER STATE ANALYTICAL LAB., INC.

DNYANENDRA A. SHAH
ARIZONA REG. NO. 8888

REGISTERED ASSAYER
P. O. BOX 7517
TUCSON, ARIZONA 85725

710 E. EVANS BLVD
PHONE 602-884-5811
884-5812

Heinrichs GEOEX
Box 5964
Tucson, AZ 85703

JOB# 002589
RECEIVED 10/12/83
REPORTED 10/21/83
INVOICE# C 2866

GEOEX Project #1668

SAMPLE NUMBER	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Au opt	Ag opt	
GCS-#1	2.0	2	28	62			
2	1.6	4	16	60			
3	2.2	8	24	66			
4	2.0	10	26	68			
5	1.4	12	18	38			
6	0.6	14	24	50			
7	0.3	18	11	52			
8	<0.1	8	22	60			
9	2.6	10	28	80			
10	1.0	12	60	160			
11	1.2	12	14	16			
12	6.0	508	0.18%	580	.004	0.16	
13	1.8	16	32	116			
14	0.1	18	18	14			
15	<0.1	4	18	12			
16	13.0	4	224	169			
GCS-17	0.7	6	216	101			
18	6.1	4	360	210			
19	3.8	2	20	101			

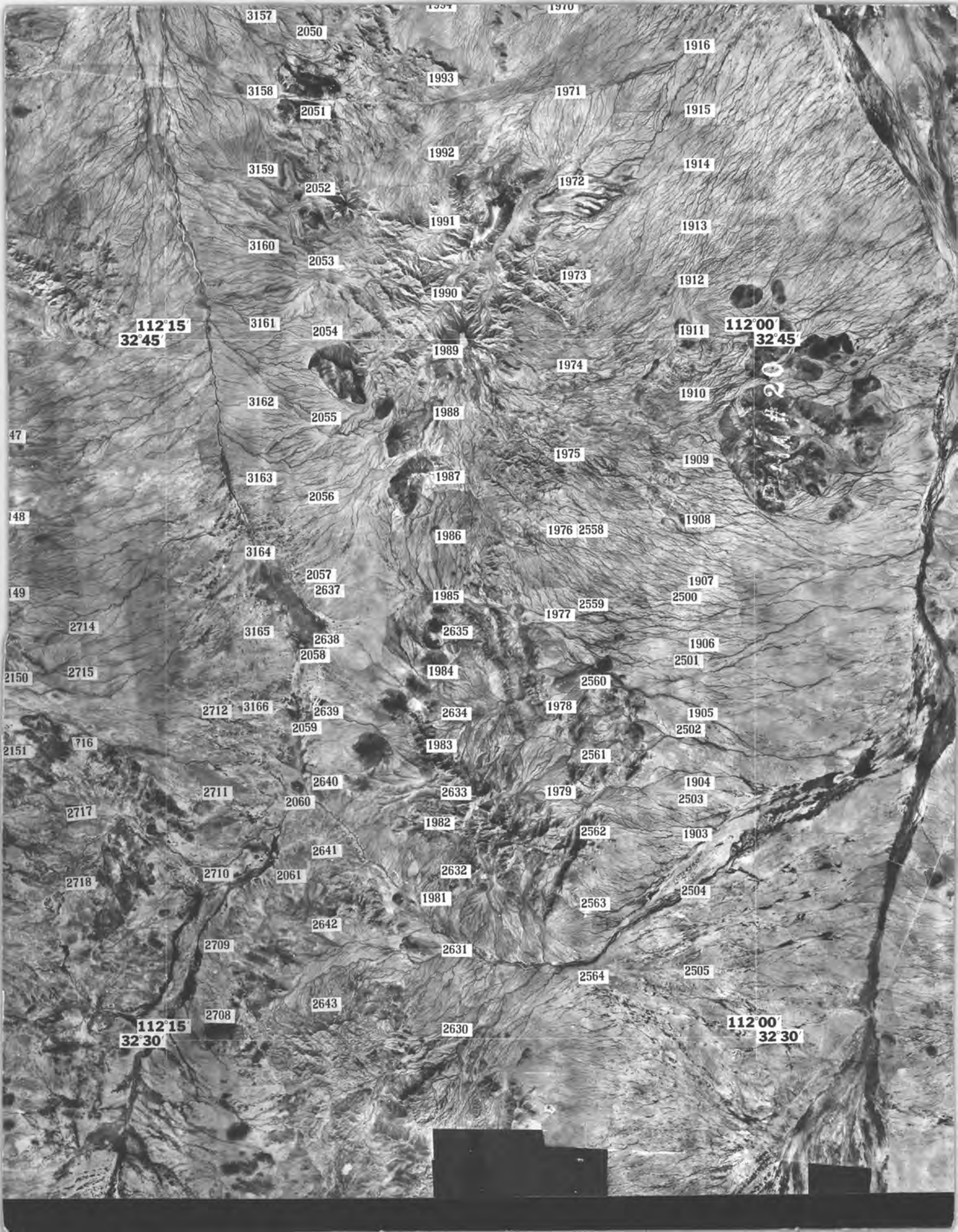
6/19/84
Walt called:
they never (?) throw out pulps - so I left them there. nw.

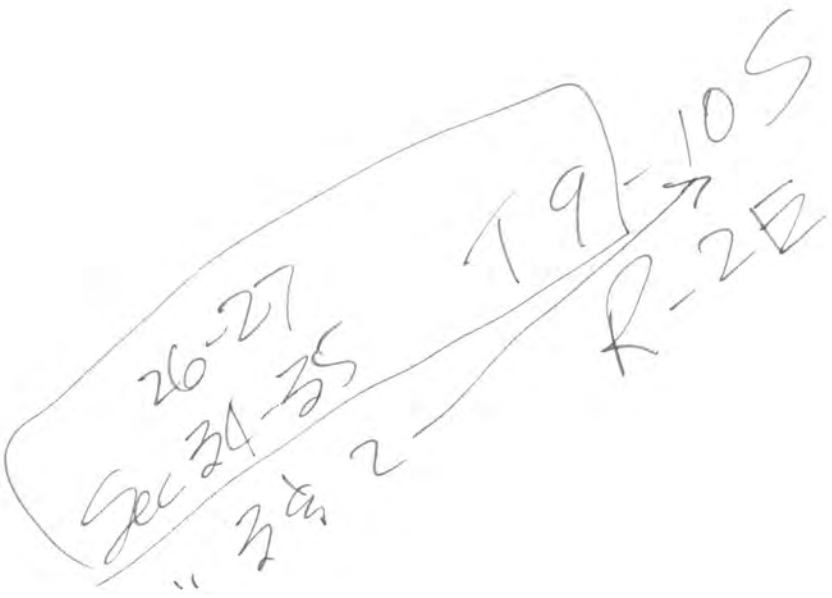
RECEIVED
OCT 24 1983
TUCSON

REGISTERED ASSAYER
CERTIFICATE NO. 8888
Dnyanendra Amritlal Shah
DATE SIGNED
Arizona U. S. A.
10-21-83

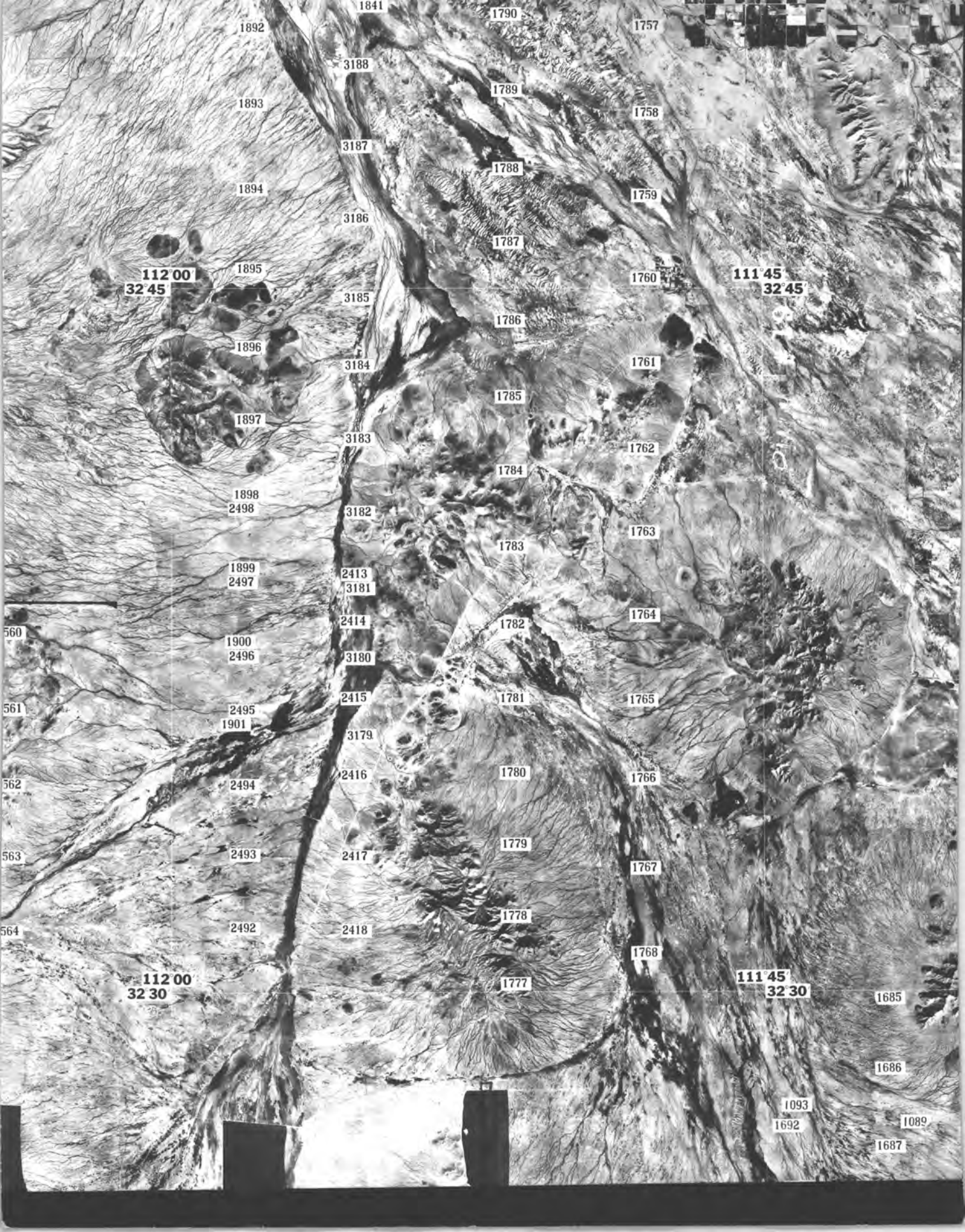
1 ppm = 0.0001% 1 troy oz./ton = 34.286 ppm 1 ppm = 0.0292 troy oz./ton

* Gold and Silver reported in troy oz. per 2,000 lb. ton.


3157
2050
1916
1993
3158
1971
2051
1915
1992
3159
1914
2052
1972
1991
1913
3160
2053
1973
1912
1990
112°15′
32°45′
3161
2054
1911
112°00′
32°45′
1989
1974
1910
3162
2055
1988
1975
1909
3163
1987
2056
1908
1986
1976
2558
3164
2057
1907
2637
1985
2500
2559
1977
2714
3165
2638
2635
1906
2058
2501
2150
2715
1984
2560
2712
3166
2639
2634
1978
1905
2059
2502
2151
1983
2561
2640
1904
2711
2633
1979
2503
2060
2717
1982
2562
1903
2641
2632
2718
2710
2061
2504
1981
2563
2642
2709
2631
2505
2564
2643
2708
112°15′
32°30′
2630
112°00′
32°30′



26-27
Sec 34-35
" 3 to 2
T9-10S
R-2E


1841
1790
1892
1757
3188
1789
1893
1758
3187
1788
1894
1759
3186
1787
112 00
32 45
1895
1760
111 45
32 45
3185
1786
1896
1761
3184
1785
1897
3183
1762
1784
1898
2498
3182
1763
1783
1899
2497
2413
3181
1764
2414
1782
560
1900
2496
3180
561
2415
1781
1765
2495
1901
3179
562
2416
1780
1766
2494
563
2493
2417
1779
1767
564
2492
2418
1778
1768
112 00
32 30
1777
111 45
32 30
1685
1686
1093
1692
1089
1687

October 21, 1983

EROS Data Center
U. S. Geological Survey
Souix Falls, S. D. 57198

Our Job #1668

Attn: Photo print & Processing Sales

Ladies/Gentlemen:

Your N.C.I.C. at Menlo Park, Calif. identified for us some black and white stereo pair aerial photography we seek to acquire as follows:

Two 9" x 9" contact prints of VEDO, Roll 1, frames 66 and 67, 1: 30,000 scale, dated 1976.

We were not given information on turn around time and hope it is not too long. If it is long, your acknowledgement of same and receipt of this order would be appreciated.

We are advised that these prints are $5.00 each. Our check #10738 in the amount of $10.00 is herewith enclosed.

Meanwhile, any up-date matter on services and material available, costs and ordering information, published and available through your office would be most appreciated for our future reference and use.

With advance thanks,

Sincerely,
Heinrichs GEOEXploration Co.

Walter E. Heinrichs, Jr., President

WEH/jh

Encl: Check #10738

REGARDING YOUR ORDER

Dear Customer: Date_____

_Your order is being processed and should be mailed in 2 to 3 weeks.

_Your order was completed and mailed to you on_____.

_We have not processed your order as yet because we have no record of payment being made. If you sent it separately, would you let us know the date you sent it so that we may double-check our records? If you have not, please remit $_____, which is the cost of your order.

RECEIVED
TUCSON, AZ. 85703

Referring to your Control Number in any correspondence will guarantee a prompt reply.
Your Control Number is_____.

Sincerely yours,
User Services Section
EROS Data Center

6/76—EDC USO056T

#1668.

1:30,000

RETURN IF NOT DELIVERED

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
EROS DATA CENTER
SIOUX FALLS, S. D. 57198

OFFICIAL BUSINESS

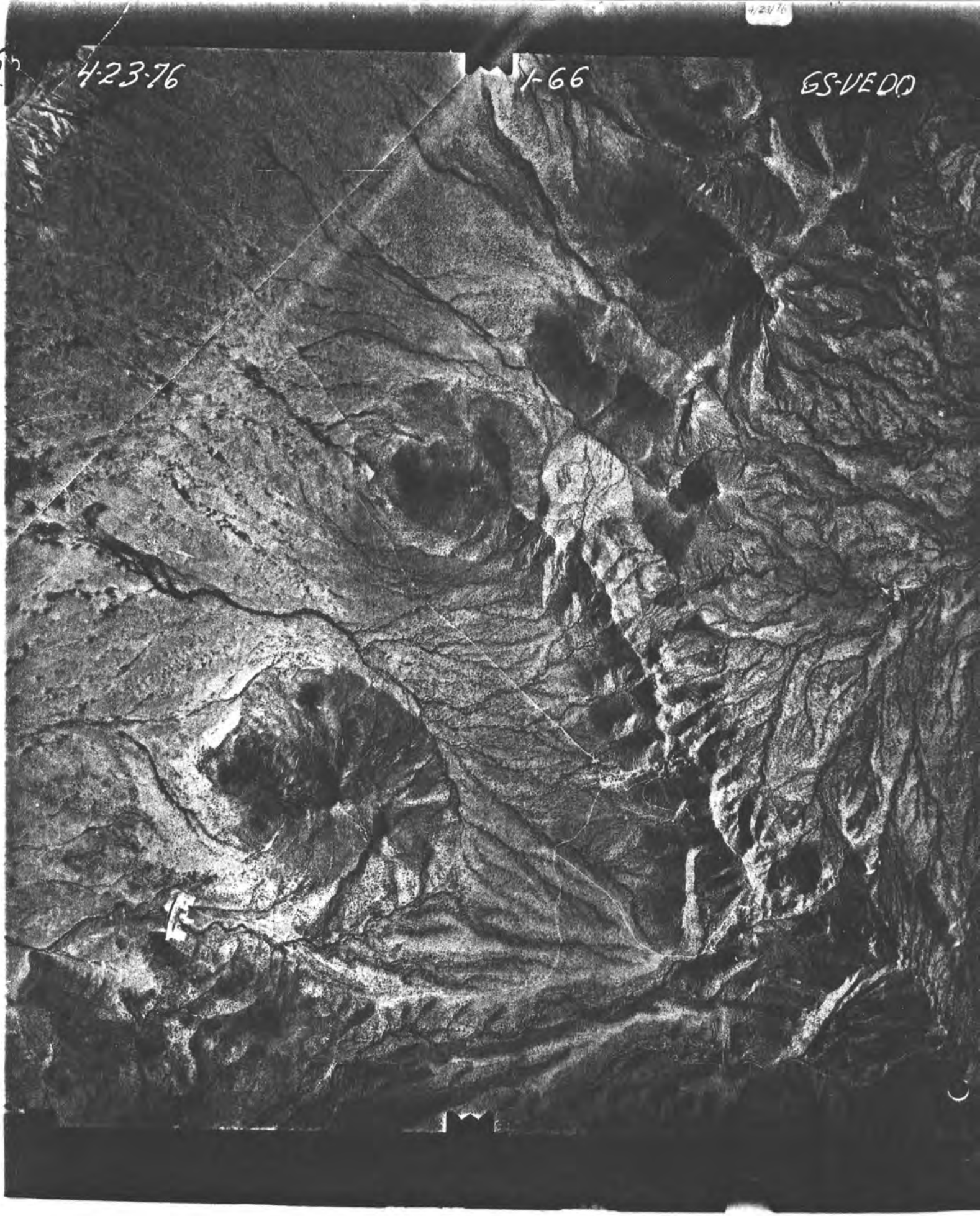
POSTAGE AND FEES PAID
U.S. DEPARTMENT OF THE INTERIOR
INT 413

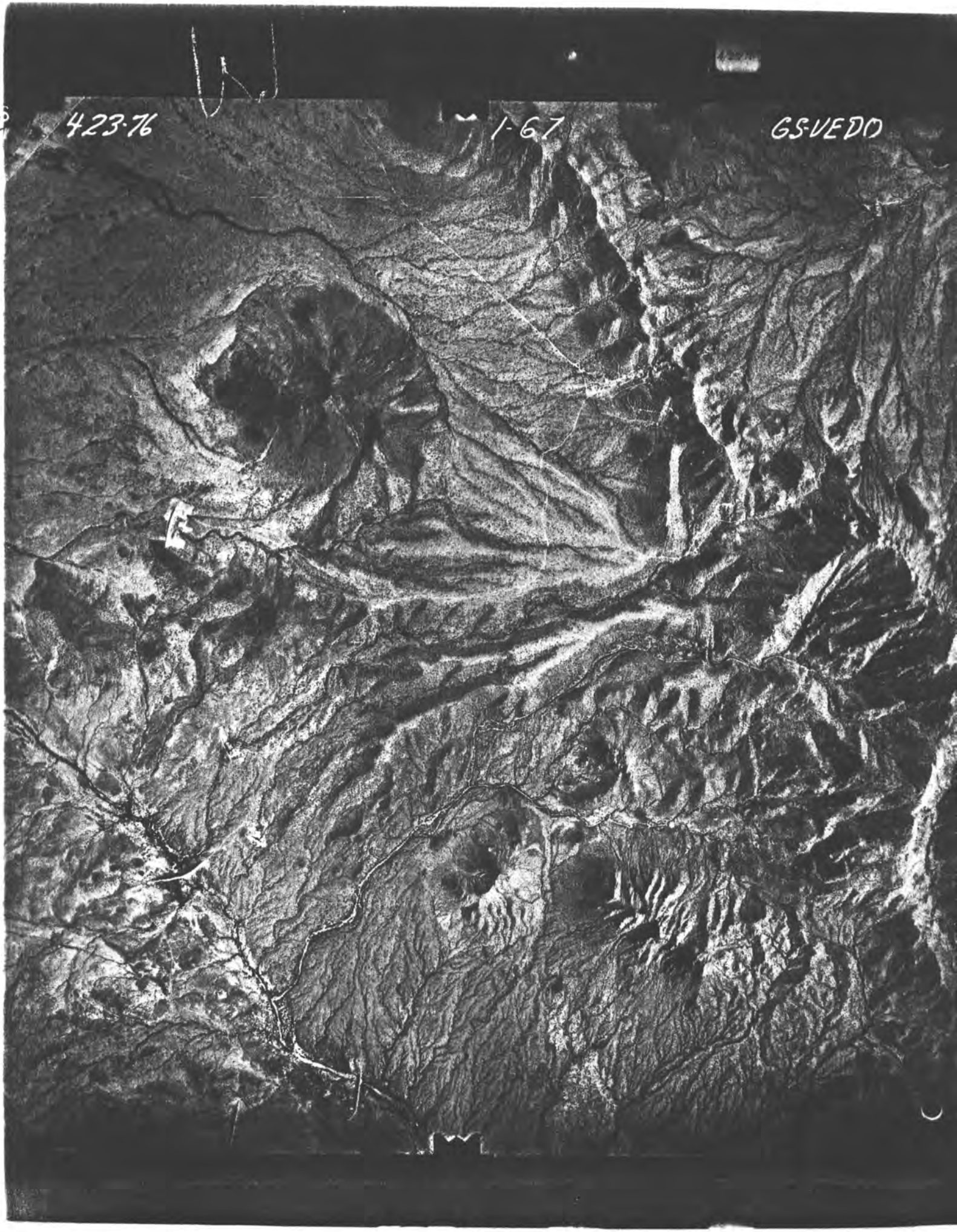
_____

_____

_____

_____


4-23-76
I-66
GS-VEDO


0765
423-76
1-67
GS-VEDD

4-23-76
I-66
GS-VEDD

FINAL COPY 606E

SHIPPING SUMMARY

ACCOUNT NO. 1115898 ORDER NO. C01A

DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

SHIPPING ADDRESS:

HEINRICHS GEOEXPLORATION CO
ATTN: WALTER E HEINRICHS, JR, PRESIDENT
P O BOX 5964
806 W GRANT RD
TUCSON, AZ 85703

EROS DATA CENTER

SIOUX FALLS, SD 57198
COMM: 605-594-6511
FTS : 784-7151

DATE

PAGE 1

THIS IS A SHIPPING DOCUMENT ONLY

BIN NO.	UNIT NO.	FRAME NO.	IMAGE IDENTIFICATION	PROD. CODE	QUAN-TITY	UNIT COST	TOTAL COST	SHIPPING STATUS Included	Rejected	Previously
E06E	1	66	1VE00000001	C23	1	5.00	5.00	1		
E06E	2	67	1VE00000001	C23	1	5.00	5.00	1		
						TOTAL	10.00	2		

EROS Data Center
Sioux Falls, South Dakota 57198

Dear Customer:

We are pleased to be able to provide you with the imagery reproductions that you requested. We hope the photographic products meet your needs.

Enclosed is a pre-paid post card on which we invite your comments concerning the products received. Your comments will aid us in adapting our production techniques and/or our product specifications.

If you have ordered Landsat imagery, you will also receive an enclosure describing the image annotations.

The EROS Data Center reproduces and disseminates data obtained from Landsat satellites, the Skylab spacecraft, Aerial Mapping projects, and NASA Aircraft research missions.

Again, thank you for giving us the opportunity to serve you. Should you have any questions, please do not hesitate to contact us.

Sincerely,

Customer Services
EROS Data Center

Comm. (605) 594-6151
FTS 784-7151

ORDER FORM
AERIAL MAPPING PHOTOGRAPHY

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

NAME MR. MS. _____ DATE _____
(FIRST) (INITIAL) (LAST)

COMPANY _____ COMPUTER ACCOUNT NO. _____
(IF BUSINESS ASSOCIATED) (IF KNOWN)

ADDRESS _____ PHONE (Bus.) _____

CITY _____ STATE _____ ZIP _____ PHONE (Home) _____

SHIP TO _____ YOUR REF. NO. _____
(P.O. GOV'T ACCT. OR OTHER)

PHOTO INDEXES PLEASE TYPE OR PRINT PLAINLY

SCENE ID or TOPOGRAPHIC QUADRANGLE NAME and STATE	PRODUCT CODE	QTY.	UNIT PRICE		TOTAL PRICE	

AERIAL MAPPING PHOTOGRAPHY

PHOTO IDENTIFICATION				PRODUCT CODE	NO. OF FRAMES	NO. OF COPIES	QTY.	UNIT PRICE		TOTAL PRICE	
PROJECT	ROLL	FIRST FRAME	LAST FRAME								

TOTAL ABOVE A
TOTAL FROM PREVIOUS SHEETS B
TOTAL COST C

STANDARD PRODUCTS

BLACK AND WHITE PHOTO INDEXES

FILM SOURCE	PRODUCT MATERIAL	PRODUCT CODE	UNIT PRICE
B&W SIZE A	25.4x30.5cm (10x12 in.)	36	$ 6.00
B&W SIZE B*	OTHER	37	$ 8.00

BLACK AND WHITE

IMAGE SIZE	PRODUCT MATERIAL	PRODUCT CODE	UNIT PRICE
22.9cm (9 in.)	FILM NEGATIVE	03	$12.00
22.9cm (9 in.)	FILM POSITVE	13	$ 8.00
22.9cm (9 in.)	PAPER	23	$ 5.00
45.7cm (18 in.)	PAPER	24	$20.00
68.6cm (27 in.)	PAPER	25	$25.00
91.4cm (36 in.)	PAPER	26	$35.00

COLOR/COLOR INFRARED

IMAGE SIZE	PRODUCT MATERIAL	PRODUCT CODE	UNIT PRICE
22.9cm (9 in.)	FILM POSITIVE	53	$25.00
22.9cm (9 in.)	PAPER	63	$15.00
45.7cm (18 in.)	PAPER	64	$35.00
68.6cm (27 in.)	PAPER	65	$50.00
91.4cm (36 in.)	PAPER	66	$70.00

PAYMENT MADE BY:
CHECK, MONEY ORDER ☐
PURCHASE ORDER ☐
GOVERNMENT ACCT. ☐
Refer to item "R" on reverse side.

UNIT PRICES SUBJECT TO CHANGE

* See item E reverse side

COMMENTS: _____

FORM: 9-1939
(April 1978)
Revised October 1981

RETURN COMPLETED FORM TO:
U.S. Geological Survey
EROS Data Center
Sioux Falls, S.D. 57198
FTS: 784-7151
Comm: 605/594-6151
TWX: 910-668-0310

For additional information or assistance please contact one of the following offices of the National Cartographic Information Center (NCIC).

U.S. Geological Survey
National Cartographic Information Center
507 National Center
Reston, VA 22092
FTS: 928-6045
Comm: 703/860-6045

U.S. Geological Survey
Eastern Mapping Center
National Cartographic Information Center
536 National Center
Reston, VA 22092
FTS: 928-6336
Comm: 703/860-6336

U.S. Geological Survey
Mid-Continent Mapping Center
National Cartographic Information Center
1400 Independence Road
Rolla, MO 65401
FTS: 277-0851
Comm: 314/341-0851

U.S. Geological Survey
Rocky Mountain Mapping Center
National Cartographic Information Center
Stop 504, Denver Federal Center
Denver, CO 80225
FTS: 234-2326
Comm: 303/234-2326

U.S. Geological Survey
Western Mapping Center
National Cartographic Information Center
345 Middlefield Road
Menlo Park, CA 94025
FTS: 467-2426
Comm: 415/323-8111

U.S. Geological Survey
National Cartographic Information Center
National Space Technology Laboratories
NSTL Station, MS 39529
FTS: 494-3541
Comm: 601/688-3544

PLEASE CONTACT THE NEAREST NCIC OFFICE FOR INFORMATION CONCERNING THE AVAILABILITY OF CARTOGRAPHIC PRODUCTS OTHER THAN IMAGERY.

HOW TO ORDER AERIAL MAPPING PHOTOGRAPHY

This order form is used to order either BLACK AND WHITE PHOTO INDEXES or INDIVIDUAL FRAMES of AERIAL MAPPING PHOTOGRAPHY.

Please provide the following information in the indicated areas of the order form:

A. List your complete NAME, ADDRESS, ZIP CODE, and name of your COMPANY if applicable.

B. If you desire to have the products mailed to an address or individual other than yourself, please complete the "SHIP TO" address.

C. List a PHONE NUMBER where you can be contacted during business hours.

D. If you have had previous business with the EROS DATA CENTER, please list your COMPUTER ACCOUNT NUMBER, if known.

E. Enter the complete PHOTO IDENTIFICATION NUMBER as follows:

PHOTO INDEX: This number can be transcribed directly from a computer listing. Format size must be ordered according to available FILM SOURCE. Size A is 10"x 12". Size B is all sizes larger than 10"x 12", with most 20"x 24".

QUADRANGLE NAME AND STATE: The quadrangle name can be transcribed directly from a Geological Survey state topographic map index. The latest Geological Survey coverage available will be selected when ordering a photo index using a topographic quadrangle name.

INDIVIDUAL PHOTOGRAPHS: This number can be transcribed directly from a PHOTO INDEX, by selecting the PROJECT, ROLL and FRAME NO. from the respective photographs. If only one frame of photography is being ordered, the column identified as LAST FRAME can be ignored, however, if more than one consecutive frame is required, please complete both the FIRST and LAST FRAME columns.

F. REVIEW the STANDARD PRODUCTS TABLE on the order form and determine the type of PRODUCT desired.

G. Enter the PRODUCT CODE of the type product being ordered from the STANDARD PRODUCTS TABLE.

H. If you are ordering MORE than one photograph from a roll, enter the TOTAL in the NO. OF FRAMES column. Example: FIRST FRAME - 106; LAST FRAME - 112; NO.OF FRAMES = 7.

I. The COMMENTS portion is completed when a CUSTOM PRODUCT is desired and you want to specify the parameters. Cost determination is normally based on three times the standard cost.

J. Enter the NUMBER of copies being ordered of that product in the QUANTITY column. When the NO. OF FRAMES column reflects more than one, it will be necessary to MULTIPLY that figure times the number of copies to derive the QUANTITY figure.

K. Enter the UNIT PRICE of the product as reflected in the STANDARD PRODUCTS TABLE.

L. MULTIPLY the figure in the QUANTITY column by the UNIT PRICE, and enter the result in the TOTAL PRICE column.

M. REPEAT the above for each product ordered.

N. TOTAL the costs of all products ordered on that form and enter the result in BLOCK A. (TOTAL ABOVE).

O. If more than one order form is required, enter the sum of the figures in BLOCKS A in BLOCK B of the last order form.

P. Enter the SUM of BLOCK A and BLOCK B in BLOCK C, (TOTAL COST).

Q. Indicate the TYPE of payment being made with a CHECK MARK. Make all drafts payable to DEPARTMENT OF THE INTERIOR-USGS. DO NOT SEND CASH.

R. Mail ORDER FORM(S) and PRE-PAYMENT to the EROS DATA CENTER. IF PAYMENT HAS BEEN PREVIOUSLY FORWARDED TO ANOTHER FACILITY, PLEASE FORWARD THIS ORDER TO THAT FACILITY FOR PROCESSING.

GEOGRAPHIC SEARCH FOR AIRCRAFT DATA
INQUIRY FORM

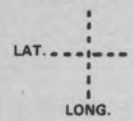
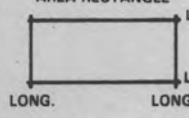
RETURN COMPLETED FORM TO: U.S. Geological Survey, EROS Data Center • User Services Section, Sioux Falls, SD 57198 • Comm: 605/594-6151, FTS: 784-7151 • TWX: 910-668-0310

DATE _____

NAME _____ (FIRST) (INITIAL) (LAST) **COMPANY** _____

ADDRESS _____ **CITY/STATE** _____ **ZIP** _____

PHONE (HOME) _____ **(BUSINESS)** _____ **EROS ACCOUNT NO.** _____ **REF. NO.** _____

POINT SEARCH	POINT NO. 1	POINT NO. 2	POINT NO. 3
 Imagery with any coverage over the selected point will be included.	LAT. ° ′ N LONG. ° ′ W	LAT. ° ′ N LONG. ° ′ W	LAT. ° ′ N LONG. ° ′ W
AREA RECTANGLE  Imagery with any coverage within the selected area will be included.	**AREA NO. 1** LAT. ° ′ N TO LAT. ° ′ N LONG. ° ′ W TO LONG. ° ′ W	**AREA NO. 2** LAT. ° ′ N TO LAT. ° ′ N LONG. ° ′ W TO LONG. ° ′ W	**AREA NO. 3** LAT. ° ′ N TO LAT. ° ′ N LONG. ° ′ W TO LONG. ° ′ W

If any of the above geographic references cannot be provided, please specify areas of interest by GEOGRAPHIC NAME AND LOCATION (include a map if possible).

PREFERRED SCALE

☐ LARGE (5,000-25,000) ☐ MEDIUM (25,000-60,000) ☐ SMALL (60,000-GREATER)

PREFERRED FORMAT

☐ BLACK & WHITE ☐ COLOR ☐ COLOR INFRARED

PREFERRED TIME OF YEAR

☐ JAN-MAR ☐ APR-JUNE ☐ JULY-SEPT ☐ OCT-DEC

☐ ALL COVERAGE ☐ LATEST COVERAGE ☐ SPECIFIC DATES _____

MINIMUM QUALITY RATING ACCEPTABLE

☐ (VERY POOR) ☐ (POOR) ☐ (FAIR) ☐ (GOOD)

MAXIMUM CLOUD COVER ACCEPTABLE

☐ 10% ☐ 30% ☐ 50% ☐ 70% ☐ 90%

NOTE:
Classification of percent of cloud cover is subjective and is relative to the amount of clouds appearing on the imagery and not on their location.

FOR INFORMATION OR ASSISTANCE PLEASE CONTACT
U.S. GEOLOGICAL SURVEY, EROS DATA CENTER
SIOUX FALLS, SD 57198
COMM: 605/594-6151•FTS: 784-7151

Comments: _____

_____

FORM 9-1936
October 1982

HOW TO REQUEST A GEOGRAPHIC SEARCH

This form is used to request a geographic search for Aircraft data over a point or area of interest. Aircraft coverage is not available for areas outside of the United States.

Data from this inquiry form will be used to initiate a computer Geosearch. The results will be returned on a computer listing along with a decoding sheet, from which photography can be selected and ordered.

Complete the form as follows:

A. Enter your NAME, ADDRESS, and ZIP CODE clearly. Enter a PHONE number where you can be reached during business hours.

B. Complete the required information for either the POINT SEARCH or AREA RECTANGLE inquiry, which includes the geographic LATITUDE and LONGITUDE coordinates. If coordinates are not available, please supply the GEOGRAPHIC NAME AND LOCATION or a map with the area of interest identified. Minimizing your area of interest will allow for a faster and more critical retrieval of information.

C. Complete all other information.

D. Complete the COMMENTS portion of the inquiry. Will it be used for interpretation, analysis, or will it be framed and placed on a wall? This information will assist our technicians in determining whether the products available will satisfy your requirements.

E. Return the completed form to the EROS DATA CENTER.

INFORMATION OR ASSISTANCE MAY ALSO BE OBTAINED FROM THE FOLLOWING U.S. GEOLOGICAL SURVEY, NATIONAL CARTOGRAPHIC INFORMATION CENTER, OFFICES

Eastern Mapping Center
536 National Center
Reston, VA 22092
FTS: 928-6336
Comm: 703/860-6336

Mid-Continent Mapping Center
1400 Independence Road
Rolla, MO 65401
FTS: 277-0851
Comm: 314/341-0851

Rocky Mountain Mapping Center
Stop 504, Denver Federal Center
Denver, CO 80225
FTS: 234-2326
Comm: 303/234-2326

Western Mapping Center
345 Middlefield Road
Menlo Park, CA 94025
FTS: 467-2426
Comm: 415/323-8111

National Space Technology Laboratories
NSTL Station, MS 39529
FTS: 494-3541
Comm: 601/688-3544

HEINRICHS GEOEXPLORATION COMPANY

P.O. BOX 5964, TUCSON, ARIZONA 85703. 806 WEST GRANT ROAD. PHONE: (602) 623-0578

May 8, 1984

Mr. Arthur Hendricks
Argosy Mining Company
5244 N. 25th Street
Phoenix, AZ 85016

Re: Supplemental Letter Report #3
Composite Geological and
Geochemical Mapping
Vekol Silver Mine, Pinal
County, Arizona
Geoex #1668

Dear Arthur:

Our original reports to you of 19 August 1983 and 4 November 1983 were strictly technical reports to the operations management on matters related to the history, geology and how the property should be explored for maximum yield and efficiency. We did not understand that there was any immediate desire for us to discuss the economic potential of the project or provide detailed costs and consequently did not address those issues. Since then, these particular points have come up and we are able to elaborate as follows.

The Argosy claims have produced, for the most part, ore directly shipped to smelters in the past, primarily small (from wash tub to room size) high grade pods reportedly running from 70 to 300 troy ounces of silver per ton. The main producing geological bed or horizon from which the past ore was mined, still underlies most of the area of the claims.

This horizon, referred to as the "favorable horizon" in our previous reports, has only been partly explored and developed within the area embraced by the claims. This means that a significant tonnage of low grade but economically leachable oxide ore may remain to be mined from the property. The possibility of developing such ore warrants detailed geologic mapping and sampling both surface and underground, followed by core drilling as was outlined in our previous reports. If sufficient encouragement is obtained from the results of this initial exploration work, followup exploration and/or development effort will be further justified.

A budget for the initial exploration, as proposed and recommended in our report of 4 November 1983, is as follows:

First Part: Open pittable Areas 1 thru 3:
Initial mapping and engineering layout of drill sites, technical labor and salaries.----------$4,600.00

Detailed mapping at 1" = 20' scale, sampling and assaying of open pitable area & technical labor and salaries.	$16,000.00
Drill site access and preparation.	5,900.00
Core drilling - 2,780 ft. @ $25.00/ft.	69,500.00
Drill supervising and logging - technical labor and salaries.	32,500.00
Assaying	7,750.00
Transportation & housing	6.750.00
Contingency, approximately 15%	21,500.00
First part total:	$164,500.00

Second Part: Surface drilling, PDP-1 thru PDP-5:

Detailed mapping at 1" = 20' scale, sampling and assaying, technical labor and salaries.	$12,000.00
Drill site access and preparation.	$15,000.00
Core drilling 1350' @ $25.00 & $30.00/ft.	64,000.00
Drill supervision and logging, technical labor and salaries.	25,000.00
Assaying	6,000.00
Transportation & housing	6,100.00
Contingency, approximately 15%	19,000.00
Second part total:	$147,000.00

Third Part: Underground drilling, PDP-6 thru PDP-12:

Detailed mapping at 1" = 20' scale, sampling and assaying, technical labor and salaries.	$ 46,700.00
Drill site access and preparation.	48,000.00
Core drilling, 6640 ft. @ $35.00/ft.	232,400.00
Drill supervision, logging and mining engineering technical labor and salaries	93,400.00

Third part Cont'd:

Assaying----------	19,500.00
Transportation & housing----------	22,000.00
Contingency, approximately 15%----------	69,000.00
Third part total------	$531,000.00

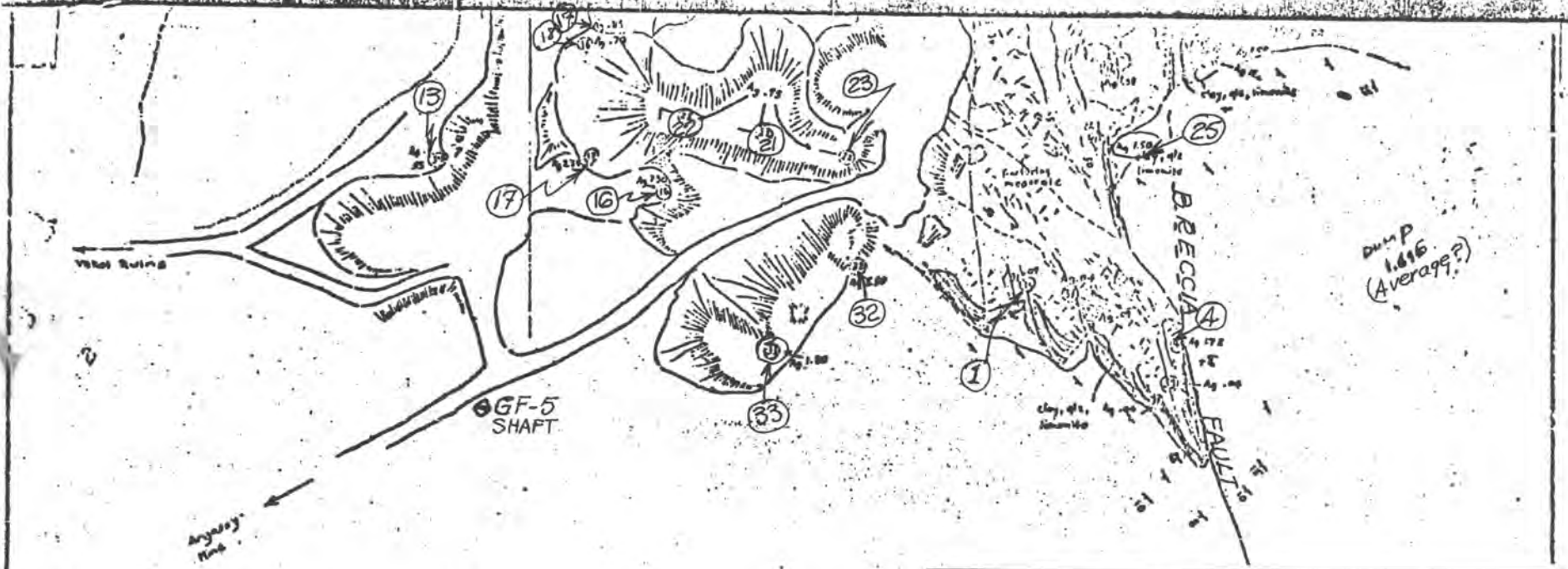
Respectfully submitted,
Heinrichs GEOExploration Company

Walter E. Heinrichs, Jr.
Geol. Engr.- Geophysicist
P.E. & C. P. G. S.

Richard B. Leisure
Richard B. Leisure
Exploration Geologist, Associate

WEH:jh

ORIG.



HEINRICHS GEOEXPLORATION COMPANY

810 W. GRANT ROAD, P.O. BOX 5964, TUCSON, ARIZONA 85703. PHONE: (602) 623-0578

EXPLANATION

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

ARGOSY MINING COMPANY
Vekol Silver Mine, Pinal County, Arizona
Duval Surface Samples, Series EX 1575
Plate 6

GEOEX #1668 4 November 1983

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 1" = 100'	PLATE

COMPOSITE GEOLOGICAL & GEOCHEMICAL MAPPING

for

ARGOSY MINING COMPANY
Vekol Silver Mine, Pinal County, Arizona

by

Heinrichs GEOEXploration Company, (Inc.)
810 West Grant Road
P. O. Box 5964
Tucson, Arizona 85703

Project #1668

4 November 1983

COMPOSITE GEOLOGICAL & GEOCHEMICAL MAPPING

for

Argosy Mining Company, Vekol Silver Mine, Pinal County, Arizona

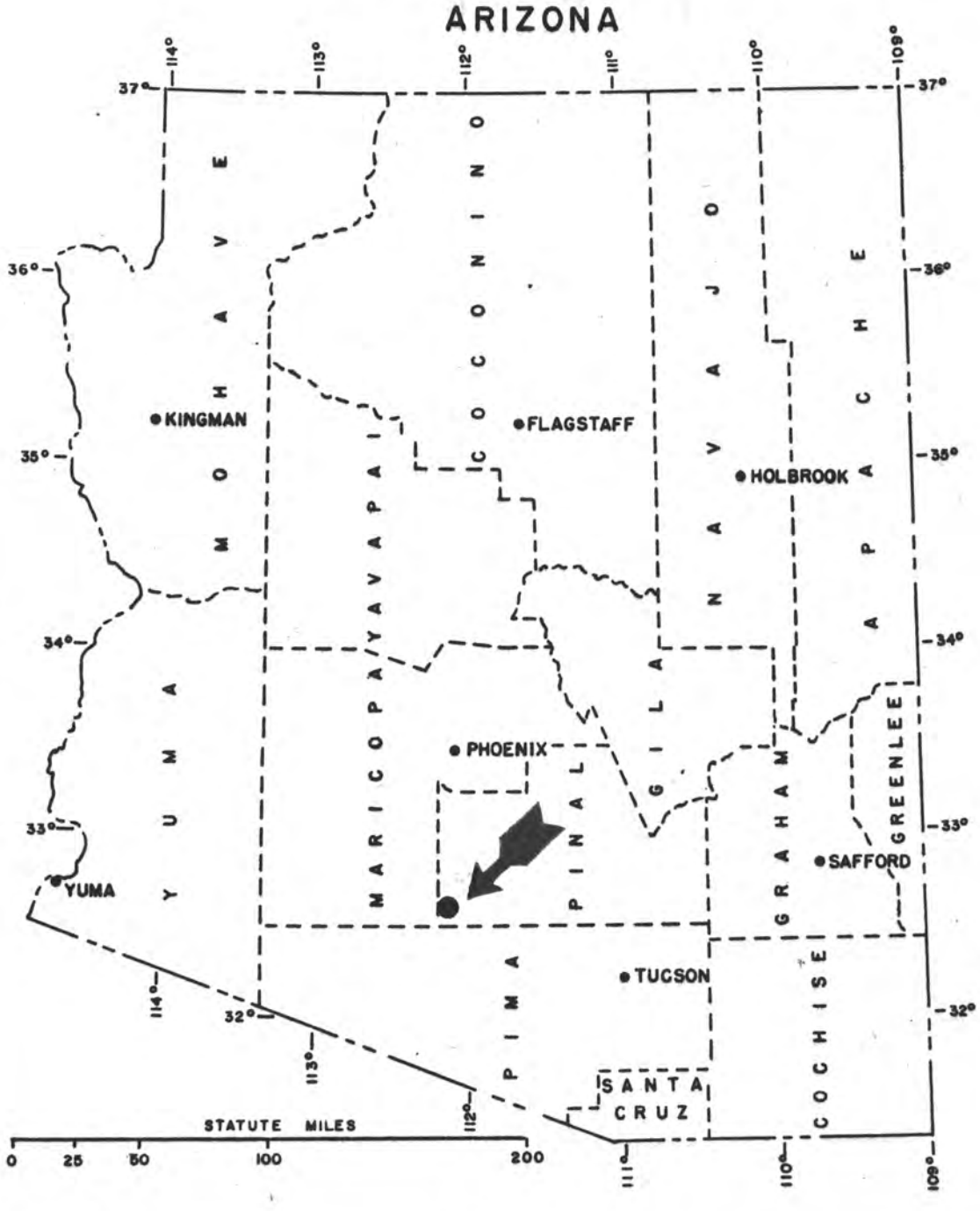
TABLE OF CONTENTS

	Page
Index Map----------Following Title	
RECOMMENDATIONS----------	1
First part of drilling program----------	1
Area 1 ----------	1
Area 2 ----------	1
Area 3 ----------	1 & 2
Second part of drilling program----------	2
Proposed drill pad No. 1----------	2
" " " No. 2----------	2
" " " No. 3----------	2
" " " No. 4----------	2 & 3
" " " No. 5----------	3
Third part of drilling program----------	3
Proposed drill pad No. 6----------	3
" " " No. 7----------	3
" " " No. 8----------	3
" " " No. 9----------	4
" " " No. 10----------	4
" " " No. 11----------	4
" " " no. 12----------	4
Summary of Drilling Recommendations----------	5 & 6
GENERAL GEOLOGY----------	7 - 9
Signature page----------	9
Geologic and Topographic Map of Vekol Silver Mine Area (Master Base) Plate 1	In Pocket
Cross Sections: A-A' - Plate 2----------	"
B-B' - Plate 3----------	"
C-C' - Plate 4----------	"
D-D' - Plate 5----------	"
Duval Surface Sampling Sketch - Plate 6----------Following page 9	
Open Pittable Area Map Plate 7----------	"
Fault Block Sketch Plate 8----------	"
Field Notes Sketch Main Adit 2400'level---------- (2400' to 2335')	In Pocket
APPENDIX - List of appended material----------	10

GENERAL LOCATION OF

THE VEKOL SILVER MINE AREA

PINAL COUNTY, ARIZONA



GEOEX Project #1668

November 4, 1983

HEINRICHS GEOEXPLORATION COMPANY

806 W. GRANT RD., P.O. BOX 5964 TUCSON, ARIZ. 85703. PH: (602) 623-0578

RECOMMANDATIONS

In order to evaluate and, if successful to develop, on-going reserves of leachable ore, geologic mapping completed to date indicates that a program of core and/or rotary types of drilling should be started, preferably within several months after the present leaching program under development comes into production. The following drilling program is designed to provide representative assay columns and to explore from from the surface immediately available open-pittable exposures of the favorable horizon (see section on General Geology below) which outcrops at or very near the surface. In addition, sites for proposed drilling pads have been located to best explore and provide representative assay data on fault blocks containing the favorable horizon where it has not been sufficiently explored by underground workings, these additional sites include both surface and underground locations.

First part of the drilling program explores from the surface three contiguous open-pittable areas as delineated generally on Plate 1 and more specifically on Plate 7.

Rectangular Area No. 1, which contains the Esperanza Shaft and underground level, has an estimated maximum volume of 180 ft. by 200 ft. by 60 ft. thick or 172,800 short tons (i.e. 2,000 lbs) assuming an in place bulk density factor of 12.5 cubic feet per ton. The grade of this block should be determined by 25 vertical holes each 60 ft. deep on a pattern of 50 ft. centers. A sub-total of 1,500 ft. of drilling is indicated.

Triangular Area No. 2, north of the Main Portal, contains an estimated maximum volume of 400 ft. by 200 ft. by 1/2 (area of triangle factor) by 40 ft. thick or 144,000 short tons. Its grade should be determined by 25 vertical holes each of 40 ft. deep on a pattern of 50 ft. centers. A sub-total of 1,000 ft. of drilling is indicated.

Triangular Area No. 3, west of Dagg's Tunnel, contains an estimated maximum volume of 330 ft. by 130 ft. by 1/2 (area of triangle factor) by 20 ft. thick or 34,320 short tons. Its grade should be determined by 14 vertical holes each 20 ft. deep on a pattern of 50 ft. centers. A sub-total

of 280 ft. of drilling is indicated.

Combining the figure from the three areas, yields a total of 2,780 ft. of drilling which would determine the grade in silver of 351,000 tons of open-pittable material from within the favoragle horizon.

If all of the 2,780 ft. of drilling were assayed on 20 ft. intervals it would yield 139 assays on which to design a single open pit with 20 ft. benches and known waste to ore ratio.

Second part of the drilling program would explore from the surface various named fault blocks in which the favorable horizon has not been sufficiently explored by underground workings. This part of the program also includes and would penetrate several fault blocks about which we have no information regarding the favorable horizon; in the fact that it does not outcrop and has never been drilled.

At Proposed Drill Pad No. 1 a 150 ft. vertical drill hole to penetrate the favorable bed would be the first known exploration into the Beta Fault Block which is bounded by the Mill Fault and the Tertiary Andesite Dike. Also four 60° declined holes of 200 ft. each could be drilled from the same pad if the initial assays justify additional exploration of the Beta Fault Block.

Up to now the geology does not indicate a possibility for much ore in the Alpha Fault Block, and no expenditures should be considered in that block at present.

At Proposed Drill Pad No. 2, two 30° declined holes 200 ft. long would prospect the intersection of the faults and the favorable horizon between caved tunnel LO-4 and the 15 ft. deep shaft LO-3.

At Proposed Drill Pad No. 3, a single 30° declined hole 100 ft. long would begin to prospect the favorable horizon down-dip from the high geochemical anomaly at GCS-4.

A Proposed Drill Pad No. 4, a single 30° declined hole 100 ft. long would begin to prospect the favorable horizon down-dip from the high

geochemical anomaly at GCS-8.

At Proposed Drill Pad No. 5, three 30° declined holes of 200 ft. each would begin to prospect the favorable horizon from which a small shipment of high grade ore was shipped in 1932, the remaining wall rock being copper stained and giving the high geochemical anomaly at GCS-12 and GCS-13.

This second part of the drilling program involving the five surface drill pads would total 2150 ft. of drilling of both vertical and variously declined holes.

The third part of the drilling program would involve the more difficult and costly location of proposed drilling pads within underground workings. The underground geologic mapping has shown that excessively long drill holes of 200 to 300 ft. from the surface through the barren Naco Formation could be avoided by underground drill sites that would start each drill hole in or near the favorable horizon. The drill holes would be horizontal; or inclined 30° upward or downward. Each drill pad would require some hand mucking, some timbering and the supplying of compressed air or electricity to the drill face. The proposed underground drill pads include:

Proposed Drill Pad No. 6 at the end of Dagg's Tunnel, a reportedly 100 ft. long tunnel which goes S 30° E along Daggs' Fault and declines slightly as it follows the favorable horizon. Three drill holes of 200 ft. each in a fanned pattern would explore and assay the favorable horizon in its underground position in the area toward shafts GF-5 and VK-5. These drill holes would also begin to explore the Epsilon Fault Block.

Proposed Drill Pad No. 7 at the bottom of Shaft GF-5, a 44 ft. deep shaft which bottoms in the contact shale to 10 ft. above the favorable horizon. An 80 ft. vertical hole and four 120 ft. inclined holes would explore the area below the bottom of the shaft.

Proposed Drill Pad No. 8 at the end of the inclined underground workings which we recently found in the favorable horizon to the south of Shaft VK-5 and near Daggs' Fault would explore the virtually unexplored

part of the Epsilon Fault Block. Three holes declined at 30° to stay within the favorable horizon and fanned out to a length of 200 ft. each are recommended.

Proposed Drill Pad No. 9 at the bottom of the 215 ft. deep Argosy Shaft would allow westward inclined holes 20° upward and downward into the unexplored Gamma Fault Block on the west side of Breccia Fault to explore the favorable horizon. A total of six 200 ft. long holes could be drilled here.

Proposed Drill Pad No. 10 at the southern most underground workings on the Argosy Level (from bottom of Argosy Shaft) would allow southward inclined holes 20° upward and downward into the unexplored Mount Vernon Fault Block on the south side of Argosy Fault to explore the favorable horizon. A total of six 200 ft. long holes could be drilled.

Proposed Drill Pad No. 11 at the far eastern most underground workings of the Argosy Ore Bin Level (2320 ft. level) would allow eastward inclined holes 20° upward and downward across Zinc Fault in to the unexplored part of Lookout Fault Block. A total of six 200 ft. long holes could be drilled.

Proposed Drill Pad No. 12 at the bottom of the 146 ft. deep Combination Shaft which bottoms in the favorable bed and also is the location of GCS (Geochem Sample) - 19, would allow extensive drilling into the favorable horizon in the Epsilon Fault Block. Because the bottom of the shaft contains a 10 ft. sump and two 10 ft. long levels in opposite directions the situation would allow an 80 ft. vertical hole and at least six 200 ft. long holes inclined 30° downward or upward along the favorable horizon.

NOTE: A particular hazard may exist in the preparation of this drill pad since 20 wooden boxes, many containing dynamite have been stored from an unknown date in one of the levels.

This third part of the drilling program involving the six underground drill pads would total 5,440 ft. of drilling.

SUMMARY OF DRILLING PROGRAM

Regarding all of the above mentioned drill holes the choice of which type of drilling to be performed; core drilling vs. the various types of rotary drilling must be considered from an engineering view point. This includes cost per foot, desired reliability of assay data, desired detail of geological information, availability of drills and crews and the decision to purchase or contract equipment and crews.

The three parts of the drilling program have been presented by their desirability, ease and cost as 1st, 2nd and 3rd. The open pittable areas are numbered by most importance and desirability 1 through 3, the proposed surface drill pads are not numbered by importance but rather from north to south. Therefore their importance and desirability listed in decreasing order of priority is PDP's 5, 4, 1, 2, 3. The proposed underground drill pads will be the most difficult and expensive and are listed in approximate order of importance.

Before selected parts of the drilling program are initiated the three open-pittable areas and the various proposed drill pads would have to be cleaned by dozer and/or manual labor ideally to allow for detailed geological mapping on the scale of 1 inch = 20 ft. This mapping is required to best allow for the final determination of the drill hole bearings, angles of inclination and total lengths.

Steven Hindricks has been given a separate map showing where fifteen triangulation points are to be set up with metal pipe and flagging, and two triangulation points have already been established. These points will greatly help determine location of geological features in the field, and later on for aerial photographic and other important engineering control factors.

The above recommendations are based on the geologic possibility that undiscovered oxide mineral bodies exist outside the area of the previous mine workings.

If any attempt is made to find relatively greater tonnage but lower grade oxide mineral zones within the previously explored and mined workings, a composite underground base map at the scale of 1 inch = 20 ft. should be drafted. This map can be initiated as an office project involving photographic enlargement and drafting of already existing maps, including: Mitke's 1932 base map at 1 inch = 40 ft., Larson and Pond's 1983 base map at 1 inch = 50 ft., Carpenter's 1945 plates 9 and 10 at 1 inch = 50 ft., and Geoex's 1983 geologic mapping at 1 inch = 50 ft. However, during the posting of all previously known geologic and engineering data this base map would have to be field checked and additional information added to assure accuracy of the final map.

This map would then provide a geologic and engineering base for underground drilling within the mine workings which are mainly confined to the Gamma Fault Block and Lookout Fault Block (see accompanying Plate 8).

GENERAL GEOLOGY

The general geology of the Vekol Silver Mine area was initially covered in our Phase 1 a report of 19 August 1983 (GEOEX #1650, appended) The major expression consists of a north-west trending ridge of Paleozoic limestones, dolomites, shales and quartzites. This 1,600 ft. thick series of sedimentary rock has been cut at two places by much younger Tertiary andesite dikes. One igneous andesite dike cuts east-west through the Vekol Silver Mine area at the main Vekol Shaft and another east-west dike cuts through the Great Eastern Mine 1,300 ft. south of the Vekol property. Whether this geometric association is coincidental or related to possible origin of the sulfide ore bearing solutions has not been determined.

The entire sedimentary rock section strikes northwest parallel to the ridge and dips about 33^{0} to the southwest, going under alluvial gravel cover just west of the Vekol property.

The uppermost limestone unit is called the Naco Formation. The Naco Formation also contains various beds of shale, two of which are mapped on Plate 1. One is an upper bed of shale 40 ft. thick known as the Brick-Red shale member. The second and most important is a 10 ft. thick red shale known as the Contact Shale which defines the base of the Naco Formation.

Just below the Contact Shale is the Escabrosa Limestone whose 20 to 80 ft. uppermost part is the host rock for the manto type silver-bearing lead and zinc sulfide bodies known to date.

This 20 to 80 ft. uppermost part is known as the Favorable Horizon because it has been mineralized by small pods and stringers of lead the zinc sulfide, extensively altered to an iron rich dolomite and intensly fractured and faulted.

The Contact Shale apparently acted as an impervious barrier to the upward moving sulfide solutions causing them to move horizontally

along the bottom of the Contact Shale and precipitate the sulfide minerals in the uppermost part of the Escabrosa Limestone.

The subsequent oxidation of these sulfide minerals by downward moving surface-water along prominent faults, produced the rich pockets of silver oxide ore which were extensively mined in the past. The best silver oxide ore was reportedly found at the intersection of the most prominent northwest trending faults which continue to the surface, and with the strongest sulfide mineralization localized in the favorable horizon.

The silver oxide minerals have not migrated far from their point of sulfide origin and are thus also found within the favorable horizon.

The Escabrosa Limestone and its uppermost favorable horizon underlies all of the Vekol property to the west of the outcrop of the Contact Shale, or approximately 90% of the patented claim area.

Since detailed geologic mapping on the surface and underground has found more faults than previously indicated, the potential for unexplored and undiscovered intersections of faults and the favorable horizon has greatly increased. And, it is these zones that we have recommended be explored.

In the past successful mining was limited to rich pods and pockets of high grade silver ore having 70 to 300 ounces per ton but limited to "washtub to room-sized bodies".

More recently leasees have tried to develop underground tonnage for bulk mining of remaining wall rock and pillars within the mined areas, which seem to average as low as 2 to 6 ounces per ton. These efforts did not result in the mining of any significant ore.

Geochemical Assay Results

Nineteen samples as listed in the appendix were taken by GEOEX. An interpretation of the results was used in the location of the proposed

surface drill pads.

The samples confirmed visual observations of strength of alteration and evidence of possible sulfide mineralization as the favorable bed went from outcrop into the sub-surface.

Other assay data are included in the following Appendix material. These data were derived from outside sources considered reliable and were used in our interpretation. The underground data included were plotted on the attached copy of Mitke's base map.

Respectfully submitted,

Walter E. Heinrichs, Jr.
Geological Engineer-Geophysicist
P.E. & C.P.G.S.

Richard B. Leisure, Exploration Geologist

APPENDIX

List of Appended Material Which Follows:

Assay Table - Copper State Analytical Lab, Inc.---------- 1 page
Assay Table - Duval---------- 2 pages
Carpenter Thesis (Plate 9)---------- 1 page
Carpenter Thesis (Plate 10)---------- 1 page
Argosy Level Field Notes Sketch---------- 1 page
Argosy Ore Bin Level Field Notes Sketch---------- 1 page
Duval Underground Sampling---------- 1 page
GEOEX Project #1650, Aug. 19, 1983---------- 5 pages
Bibliography---------- 4 pages

Courtesy: DUVAL CORPORATION

Copper Division - Esperanza Property
Sahuarita, Arizona

CERTIFICATE OF ASSAY

Aug. 25, 1966

Special for Geol. Dept. (C.L.)

Marks, etc.	ppm Cu	ppm Pb	ppm Zn	Oz / ton Au	Oz / ton Ag	Description
EX 1575-						
14	470	3100	7500	Nil	2.10	Concentrate (Don Coombs)
15	21	40	60	Nil	.02	Contact Limestone/Andesite
16	480	6800	16,000	Nil	2.30	)
17	460	3100	9000	Nil	2.33	)E-W lower dump, Dozer Sampling
18	78	1800	4200	Nil	.70	) (later moved for leaching)
19	180	2800	10,000	Nil	.85	)
20	38	60	185	Nil	.12	4½ mi. N of Vekol Mine, Diorite
21	80	1600	4000	Nil	.57	21 - 34 Dumps (later moved & leached)
22	157	1450	4900	Nil	.95	
23	680	3300	12,500	Nil	4.80	
24	1160	8000	29,000	Nil	7.30	
25	195	9000	10,300	Nil	1.50	
26	110	1350	4500	Nil	.75	
27	168	3200	8100	Nil	2.60	
28	200	2800	6500	Nil	1.70	
29	890	1000	28,000	Nil	11.46	
30	28	1000	400	Nil	.60	
31	190	4500	5000	Nil	2.70	
32	540	7000	1900	Nil	5.50	
33	830	25000	4000	.002	1.80	
34	22	500	140	Nil	.05	
35	250	1900	3000		.09	Samples 35 - 45 Cuts along dolomite, mostly strongly altered (jasperoide, clay limonite)
36	28	275	200		.09	
37	28	288	200		.04	
38	32	350	300		.04	
39	32	250	125		.04	
40	765	5000	14,000		1.73	
41	167	1300	1850		1.50	
42	45	1300	1680		.58	
43	35	200	190		Nil	
44	80	3000	8560		1.00	
45	130	1200	1430		.22	
46	40	150	100		.09	) (Devonian Martin)
47	32	150	100		.13	) Abrigo (grab & chip)
48	32	250	100		.09	) Quartzite (grab & chip)
49	45	1000	800		.18	Samples 49-59 Underground samples plotted on Mitke's 1932 base.
50	102	1900	1650		.18	
51	102	2000	1650		.40	
52	36	1400	3460		.22	
53	157	1500	1260		.26	

Courtesy: DUVAL CORPORATION

Copper Division - Esperanza Property
Sahuarita, Arizona

CERTIFICATE OF ASSAY Aug. 25, 1966

Special for Geol. Dept. (C.L.)

Marks, etc.	ppm Cu	ppm Pb	ppm Zn	Oz / ton Au	Ag	Description
EX 1575-						
54	483	2400	4570		.22	
55	46	900	500		.17	
56	272	1000	970		5.40	
57	220	3000	14,200		1.70	
58	455	14000	15,800		2.00	
59	35	1000	560		Nil	

COPPER STATE ANALYTICAL LAB., INC.

DNYANENDRA A. SHAH
ARIZONA REG. NO. 8888

REGISTERED ASSAYER
P. O. BOX 7517
TUCSON, ARIZONA 85725

710 E. EVANS BLVD.
PHONE 602-884-5811
884-5812

Heinrichs GEOEX
Box 5964
Tucson, AZ 85703

JOB# 002589
RECEIVED 10/12/83
REPORTED 10/21/83
INVOICE# C 2866

GEOEX Project #1668

SAMPLE NUMBER	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Au opt	Ag opt	
GCS-#1	2.0	2	28	62			
2	1.6	4	16	60			
3	2.2	8	24	66			
4	2.0	10	26	68			
5	1.4	12	18	38			
6	0.6	14	24	50			
7	0.3	18	11	52			
8	<0.1	8	22	60			
9	2.6	10	28	80			
10	1.0	12	60	160			
11	1.2	12	14	16			
12	6.0	508	0.18%	580	.004	0.16	
13	1.8	16	32	116			
14	0.1	18	18	14			
15	<0.1	4	18	12			
16	13.0	4	224	169			
GCS-17	0.7	6	216	101			
18	6.1	4	360	210			
19	3.8	2	20	101			

RECEIVED
OCT 24 1983
BOX 5964
TUCSON, AZ. 85703

REGISTERED ASSAYER
CERTIFICATE NO.
8888
Dnyanendra
Amrutlal Shah
DATE SIGNED
Arizona U. S. A.

10-21-83

1 ppm = 0.0001% 1 troy oz./ton = 34.286 ppm 1 ppm = 0.0292 troy oz./ton

* Gold and Silver reported in troy oz. per 2,000 lb. ton.

Report
Phase 1(2)

(2021-22)
Palwal

HEINRICHS GEOEXPLORATION COMPANY

P.O. BOX 5964, TUCSON, ARIZONA 85703, 806 WEST GRANT ROAD, PHONE: (602) 623-0578

August 19, 1983

Mr. Arthur Hendricks
Argosy Mining Company
5244 N. 25th Street
Phoenix, AZ 85016

Re: GEOEX #1650
Vekol Mine
Pinal County, AZ

Dear Mr. Hendricks:

Enclosed are two copies of our letter report on the literature research and related matters (Phase 1(a) of our proposal to you). Your check was received in this morning's mail. Many thanks.

As anticipated, considerable useful data was found and utilized. This is reflected in Mr. Leisure's report. Your questions and comments regarding the report are solicited, and perhaps a get-together with you should be scheduled at our mutual convenience as the next step. Current availability for the proposed follow up work by Mr. Leisure is good. Right now, we could initiate such work on about three days notice - subject to prior commitments, of course. No one has had opportunity yet to look into trailer cost and availability but we do not visualize this to be too much of a problem.

This has been a very busy Friday and that is why I haven't yet been able to return your call of early this morning. I expect to be away next week until Thursday morning, but Mr. Leisure can be reached at his Tucson residence phone 747-3793.

If our office manager Mrs. Turner has time today, our phase 1(a) final statement will be enclosed. Otherwise it will follow next week.

Faithfully,

Heinrichs GEOEXploration Co. (Inc.)

Walter E. Heinrichs, Jr.
President

WEH:mt
Enclosures

HEINRICHS GEOEXPLORATION COMPANY

P. O. BOX 5964, TUCSON, ARIZONA 85703. 806 WEST GRANT ROAD. PHONE: (602) 623-0578

August 19, 1983

Argosy Mining Company
5244 N. 25th Street
Phoenix, AZ 85016

Attention: Mr. Arthur Hendricks

Re: GEOEX JOB #1650, Phase 1a
Vekol Mine & Vicinity
Pinal County, Arizona

Dear Mr. Hendricks:

Please find enclosed Phase 1a Bibliography and this letter report by Richard B. Leisure, Exploration Geologist.

A one week office study of the material listed in the bibliography brought to light the following information which bears directly on the Phase 1(b) and 1(c), surface and underground mapping as we proposed. The accompanying bibliography includes 35 items.

General

Surface mapping will require less regional mapping than originally envisioned, and detailed local surface mapping will take us only briefly outside the patented claim boundaries by approximately 300 feet. Therefore our arbitrarily limited estimate for Phase 1b remains at $3500.00.

The underground map of Vekol Mine by Mitke, 1932, shows more stopes and drifts than recently mapped by Larson and Pond. Old reports mention as much as eight miles of underground workings. The Mount Vernon prospect at one time had 90 feet of tunnel, which should be cleaned out and prospected. On the basis of these new ideas our item 1(c) estimate of 4100 feet of apparently accessible workings is probably a lower limit figure. However, since we will be mapping a limited number of geological parameters as listed under field mapping, our arbitrarily limited estimate for Phase 1 c remains at $10,000.00, but I can foresee a need for some new ladder work to provide access to critical points in the mine, and perhaps the cleaning of old prospect pits and tunnels.

Geology

The only target of economic interest seems to be the mineralized and dolomitized upper horizon of the Escabrosa limestone within a few tens of feet below the Contact Shale Bed. This horizon apparently has been the most reactive to the mineralizing solutions.

This favorable horizon seems to be uniformly widespread throughout the top and west side of the northwest trending Vekol Mine Ridge and even extends as far south as the Great Eastern Mine.

The favorable horizon strikes NW parallel to the Vekol Mine Ridge and dips 20-30° SW. It reportedly may be 100 ft. thick.

The economic target is oxide ore to a certain depth from the present land surface and sulfide ore below that depth. This depth will likely vary in absolute elevation from place to place.

The channel ways for the mineralizing solutions seems to have been the two main systems of faults and fractures. The major system described as striking N 10-20° W, dipping from 70°E to 70°W and a minor system described as striking N 70-80°E and dipping 80°N.

A system of igneous intrusives; described by Carpenter as the Tertiary Andesite Vekol Dike; by Mitke as altered intrusive porphyry (talc) sills; and by Tenney as Diorite Porphyry dikes; seems to have followed the same general path as the mineralizing solutions. This igneous system may well have been the immediate source of the mineralizing solutions.

The time relationship between the mineralization, faulting and igneous dike intrusion is complex and poorly known.

Upon a preliminary study of Carpenter's Plate No.8, the Geologic and Topographic Map of the Vekol Mine Area,I have designated (Fig. 1) a series of seven fault blocks as follows:

Alpha Fault Block - Bounded on south by Vekol Andesite Dike, on west by Mill Fault.

Lookout Fault Block - Bounded on north by Vekol Andesite Dike, on west by Breccia Fault, on south by Argosy Fault.

Mount Vernon Block - Bounded on north by Argosy Fault, on west by Breccia Fault Extension.

Beta Fault Block - Bounded on east by Mill Fault, on south by Vekol Andesite Dike, on west block is covered by Quaternary Valley Alluvium.

Gamma Fault Block - Bounded on north by Vekol Andesite Dike, on east by Breccia Fault, on west by Daggs Fault.

Epsilon Fault Block - Bounded on north by Vekol Andesite Dike, on east by Daggs Fault, on west by Smith Fault.

Grandfather Fault Block - Bounded on north by Vekol Andesite Dike, on east by Smith Fault, on west block is covered by Quaternary Valley Alluvium.

Determination of Ore Reserves

Ease or difficulty of prospecting each block varies with the following factors:

1. Geological Factors

   Outcrop of favorable horizon
   Thickness of limestone above favorable horizon
   Complexity of faulting
   Recognition of mappable beds within massive limestone

2. Engineering Factors

   Amount of underground access within fault block
   Mobility of drill rig on surface
   Configuration of Patented Claims

My ideas on the individual fault blocks are as follows:

Alpha Fault Block

The outcrop of the favorable horizon abruptly goes northwest outside the limits of the Vekol patented claim, thus severely limiting the chance of developing ore, even though the Vekol (400 ft) Shaft is on the edge of this block.

Lookout Fault Block

This contains most of the past production and has probably been mined out except for the eastern part where the favorable horizon should outcrop. Reports indicate little underground prospecting beyond the faults bounding the west and south sides of this block.

Mount Vernon Block

This is the most promising of the seven blocks. The Mount Vernon Prospect and 90 foot tunnel on the east edge should be cleaned out and prospected. The block contains the favorable horizon within easy reach of both underground and surface drill sites.

Beta Fault Block

The favorable bed does not outcrop and the base of the favorable horizon would be approximately 370 vertical feet from surface and 100 to 300 horizontal feet from the bottom of Vekol (400 Ft) Shaft. The configuration of Grandfather Patented Claim limits the prospecting potential of this fault block.

Gamma Fault Block

This block is entirely within patented claims and can be prospected easiest by underground drilling from the bottom of Argosy (215 Ft.) Shaft. This block is second in prospecting potential after Mount Vernon.

Epsilon Fault Block

The favorable horizon outcrops at only the northeast corner, but old maps show a shaft called Combination Shaft which might be cleaned out. The base of the favorable horizon would be from 0 to 370 feet below the surface.

Grandfather Fault Block

The favorable horizon does not outcrop and no exploration of this block is known. The horizon would be at least 370 feet below surface and projects below valley alluvium. This block will be the most difficult to prospect of the seven blocks.

Field Mapping

Phase 1b & 1c surface and underground mapping should produce the following maps at a scale of 1 inch = 100 Ft.

1. Structural Contour and Partial Assay Map of Favorable Horizon (Mineralized and Dolomitized Upper Horizon of Escabrosa Limestone).

2. Structural Contour Map on Base of Contact Shale Bed in Lowermost Naco Limestone.

3. Structural Contour Map on Base of Carpenter's Naco Bed (d.) soft brick red shale, 40 feet thick, 130 feet above base of Naco Limestone.

4. Isopach Map of Vertical Distance From Surface to Favorable Horizon.

5. Geologic Map of Igneous Dikes and Sills.

6. Preliminary Cross-Sections Through Proposed Drill Sites.

Phase 2 detailed mapping would produce some of the above maps and cross sections at a scale of 1 inch = 50 Ft. or 1 inch = 25 Ft.

Specific Recommendations

Enlarge photographically by 2X Carpenter's Plate No.8 to produce a surface base map at a scale of 1 inch = 100 feet.

Reduce photographically by 4/5X Mitke's underground mine map of September 2, 1932 to produce an additional underground base map at a scale of 1 inch = 50 feet.

The Mount Vernon prospect and its reportedly 90 feet of tunnel should be cleaned out for mapping and sampling.

Wooden ladders should be made to provide access to critical underground workings for mapping and sampling.

The new aerial photographic coverage of the patented claims as discussed by Walter Heinrichs does not appear to be a critical item at this time.

Respectfully submitted,

Richard B. Leisure
Exploration Geologist

Richard B. Leisure

Walter E. Heinrichs, Jr.
Geological Engineer - Geophysicist
P.E. & C.P.G.S.

BIBLIOGRAPHY

VEKOL SILVER MINE AND VEKOL MOUNTAINS

PINAL COUNTY, ARIZONA

August 19, 1983

Best Information

The Geology and Ore Deposits of the Vekol Mountains, Pinal County, Arizona, by Robert H. Carpenter, Stanford University PhD Dissertation, July 1947.

Geology of Vekol Mountains & Vicinity from thesis of R. H. Carpenter, July 1947. Topography from U.S.G.S. Vekol Mountain Quadrangle, 1963. Scale: 1" = 1000'. This is an ink on mylar tracing of Plate 3 of Carpenter.

Vekol Mine - Main Shaft to Argosy 1150', Blue Print Map by C.A. Mitke, Casa Grande, Arizona, Scale: 1" = 40'. Map Size 17.5 X 35. inches. Underground Mine Map dated September 2, 1932.

Reconnaissance Geologic Map of Vekol Mountains Quadrangle, Arizona, by Roger Dockter and William Keith, 1978. Scale 1:62500, 1 inch = 1 mile. U.S. Geological Survey. Miscellaneous Field Studies Map MF-931.

Reports by Consulting Geologists

Geological and Feasibility Overview of the Vekol Mine, Pinal County, Arizona, by Keith C. Crandall, Consulting Geologist, Mesa, Arizona, November 8, 1978. 13 pages.

Letter by D. W. Litchfield and Associates, Inc., October 12, 1978, 2 pages.

A Compilation of Reports on the Vekol Silver by Hamilton A. Higbie, Registered Geologist, Scottsdale, Arizona, January 12, 1969. 30 pages.

Vekol Mine Report by C. A. Mitke, Casa Grande,Arizona, August 30, 1932, 11 pages with three pages of Smelter Returns, 3 figures.

Regional Geology

Economic Geological Reconnaissance of Casa Grande Mining District, Pinal County, Arizona by J. B. Tenney, 1934, 24 pages.

Younger Precambrian Geology in Southern Arizona by A. F. Shride, 1967, U.S. Geological Survey Professional Paper 566, 89 pages.

Precambrian and Paleozoic Sedimentary Rocks on the Papago Indian Reservation, Arizona, by Neal E. McClymonds, pp 77-84, in Southern Arizona Guidebook II, Edited by L. A. Heindl. 1959

Stratigraphic Relations of the Bolsa Quartzite, Vekol Mountains, Pinal County, Arizona. U.S. Geological Survey Jour. Research, Vol. 2. No. 2, p. 143-146, by M. A. Chaffee, 1974.

Younger Precambrian Formations and the Bolsa (?) Quartzite of Cambrian Age, Papago Indian Reservation, Arizona in Geological Survey Research 1964, U.S. Geol. Survey Prof. Paper 501-C, p. C43-49, by L. A. Heindl and N. E. McClymonds,1964.

Devonian Rocks and Paleogeography of Central Arizona, by Curt Teichert, 1965. U.S. Geological Survey Professional Paper 464, 181 pages.

The Mississippian and Pennsylvanian Systems in the United States-Arizona by H. Wesley Peirce, 20 pages, in U.S. Geological Survey Professional Paper 1110, Section Z.

Possible Arizona Faulting as Suggested by Mississippian Facies Analysis and Plate Tectonics - A Strato Tectonic Approach by W. J. Purves, 1976, in Tectonic Digest Ariz. Geol. Soc. Digest v.10, p259-286.

Introduction and Regional Analyses of the Pennsylvanian System, Part 1 of Paleotectonic Investigations of the Pennsylvanian System in the U. S. - Arizona, by Edwin McKee in U.S. Geol. Survey Prof. Paper 853 Pages 295-309.

The Pennsylvanian System of S. E. Arizona by K. C. Havenor, 1959, in Arizona Geol. Soc. Guidebook II, p 34-37.

Cretaceous Paleogeography of Southeastern Arizona and Adjacent Areas, by P. T. Hayes 1970, U.S. Geol. Survey Prof. Paper 658-B, 42 pages.

Mesozoic Formations in the Vekol Mountains, Papago Indian Reservation, Arizona by L. A. Heindl, 1965, p G1-G9. in U.S. Geological Survey Bulletin 1194-G.

Geophysical Reports

Geologic Report Supporting Lease Application in Vekol and Quijotoa Areas, Papago Indian Reservation Arizona by Stebbins Mineral Surveys Incorporated, Old Greenwich, Connecticut, July 1964.

Report of Mineral Exploration Throughout the Papago Indian Reservation, Arizona for the Papago Exploration Company, September 1961 - October 1963, by Stebbins Mineral Surveys Incorporated, Old Greenwich Connecticut, November 1963.

Report on a Combined Induced Polarization and Resistivity Survey at the Vekol Mine, Pinal County, Arizona by GEOEX, Job No. 270-68, for Gunnex Limited, Toronto, Canada, December 1968.

Report on a Seismic Survey, Kohatk to Reward Mine, Papago Indian Reservation, Arizona U.S.A., by Hunting Survey Corporation Limited, Toronto Canada, October 1962.

Base Maps and Aerial Photographs

Vekol Mountains Quadrangle, Arizona, 15 Minute Series (Topographic), 1963. Scale 1: 62,500

Copperosity Hills Quadrangle, Arizona.
7.5 Minute Series (Topographic). 1981, Scale 1:24,000. Covers Vekol Mine.Adjoining sheet to east is Kohatk Quadrangle 7.5 Min.

Black Line Copy Map. Vekol Mine Main Adit, Claim Boundaries and Topography. Contour Interval 50 feet. Scale 1 inch = 200 ft. Drafted by E. J. Pong. Map Size 19 X 24 inches.

Black Line Copy Map, Vekol Mine, 2320 Foot Level. Scale 1" = 50', 1:600. Mapped and drafted by Robert B. Larson and Edwin J. Pond. Map Size 9 X 15.5 inches.

Black Line Copy Map. Vekol Mine 2290 foot level. Scale 1"=50', 1:600. Mapped and Drafted by Robert B. Larson and Edwin J. Pond. Map size 9 X 15.5 inches.

Black Line Copy Map, Vekol Mine, Main Adit and Upper Levels. Scale 1" = 50', 1:600. Mapped and drafted by Robert B. Larson and Edwin J. Pond. Map size 20 X 15.5 inches.

Pacific Air Industries, Long Beach,California. Aerial Photographs of the Papago Indian Reservation, Arizona. Prepared for Hunting Geophysical Services, Long Beach, California 196?. Collection of 13,700 stereoscopic photos includes color transparencies, positive prints and photo indexes showing flight patterns. The Papago Indian Tribal Council, Sells, Arizona has the original accompanying text which was prepared by Stebbins Mineral Surveys. Mozaics and Index photos available at GEOEX Tucson, photo collection at U. of A. Library.

Miscellaneous - Reward Mine Area

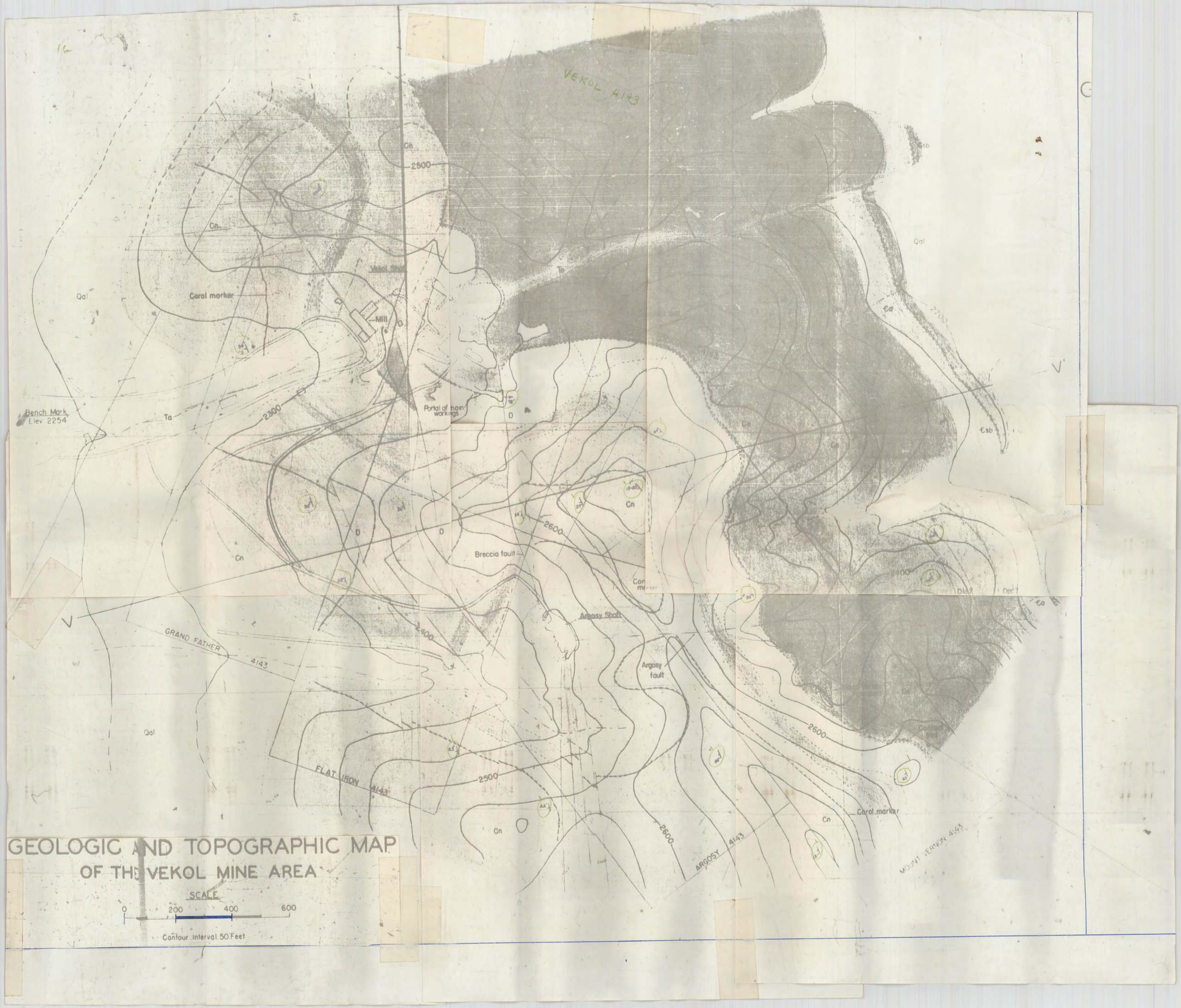
The Vekol Copper Deposits (Pinal County) by Edwin Higgins, Engineering and Mining Journal, V.91, p. 473-474, 1911.

Exploration of Reward Zinc Deposit in Vekol Mountains, by Thomas Denton and P. S. Haury, 1946, 42 Pages. U.S. Bureau of Mines, Report of Investigation 3975.

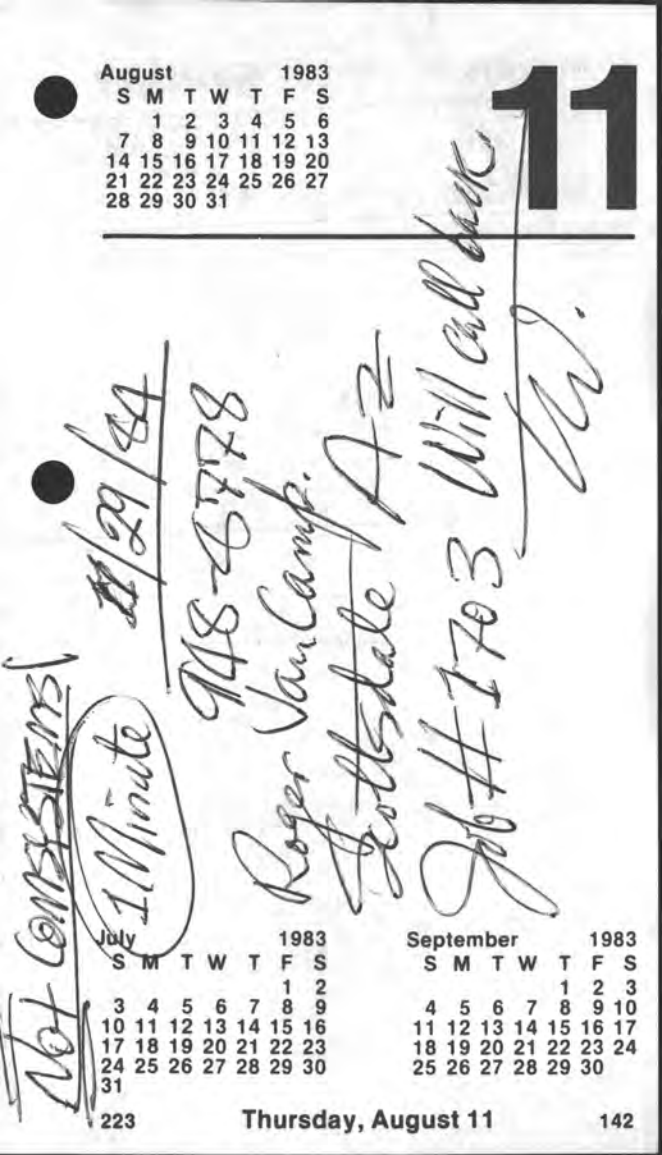
Reward Mine and Christmas Gift Mine, by Newmont Mining Company available at U.S. Department of Interior, Bureau of Indian Affairs, Phoenix, Arizona.

Vekol Hills Copper Deposit, Pinal County, Arizona (Abstract), by H. J. Steele of Newmont Exploration Ltd., Tucson, in Arizona Geological Society Digest Vol. XI, Proceedings of the Porphyry Copper Symposium, March 18-20, 1976.

Richard B. Leisure
Exploration Geologist



GEOLOGIC AND TOPOGRAPHIC MAP
OF THE VEKOL MINE AREA



August 1983

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

11

Not CONSISTENT

1 Minute

11/29/84

948-6778

Roger Van Camp.

Scottsdale AZ

Job #1703 Will call back

W.

July 1983

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

September 1983

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

THE VEKOL MINE

OPERATED

BY

THE ARGOSY MINING COMPANY

PRESENT STATUS

AND

FUTURE POTENTIAL

PREPARED
BY
ARTHUR H. HINDRICHS
MANAGING PARTNER

INTRODUCTION

In January of 1983 The Argosy Mining Company acquired a 31-year lease on six patented claims, known as the VEKOL MINE, and started installing a pilot plant to establish the feasibility of processing the dump material and at the same time initiate a geological mapping program to determine the potential of additional ore reserves, for open pit and underground mining.

The processing plant is now in production at the rate of 1000 tons per week on a single 5-day shift with recovery being constantly improved.

The geological mapping program, both, underground and on the surface, has also been completed and all available information concerning the property has been compiled and evaluated.

Since both objectives of the initial project have been achieved, the ARGOSY Management feels confident to proceed with the next phase:

- improve production and recovery rate,
  (bench tests of the ore presently leached show that Silver recovery can be doubled if the ore is crushed to -1/8" instead of -3/8")
- block out the ore in the identified areas for open pit mining,
- proceed with the recommended drilling program to locate the ore in the Favorable Horizon.
- aquire equipment for open pit mining

① NO DATE ON FRONTICE PAGE

NO EXPLANATION PAGE TO ACOMPANY GEOEXLETTER OF MAY 14, 1984

TELLING WHO UNDERLINED IN RED

② INTRODUCTION PAGE

PILOT PLANT IN 1ST PARAGRAPH

BECOMES PROCESSING PLANT IN 2ND PARAGRAPH

CHANGE [IS NOW IN PRODUCTION → TO WAS IN PRODUCTION

FROM dates to dates WITH AN OUTPUT OF ____ OZ OF Ag

FROM ____ TONS OF DUMP MTL.

NO MENTION THAT PLANT IS NOT ON PATENTED CLAIMS

Give % recovery on 1/8" and 3/8" crushed ore

3RD PARAGRAPH - CHANGE WORDING ENTIRELY

AN INITIAL GEOLOGIC MAPS OF THE SURFACE HAS BEEN COMPLETED. A 1 INCH = 100 FT. SOME UNDERGROUND SURVEYING AND GEOLOGICAL NOTES HAVE BEEN MADE IN PREPARATION FOR A 1 TO 20 FT MAPS OF THE OPEN PITTABLE AREAS AND ALSO THE UNDERGROUND WORKINGS

4TH PARAGRAPH.

SHOULD REFLECT PHILOSOPHY OF IMMEDIATE DRILLING OF OPENPITTABLE AREA BEFORE ANY ADDITIONAL IMPROVEMENTS IN PILOT PLANT.

(3) PRESENT FACILITIES SHOULD GIVE PURCHASE OR INSTALLED ~~PR~~ VALUE OF EACH ITEM AND TOTAL.
ALSO DEPTH OF TWO WATER WELLS AND PUMPING CAPACITY

(4) PROPOSED PROGRAM AND CAPITAL COSTS
see XEROX OF PAGE

(5) PRO FORMA OF DUMP MTL.
see XEROX OF PAGE

6 PRO FORMA OF DUMP MTL

No FIRE ASSAYS OF HEADS, TAILS, DUMPS, OPEN PITTABLE AREA
LOGISTICS OF VISITS BY INVESTORS does not include a down geologist
No new ladders underground to get to ~~mp~~ all parts of mine - + Corkscrew winze
AND INCORECTLY
CROSS-SECTIONS ARE POORY COLORED

~~page~~ August 19. Letter is out of date and ~~need~~ should not be included page 2 para 5
downward percolating surface water
practise of reducing underground map by 1/2 ~~lead~~ is a disservice and geological notes by RBL are illegible [~~new~~ new underground base map needed at 1 inch = 20 ft. plus some cross-sections at 1 inch = 20 ft especially thru open pittable
also open pittable area
familiar with mine IR. RBL

PROFORMA WEEKLY OPERATING STATEMENT

minimum available 351,000 x 10% = 35,100 TONS @ 250 TPD = 140 DAYS
maximum available 351,000 TONS @ 250 TPD = 1404 DAYS = 3.84 YEARS

MATERIAL: ORE - OPEN PIT MINING
OPERATION: 7-DAY WEEK - 2 5-DAY CREWS
PRODUCTION RATE: 225/250 TPD - AVERAGE 1575 TPW
RECOVERY: 3.5 OZS/TON (INCL. GOLD RECOVERY EQUIVALENT) GIVE % RECOVERY TARGET
at 50% RECOVERY NEED 7 OZ/TON ORE
at 33% RECOVERY NEED 10.5 OZ/TON ORE

OPERATING COSTS

	per Week		$2.86 per ton
MINING blasting + mining	$ 4.500	=	4500
PROCESSING = Milling + Recovery	9.590		10.430
	$ 14.090		14,930 = $9.48 per ton
	$8.94		

REVENUE

						MINIMUM PRICE
$7.50	SILVER PRICE PER OUNCE	$ 9.00	$ 12.00	$ 18.00	$7.00	$3.02
41,250	5500 OUNCES for 1571 TPW	$ 49,500	$ 66,000	$ 99,000	38,500	38500 16,610
6,188	ROYALTY 15%	7,425	9,900	14,850	5775	5775 2492
14,090	OPERATING COSTS	14.090	14.090	14.090	14.090	14930 14,090
$20,972	CASH FLOW	$ 27.985	$ 42.010	$ 70.060	18,635	17.795 $28
~~$13.31~~ ~~3.81~~	CASH FLOW PER TON	$ 17.77	$ 26.67	$ 44.48	~~$11.83~~	~~$11.29~~ 0

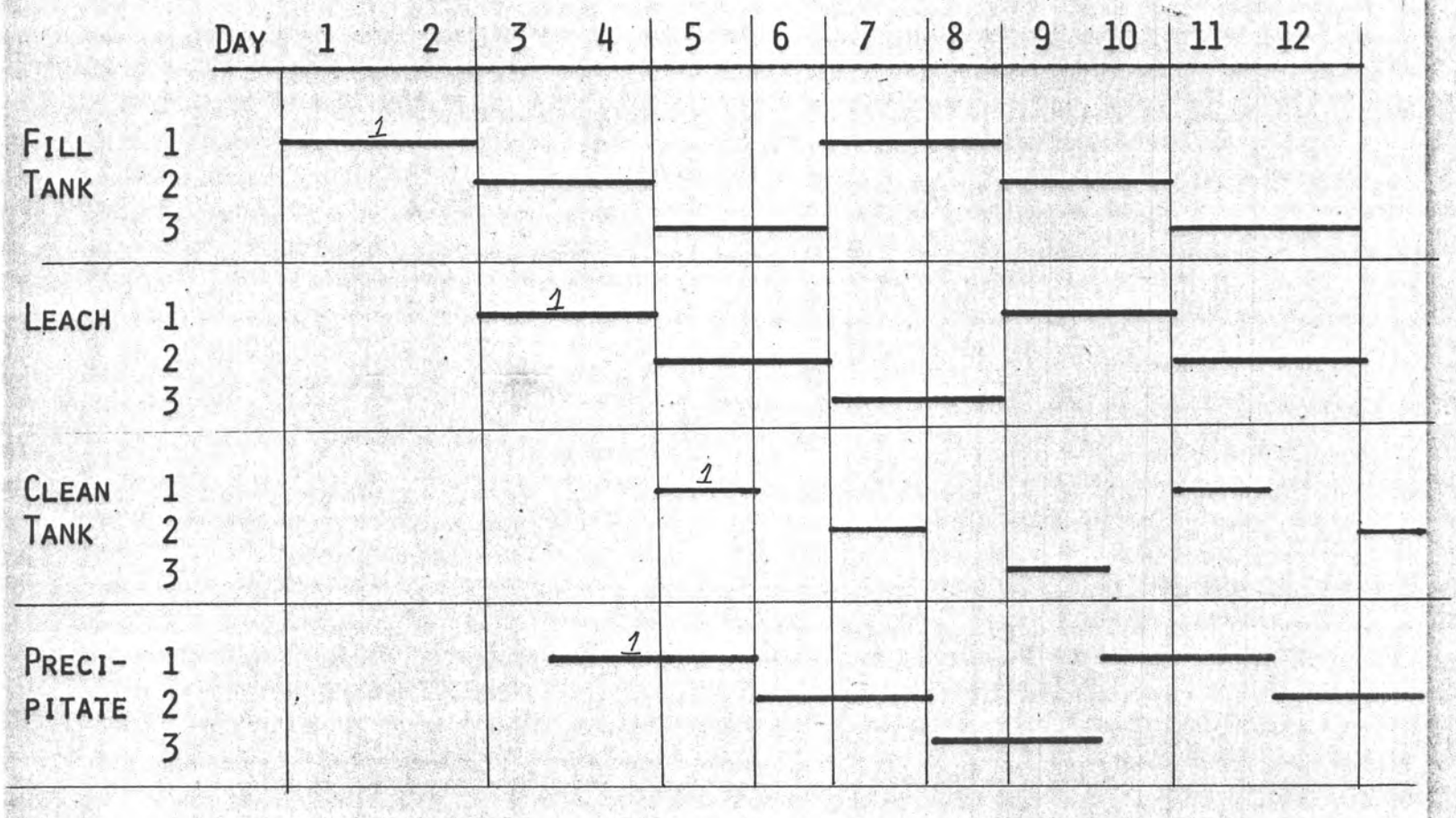
~~$3.81~~
x 35100 TONS
~~$133,731 INVESTMENT~~
~~$467,376 INVESTMENT~~ ~~VALUE IN PLACE~~
NET PRODUCTION VALUE

Weekly Operating Costs

	5-Day Week	7-Day Week
	5 men 64$/day	10 men
Wages (5) (10) Men	$ 1,600	$ 2,240
Plant Supervisor	500	500 x 7/5 = 700
Lab Technician	400	400 x 7/5 = 560
Payroll Expenses	800	1,000
Managament	900	900 x 7/5 = 1260
Fuel	1,050	1,500
Chemicals	1,200	1,800
Maintenance	400	600
Transportation	100	150
Insurance	150	150
Office, Radio	300	300
Food	50	50 x 7/5 = 70
Total	$ 7,450	$ 9,590 = 10.430 +

OPERATING SCHEDULE

5 DAY CYCLE



PROFORMA WEEKLY OPERATING STATEMENT ON DUMP MTL

200 TPD = 200 days
6.6 MONTHS
96 lb/cu ft.
20.8 cu ft/TON

40.000 × 20.8 = 832000 cu ft

MATERIAL: DUMPS (ESTIMATED AT 40,000 TONS) VOLUME of DUMP REQUIRED 20' leap × 416' × 100'
OPERATION: 5-DAY WEEK OR 7-DAY WEEK 5 DAY CYCLE = 100 TONS/WEEK 232' leap 200' × 180'
PRODUCTION RATE: 225 TPD AVERAGE
RECOVERY: 1 OZ/TON (INCL. GOLD RECOVERY EQUIVALENT)
GIVE RECENT PRODUCTION FIGURES AND ASSAYS

OPERATING COSTS	5-DAY WEEK	7-DAY WEEK
MILLING AND RECOVERY	$ 7,450	$ 9,590

MINIMUM PRICE	REVENUE				$7.50/oz	$8.00/oz
$8.35	SILVER PRICE $ 9.00/oz					
$8768.	1,050 OUNCES	$ 9,450			$7855.	$8400
	1,575 OUNCES	→	$ 14,175			
$1315.	ROYALTIES 15%	1,418	2,126		$1181	$1260
$7450.	OPERATING COSTS	7,450	9,590		$7450	$7450
$3	CASH FLOW	$ 582	2,459		− 776.	− 310.
	SILVER PRICE $ 12.00/oz					
	CASH FLOW	$ 3,260	$ 6,475			
	SILVER PRICE $ 18.00/oz					
	CASH FLOW	$ 8,615	$ 14,507			

cost to present $ 690.000

PROPOSED PROGRAM AND CAPITAL COSTS October. 1984

2) 1) PLANT EXPANSION AND IMPROVEMENTS contingent upon drilling results			
CRUSHING EQUIPMENT crushing to 1/8" instead of 3/8"		$ 180,000	
EQUIPMENT UPGRADE		15,000	
1 DUMP TRUCK		7,000	
1 PICKUP TRUCK		8,000	
2 PLASTIC POOLS WITH PIPING		2,000	
1 ZINC PRECIPITATOR		6,000	
LABORATORY, INCL. AA-UNIT IN TRAILER		25,000	
SUB-TOTAL		$ 243,000	243,000
1 2) DRILLING PROGRAM I = First Part Open Pittable areas 1-3 2,780 FT of core @ 50 ft/day = 56 days		$ 164,500	per RBL
LEACHING TESTS		3,000	
SUB-TOTAL		$ 167,500	167,500
(3) ACQUISITION OF MINING EQUIPMENT contingent upon drill results			
FOR OPEN PIT MINING		$ 350,000	
SUB-TOTAL		$ 350,000	350,000
(4) DRILLING PROGRAM II surface drilling outside of pit area for underground ore		$ 147,000	per RBL
LEACHING TESTS		1,500	
SUB-TOTAL		$ 148,500	
GRAND-TOTAL		$ 909,000	
plus Contingency approx 10% →		$ 1,000,000	

3 PARTS TOTAL $ 760,500 not necessary at this phase

does not include underground drilling PDP-6 THRU PDP-12

COMPOSITE GEOLOGICAL & GEOCHEMICAL MAPPING

for

ARGOSY MINING COMPANY
Vekol Silver Mine, Pinal County, Arizona

by

Heinrichs GEOEXploration Company, (Inc.)
810 West Grant Road
P. O. Box 5964
Tucson, Arizona 85703

Project #1668

4 November 1983

COMPOSITE GEOLOGICAL & GEOCHEMICAL MAPPING

for

Argosy Mining Company, Vekol Silver Mine, Pinal County, Arizona

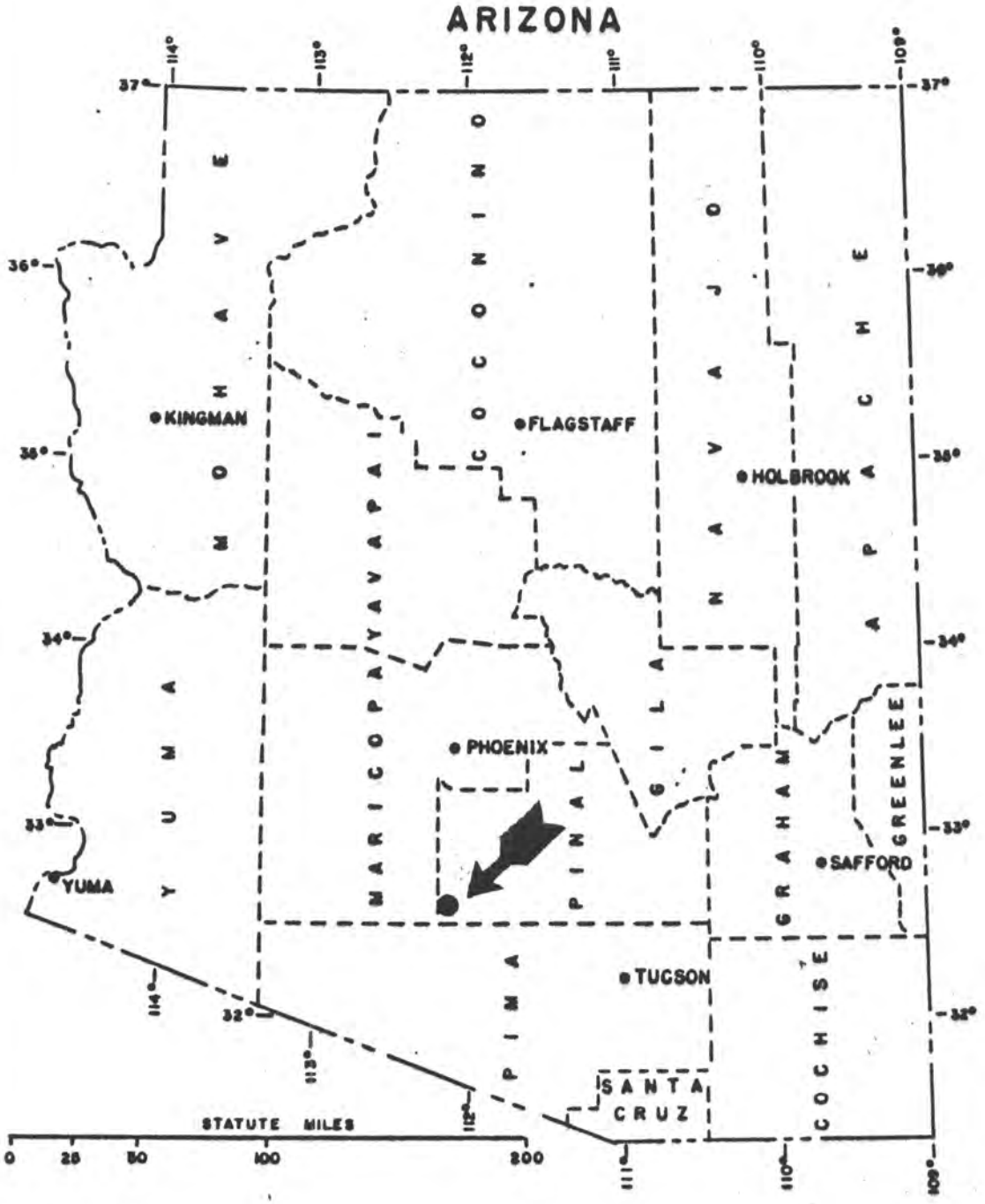
TABLE OF CONTENTS

	Page
Index Map----------Following Title	
RECOMMENDATIONS----------	1
First part of drilling program----------	1
Area 1 ----------	1
Area 2 ----------	1
Area 3 ----------	1 & 2
Second part of drilling program----------	2
Proposed drill pad No. 1----------	2
" " " No. 2----------	2
" " " No. 3----------	2
" " " No. 4----------	2 & 3
" " " No. 5----------	3
Third part of drilling program----------	3
Proposed drill pad No. 6----------	3
" " " No. 7----------	3
" " " No. 8----------	3
" " " No. 9----------	4
" " " No. 10----------	4
" " " No. 11----------	4
" " " no. 12----------	4
Summary of Drilling Recommendations----------	5 & 6
GENERAL GEOLOGY----------	7 - 9
Signature page----------	9
Geologic and Topographic Map of Vekol Silver Mine Area (Master Base) Plate 1	In Pocket
Cross Sections: A-A' - Plate 2----------	"
B-B' - Plate 3----------	"
C-C' - Plate 4----------	"
D-D' - Plate 5----------	"
Duval Surface Sampling Sketch - Plate 6----------Following page 9	
Open Pittable Area Map Plate 7----------	"
Fault Block Sketch Plate 8----------	"
Field Notes Sketch Main Adit 2400'level---------- (2400' to 2335')	In Pocket
APPENDIX - List of appended material----------	10

GENERAL LOCATION OF

THE VEKOL SILVER MINE AREA

PINAL COUNTY, ARIZONA



GEOEX Project #1668

November 4, 1983

HEINRICHS GEOEXPLORATION COMPANY

806 W. GRANT RD., P.O. BOX 5964 TUCSON, ARIZ. 85703. PH: (602) 623-0578

RECOMMANDATIONS

In order to evaluate and, if successful to develop, on-going reserves of leachable ore, geologic mapping completed to date indicates that a program of core and/or rotary types of drilling should be started, preferably within several months after the present leaching program under development comes into production. The following drilling program is designed to provide representative assay columns and to explore from from the surface immediately available open-pittable exposures of the favorable horizon (see section on General Geology below) which outcrops at or very near the surface. In addition, sites for proposed drilling pads have been located to best explore and provide representative assay data on fault blocks containing the favorable horizon where it has not been sufficiently explored by underground workings, these additional sites include both surface and underground locations.

First part of the drilling program explores from the surface three contiguous open-pittable areas as delineated generally on Plate 1 and more specifically on Plate 7.

Rectangular Area No. 1, which contains the Esperanza Shaft and underground level, has an estimated maximum volume of 180 ft. by 200 ft. by 60 ft. thick or 172,800 short tons (i.e. 2,000 lbs) assuming an in place bulk density factor of 12,5 cubic feet per ton. The grade of this block should be determined by 25 vertical holes each 60 ft. deep on a pattern of 50 ft. centers. A sub-total of 1,500 ft. of drilling is indicated.

Triangular Area No. 2, north of the Main Portal, contains an estimated maximum volume of 400 ft. by 200 ft. by 1/2 (area of triangle factor) by 40 ft. thick or 144,000 short tons. Its grade should be determined by 25 vertical holes each of 40 ft. deep on a pattern of 50 ft. centers. A sub-total of 1,000 ft. of drilling is indicated.

Triangular Area No. 3, west of Dagg's Tunnel, contains an estimated maximum volume of 330 ft. by 130 ft. by 1/2 (area of triangle factor) by 20 ft. thick or 34,320 short tons. Its grade should be determined by 14 vertical holes each 20 ft. deep on a pattern of 50 ft. centers. A sub-total

of 280 ft. of drilling is indicated.

Combining the figure from the three areas, yields a total of 2,780 ft. of drilling which would determine the grade in silver of 351,000 tons of open-pittable material from within the favorable horizon.

If all of the 2,780 ft. of drilling were assayed on 20 ft. intervals it would yield 139 assays on which to design a single open pit with 20 ft. benches and known waste to ore ratio.

Second part of the drilling program would explore from the surface various named fault blocks in which the favorable horizon has not been sufficiently explored by underground workings. This part of the program also includes and would penetrate several fault blocks about which we have no information regarding the favorable horizon; in the fact that it does not outcrop and has never been drilled.

At Proposed Drill Pad No. 1 a 150 ft. vertical drill hole to penetrate the favorable bed would be the first known exploration into the Beta Fault Block which is bounded by the Mill Fault and the Tertiary Andesite Dike. Also four 60° declined holes of 200 ft. each could be drilled from the same pad if the initial assays justify additional exploration of the Beta Fault Block.

Up to now the geology does not indicate a possibility for much ore in the Alpha Fault Block, and no expenditures should be considered in that block at present.

At Proposed Drill Pad No. 2, two 30° declined holes 200 ft. long would prospect the intersection of the faults and the favorable horizon between caved tunnel LO-4 and the 15 ft. deep shaft LO-3.

At Proposed Drill Pad No. 3, a single 30° declined hole 100 ft. long would begin to prospect the favorable horizon down-dip from the high geochemical anomaly at GCS-4.

A Proposed Drill Pad No. 4, a single 30° declined hole 100 ft. long would begin to prospect the favorable horizon down-dip from the high

geochemical anomaly at GCS-8.

At Proposed Drill Pad No. 5, three 30° declined holes of 200 ft. each would begin to prospect the favorable horizon from which a small shipment of high grade ore was shipped in 1932, the remaining wall rock being copper stained and giving the high geochemical anomaly at GCS-12 and GCS-13.

This second part of the drilling program involving the five surface drill pads would total 2150 ft. of drilling of both vertical and variously declined holes.

The third part of the drilling program would involve the more difficult and costly location of proposed drilling pads within underground workings. The underground geologic mapping has shown that excessively long drill holes of 200 to 300 ft. from the surface through the barren Naco Formation could be avoided by underground drill sites that would start each drill hole in or near the favorable horizon. The drill holes would be horizontal; or inclined 30° upward or downward. Each drill pad would require some hand mucking, some timbering and the supplying of compressed air or electricity to the drill face. The proposed underground drill pads include:

Proposed Drill Pad No. 6 at the end of Dagg's Tunnel, a reportedly 100 ft. long tunnel which goes S 30° E along Daggs' Fault and declines slightly as it follows the favorable horizon. Three drill holes of 200 ft. each in a fanned pattern would explore and assay the favorable horizon in its underground position in the area toward shafts GF-5 and VK-5. These drill holes would also begin to explore the Epsilon Fault Block.

Proposed Drill Pad No. 7 at the bottom of Shaft GF-5, a 44 ft. deep shaft which bottoms in the contact shale to 10 ft. above the favorable horizon. An 80 ft. vertical hole and four 120 ft. inclined holes would explore the area below the bottom of the shaft.

Proposed Drill Pad No. 8 at the end of the inclined underground workings which we recently found in the favorable horizon to the south of Shaft VK-5 and near Daggs' Fault would explore the virtually unexplored

part of the Epsilon Fault Block. Three holes declined at 30° to stay within the favorable horizon and fanned out to a length of 200 ft. each are recommended.

Proposed Drill Pad No. 9 at the bottom of the 215 ft. deep Argosy Shaft would allow westward inclined holes 20° upward and downward into the unexplored Gamma Fault Block on the west side of Breccia Fault to explore the favorable horizon. A total of six 200 ft. long holes could be drilled here.

Proposed Drill Pad No. 10 at the southern most underground workings on the Argosy Level (from bottom of Argosy Shaft) would allow southward inclined holes 20° upward and downward into the unexplored Mount Vernon Fault Block on the south side of Argosy Fault to explore the favorable horizon. A total of six 200 ft. long holes could be drilled.

Proposed Drill Pad No. 11 at the far eastern most underground workings of the Argosy Ore Bin Level (2320 ft. level) would allow eastward inclined holes 20° upward and downward across Zinc Fault in to the unexplored part of Lookout Fault Block. A total of six 200 ft. long holes could be drilled.

Proposed Drill Pad No. 12 at the bottom of the 146 ft. deep Combination Shaft which bottoms in the favorable bed and also is the location of GCS (Geochem Sample) - 19, would allow extensive drilling into the favorable horizon in the Epsilon Fault Block. Because the bottom of the shaft contains a 10 ft. sump and two 10 ft. long levels in opposite directions the situation would allow an 80 ft. vertical hole and at least six 200 ft. long holes inclined 30° downward or upward along the favorable horizon.

NOTE: A particular hazard may exist in the preparation of this drill pad since 20 wooden boxes, many containing dynamite have been stored from an unknown date in one of the levels.

This third part of the drilling program involving the six underground drill pads would total 5,440 ft. of drilling.

SUMMARY OF DRILLING PROGRAM

Regarding all of the above mentioned drill holes the choice of which type of drilling to be performed; core drilling vs. the various types of rotary drilling must be considered from an engineering view point. This includes cost per foot, desired reliability of assay data, desired detail of geological information, availability of drills and crews and the decision to purchase or contract equipment and crews.

The three parts of the drilling program have been presented by their desirability, ease and cost as 1st, 2nd and 3rd. The open pittable areas are numbered by most importance and desirability 1 through 3, the proposed surface drill pads are not numbered by importance but rather from north to south. Therefore their importance and desirability listed in decreasing order of priority is PDP's.5, 4, 1, 2, 3. The proposed underground drill pads will be the most difficult and expensive and are listed in approximate order of importance.

Before selected parts of the drilling program are initiated the three open-pittable areas and the various proposed drill pads would have to be cleaned by dozer and/or manual labor ideally to allow for detailed geological mapping on the scale of 1 inch = 20 ft. This mapping is required to best allow for the final determination of the drill hole bearings, angles of inclination and total lengths.

Steven Hindricks has been given a separate map showing where fifteen triangulation points are to be set up with metal pipe and flagging, and two triangulation points have already been established. These points will greatly help determine location of geological features in the field, and later on for aerial photographic and other important engineering control factors.

The above recommendations are based on the geologic possibility that undiscovered oxide mineral bodies exist outside the area of the previous mine workings.

If any attempt is made to find relatively greater tonnage but lower grade oxide mineral zones within the previously explored and mined workings, a composite underground base map at the scale of 1 inch = 20 ft. should be drafted. This map can be initiated as an office project involving photographic enlargement and drafting of already existing maps, including: Mitke's 1932 base map at 1 inch = 40 ft., Larson and Pond's 1983 base map at 1 inch = 50 ft., Carpenter's 1945 plates 9 and 10 at 1 inch = 50 ft., and Geoex's 1983 geologic mapping at 1 inch = 50 ft. However, during the posting of all previously known geologic and engineering data this base map would have to be field checked and additional information added to assure accuracy of the final map.

This map would then provide a geologic and engineering base for underground drilling within the mine workings which are mainly confined to the Gamma Fault Block and Lookout Fault Block (see accompanying Plate 8).

GENERAL GEOLOGY

The general geology of the Vekol Silver Mine area was initially covered in our Phase 1 a report of 19 August 1983 (GEOEX #1650, appended) The major expression consists of a north-west trending ridge of Paleozoic limestones, dolomites, shales and quartzites. This 1,600 ft. thick series of sedimentary rock has been cut at two places by much younger Tertiary andesite dikes. One igneous andesite dike cuts east-west through the Vekol Silver Mine area at the main Vekol Shaft and another east-west dike cuts through the Great Eastern Mine 1,300 ft. south of the Vekol property. Whether this geometric association is coincidental or related to possible origin of the sulfide ore bearing solutions has not been determined.

The entire sedimentary rock section strikes northwest parallel to the ridge and dips about 33^{0} to the southwest, going under alluvial gravel cover just west of the Vekol property.

The uppermost limestone unit is called the Naco Formation. The Naco Formation also contains various beds of shale, two of which are mapped on Plate 1. One is an upper bed of shale 40 ft. thick known as the Brick-Red shale member. The second and most important is a 10 ft. thick red shale known as the Contact Shale which defines the base of the Naco Formation.

Just below the Contact Shale is the Escabrosa Limestone whose 20 to 80 ft. uppermost part is the host rock for the manto type silver-bearing lead and zinc sulfide bodies known to date.

This 20 to 80 ft. uppermost part is known as the Favorable Horizon because it has been mineralized by small pods and stringers of lead the zinc sulfide, extensively altered to an iron rich dolomite and intensly fractured and faulted.

The Contact Shale apparently acted as an impervious barrier to the upward moving sulfide solutions causing them to move horizontally

along the bottom of the Contact Shale and precipitate the sulfide minerals in the uppermost part of the Escabrosa Limestone.

The subsequent oxidation of these sulfide minerals by downward moving surface-water along prominent faults, produced the rich pockets of silver oxide ore which were extensively mined in the past. The best silver oxide ore was reportedly found at the intersection of the most prominent northwest trending faults which continue to the surface, and with the strongest sulfide mineralization localized in the favorable horizon.

The silver oxide minerals have not migrated far from their point of sulfide origin and are thus also found within the favorable horizon.

The Escabrosa Limestone and its uppermost favorable horizon underlies all of the Vekol property to the west of the outcrop of the Contact Shale, or approximately 90% of the patented claim area.

Since detailed geologic mapping on the surface and underground has found more faults than previously indicated, the potential for unexplored and undiscovered intersections of faults and the favorable horizon has greatly increased. And, it is these zones that we have recommended be explored.

In the past successful mining was limited to rich pods and pockets of high grade silver ore having 70 to 300 ounces per ton but limited to "washtub to room-sized bodies".

More recently leasees have tried to develop underground tonnage for bulk mining of remaining wall rock and pillars within the mined areas, which seem to average as low as 2 to 6 ounces per ton. These efforts did not result in the mining of any significant ore.

Geochemical Assay Results

Nineteen samples as listed in the appendix were taken by GEOEX. An interpretation of the results was used in the location of the proposed

surface drill pads.

The samples confirmed visual observations of strength of alteration and evidence of possible sulfide mineralization as the favorable bed went from outcrop into the sub-surface.

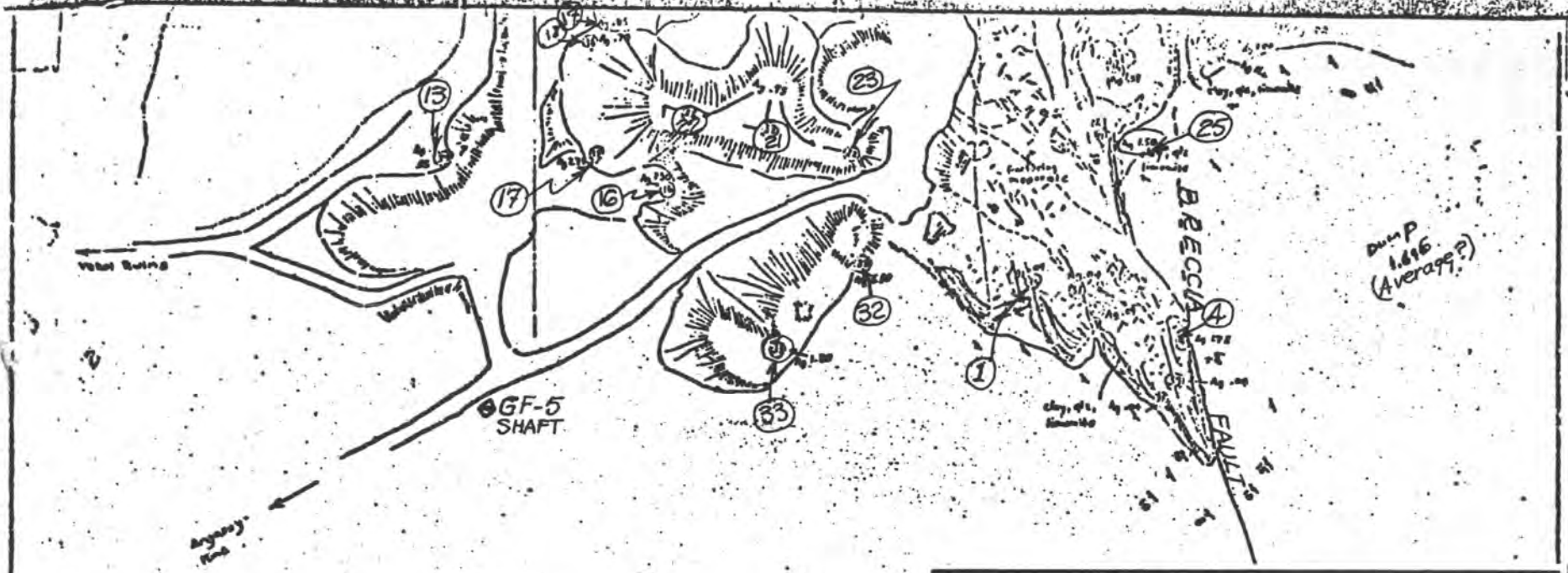
Other assay data are included in the following Appendix material. These data were derived from outside sources considered reliable and were used in our interpretation. The underground data included were plotted on the attached copy of Mitke's base map.

Respectfully submitted,

Richard B. Leisure

Walter E. Heinrichs, Jr.
Geological Engineer-Geophysicist
P.E. & C.P.G.S.

Richard B. Leisure, Exploration Geologist



EXPLANATION

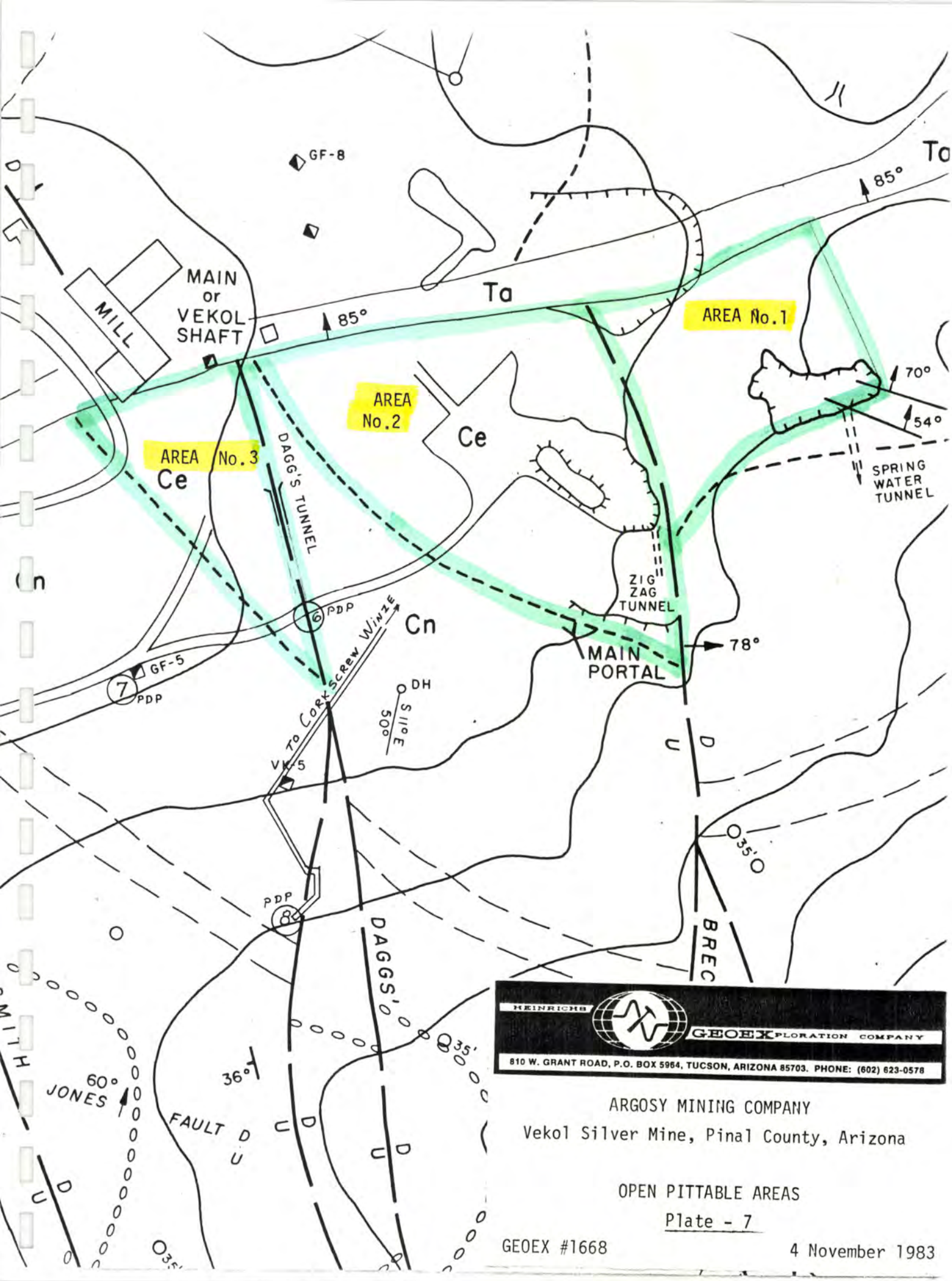
- LIMESTONE, UPPER LEVELS
- DOLOMITE
- DIORITE — DIABASE
- STRUCTURES
- STRONG MINERALIZATION / ALTERATION
- FRACTURING

HEINRICHS GEOEXPLORATION COMPANY
810 W. GRANT ROAD, P.O. BOX 5964, TUCSON, ARIZONA 85703. PHONE: (602) 623-0578

ARGOSY MINING COMPANY
Vekol Silver Mine, Pinal County, Arizona
Duval Surface Samples, Series EX 1575
Plate 6

GEOEX #1668 4 November 1983

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 1" = 100'	PLATE



HEINRICHS GEOEXPLORATION COMPANY
810 W. GRANT ROAD, P.O. BOX 5964, TUCSON, ARIZONA 85703. PHONE: (602) 623-0578

ARGOSY MINING COMPANY

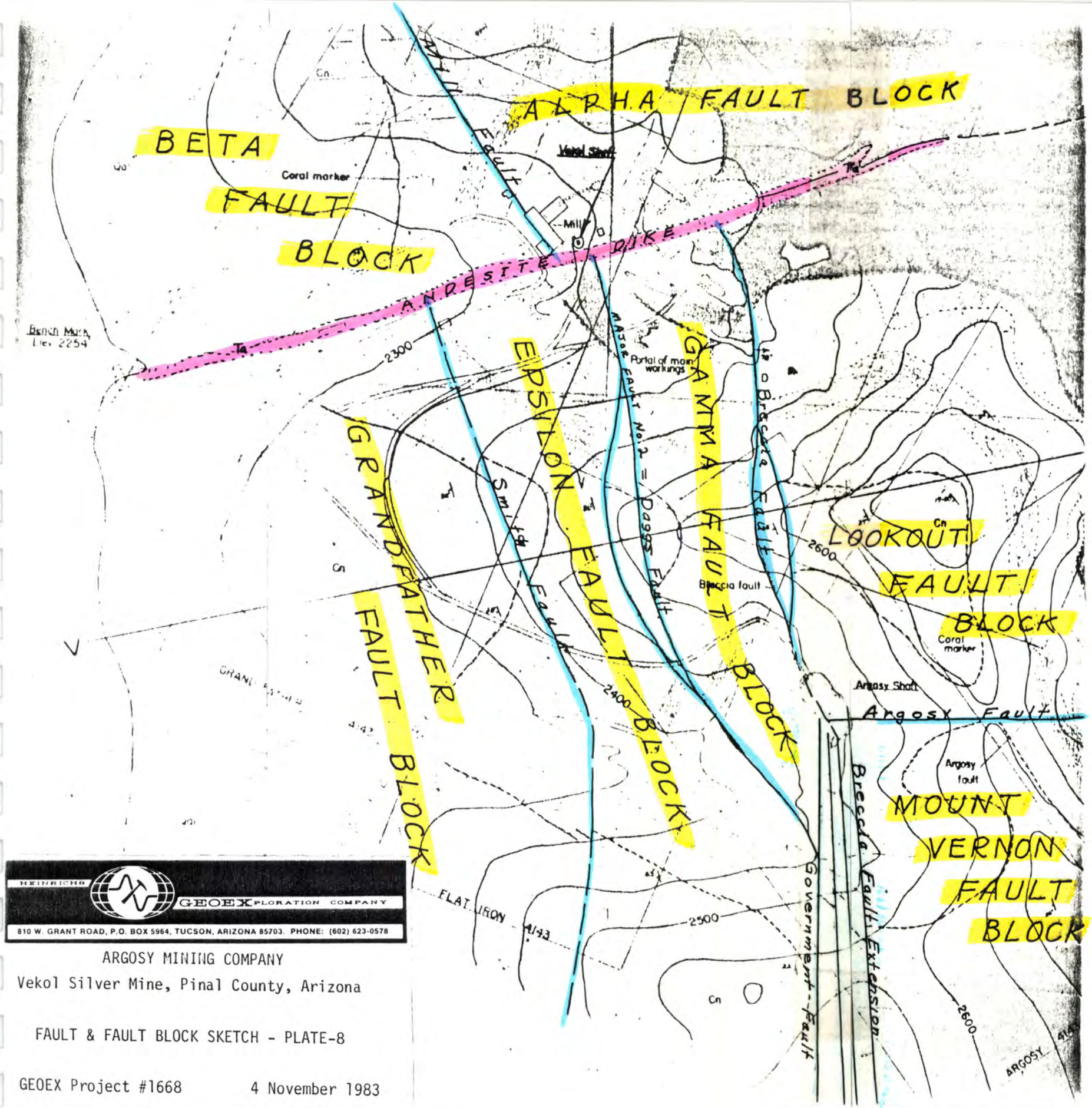
Vekol Silver Mine, Pinal County, Arizona

OPEN PITTABLE AREAS

Plate - 7

GEOEX #1668

4 November 1983



HEINRICHS GEOEXPLORATION COMPANY

810 W. GRANT ROAD, P.O. BOX 5964, TUCSON, ARIZONA 85703. PHONE: (602) 623-0578

ARGOSY MINING COMPANY

Vekol Silver Mine, Pinal County, Arizona

FAULT & FAULT BLOCK SKETCH - PLATE-8

GEOEX Project #1668 4 November 1983

APPENDIX

List of Appended Material Which Follows:

Assay Table - Copper State Analytical Lab, Inc.---------- 1 page
Assay Table - Duval---------- 2 pages
Carpenter Thesis (Plate 9)---------- 1 page
Carpenter Thesis (Plate 10)---------- 1 page
Argosy Level Field Notes Sketch---------- 1 page
Argosy Ore Bin Level Field Notes Sketch---------- 1 page
Duval Underground Sampling---------- 1 page
GEOEX Project #1650, Aug. 19, 1983---------- 5 pages
Bibliography---------- 4 pages

COPPER STATE ANALYTICAL LAB., INC.

DNYANENDRA A. SHAH
ARIZONA REG. NO. 8888

REGISTERED ASSAYER
P. O. BOX 7517
TUCSON, ARIZONA 85725

710 E. EVANS BLVD.
PHONE 602-884-5811
884-5812

Heinrichs GEOEX
Box 5964
Tucson, AZ 85703

JOB# 002589
RECEIVED 10/12/83
REPORTED 10/21/83
INVOICE# C 2866

GEOEX Project #1668

SAMPLE NUMBER	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Au opt	Ag opt	
GCS-#1	2.0	2	28	62			
2	1.6	4	16	60			
3	2.2	8	24	66			
4	2.0	10	26	68			
5	1.4	12	18	38			
6	0.6	14	24	50			
7	0.3	18	11	52			
8	<0.1	8	22	60			
9	2.6	10	28	80			
10	1.0	12	60	160			
11	1.2	12	14	16			
12	6.0	508	0.18%	580	.004	0.16	
13	1.8	16	32	116			
14	0.1	18	18	14			
15	<0.1	4	18	12			
16	13.0	4	224	169			
GCS-17	0.7	6	216	101			
18	6.1	4	360	210			
19	3.8	2	20	101			

RECEIVED
OCT 24 1983
BOX 5964
TUCSON, AZ. 85703

REGISTERED ASSAYER
CERTIFICATE NO.
8888
Dnyanendra
Amrutlal Shah
DATE SIGNED
Arizona U. S. A.

10-21-83

1 ppm = 0.0001% 1 troy oz./ton = 34.286 ppm 1 ppm = 0.0292 troy oz./ton

* Gold and Silver reported in troy oz. per 2,000 lb. ton.

Courtesy: DUVAL CORPORATION

Copper Division - Esperanza Property
Sahuarita, Arizona

CERTIFICATE OF ASSAY

Aug. 25, 1966

Special for Geol. Dept. (C.L.)

Marks, etc.	ppm Cu	ppm Pb	ppm Zn	Oz / ton Au	Ag	Description
EX 1575-						
14	470	3100	7500	Nil	2.10	Concentrate (Don Coombs)
15	21	40	60	Nil	.02	Contact Limestone/Andesite
16	480	6800	16,000	Nil	2.30	)
17	460	3100	9000	Nil	2.33	)E-W lower dump, Dozer Sampling
18	78	1800	4200	Nil	.70	) (later moved for leaching)
19	180	2800	10,000	Nil	.85	)
20	38	60	185	Nil	.12	4½ mi. N of Vekol Mine, Diorite
21	80	1600	4000	Nil	.57	21 - 34 Dumps (later moved & leached)
22	157	1450	4900	Nil	.95	
23	680	3300	12,500	Nil	4.80	
24	1160	8000	29,000	Nil	7.30	
25	195	9000	10,300	Nil	1.50	
26	110	1350	4500	Nil	.75	
27	168	3200	8100	Nil	2.60	
28	200	2800	6500	Nil	1.70	
29	890	1000	28,000	Nil	11.46	
30	28	1000	400	Nil	.60	
31	190	4500	5000	Nil	2.70	
32	540	7000	1900	Nil	5.50	
33	830	25000	4000	.002	1.80	
34	22	500	140	Nil	.05	
35	250	1900	3000		.09	Samples 35 - 45 Cuts along dolomite, mostly strongly altered (jasperoide, clay limonite)
36	28	275	200		.09	
37	28	288	200		.04	
38	32	350	300		.04	
39	32	250	125		.04	
40	765	5000	14,000		1.73	
41	167	1300	1850		1.50	
42	45	1300	1680		.58	
43	35	200	190		Nil	
44	80	3000	8560		1.00	
45	130	1200	1430		.22	
46	40	150	100		.09	) (Devonian Martin)
47	32	150	100		.13	) Abrigo (grab & chip)
48	32	250	100		.09	) Quartzite (grab & chip)
49	45	1000	800		.18	Samples 49-59 Underground samples plotted on Mitke's 1932 base.
50	102	1900	1650		.18	
51	102	2000	1650		.40	
52	36	1400	3460		.22	
53	157	1500	1260		.26	

Courtesy: DUVAL CORPORATION

Copper Division - Esperanza Property
Sahuarita, Arizona

CERTIFICATE OF ASSAY

Aug. 25, 1966

Special for Geol. Dept. (C.L.)

Marks, etc.	ppm Cu	ppm Pb	ppm Zn	Oz / ton Au	Oz / ton Ag	Description
EX 1575-						
54	483	2400	4570		.22	
55	46	900	500		.17	
56	272	1000	970		5.40	
57	220	3000	14,200		1.70	
58	455	14000	15,800		2.00	
59	35	1000	560		Nil	

FOR

ARGOSY MINING COMPANY

BY

HEINRICHS GEOEXPLORATION COMPANY

810 W. GRANT ROAD, P.O. BOX 5964, TUCSON, ARIZONA 85703. PHONE: (602) 623-0578

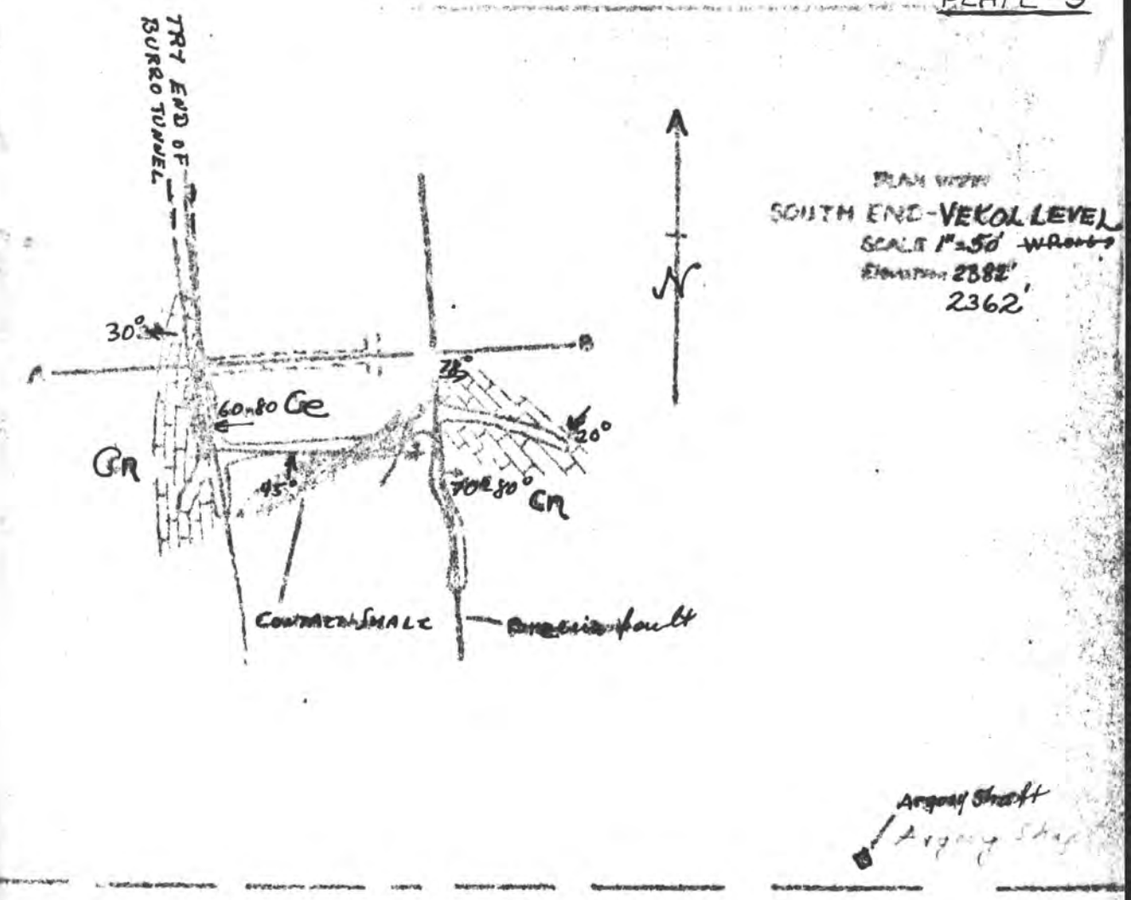
Vekol Silver Mine, Pinal County, Arizona

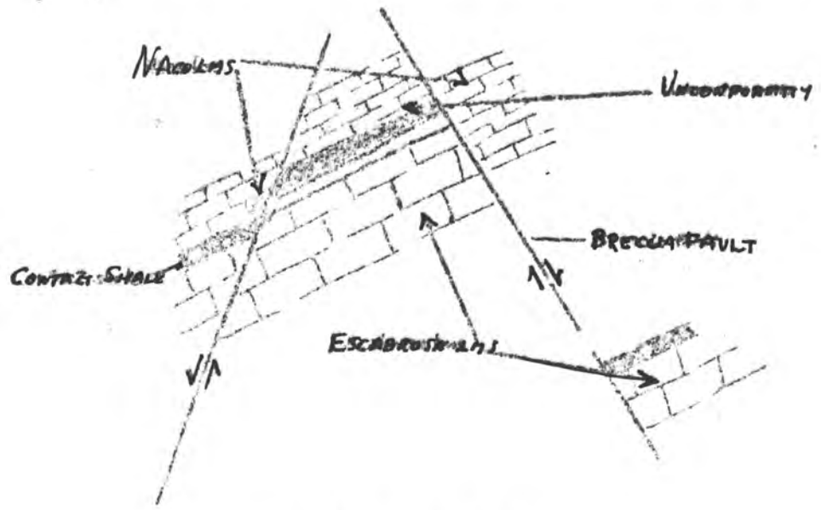
COMPOSITE GEOLOGIC & GEOCHEMICAL MAPPING

Field Notes Sketch, Carpenter Thesis Plate 9
South End Vekol Level & Cross Section A-B

GEOEX Project #1668 4 November 1983

PLATE-9





CROSS SECTION A-B
LINE OF SECTION N83°E
Looking North
Scale 1"=50'

FOR

ARGOSY MINING COMPANY

BY

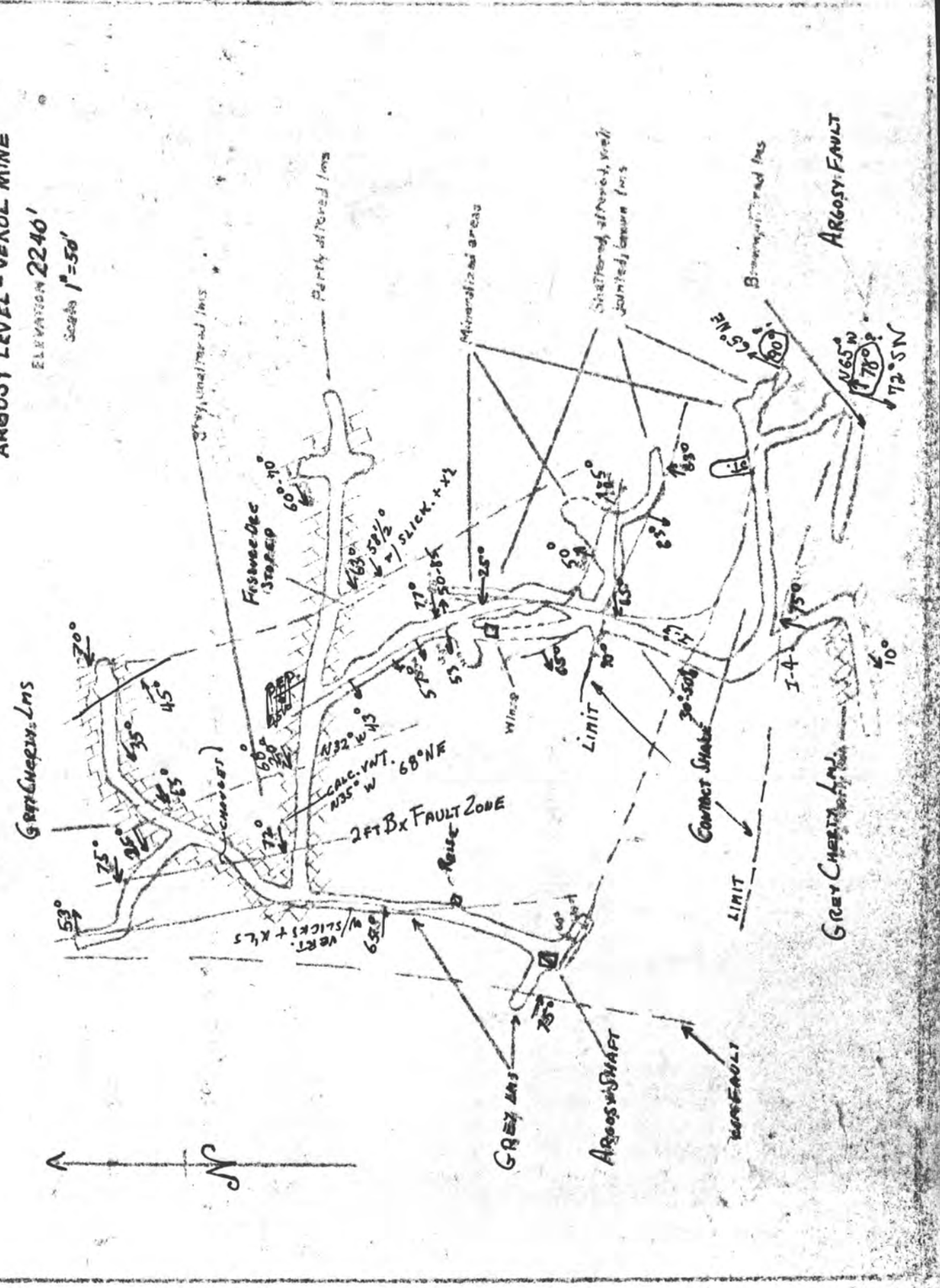
HEINRICH GEOEXPLORATION COMPANY
810 W. GRANT ROAD, P.O. BOX 5964, TUCSON, ARIZONA 85703. PHONE: (602) 623-0578

Vekol Silver Mine, Pinal County, Arizona

COMPOSITE GEOLOGIC & GEOCHEMICAL MAPPING

Field Notes Sketch, Carpenter Thesis Plate 10
Argosy Level

GEOEX Project #1668 4 November 1983



VEKOL MINE

2290 FT. LEVEL

860' workings±?

ARGOSY LEVEL

FOR

ARGOSY MINING COMPANY

BY

HEINRICH GEOEXPLORATION COMPANY

810 W. GRANT ROAD, P.O. BOX 5964, TUCSON, ARIZONA 85703. PHONE: (602) 623-0578

Vekol Silver Mine, Pinal County, Arizona

COMPOSITE GEOLOGIC & GEOCHEMICAL MAPPING

Field Notes Sketch ARGOSY LEVEL

GEOEX Project #1668 4 November 1983

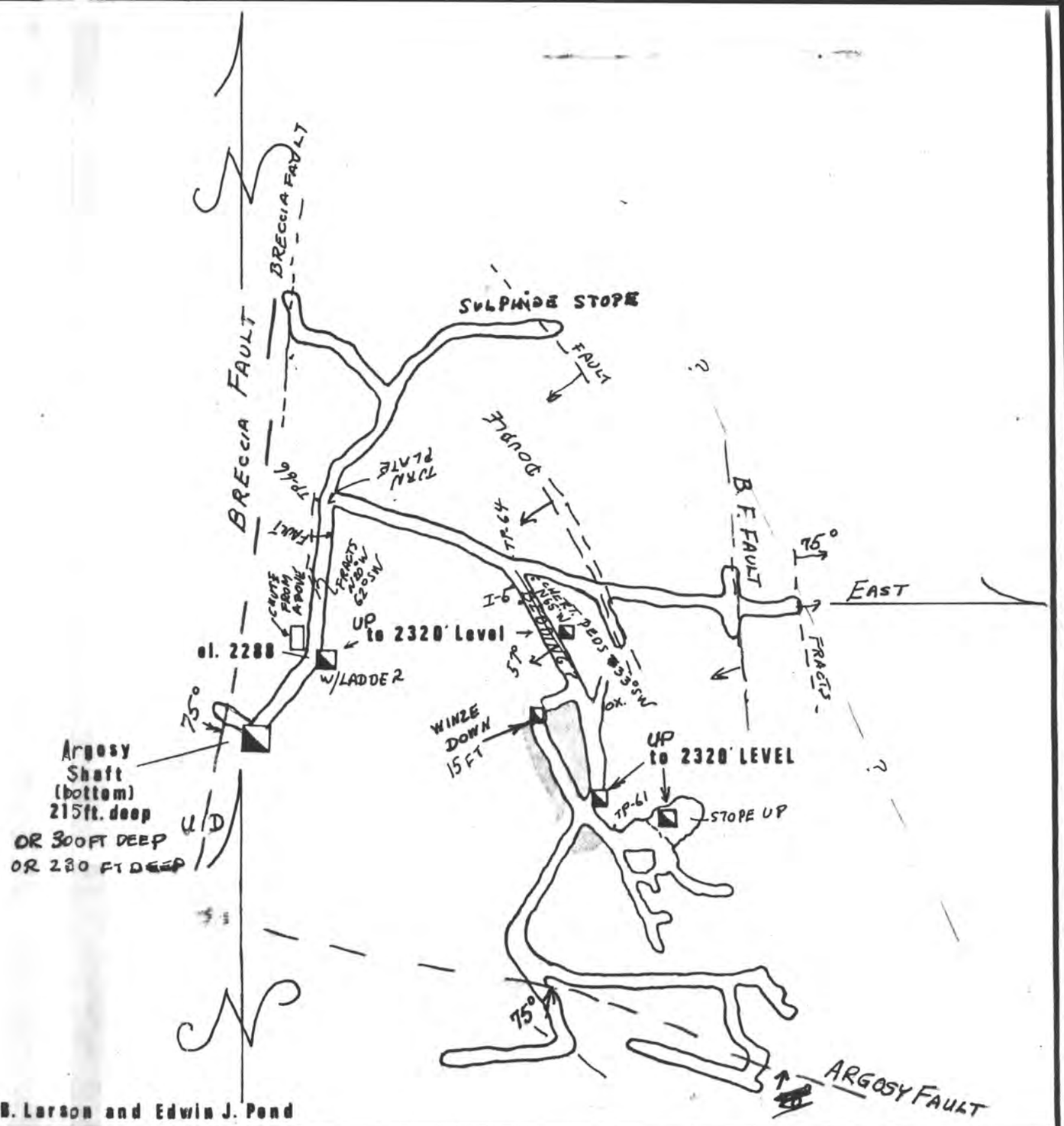
N

0 50 100

scale in feet

1 in. = 50 ft.

1:600



Mapped and drafted by Robert B. Larson and Edwin J. Pond

VEKOL MINE

2320 FT. LEVEL

ARGOSY ORE BIN LEVEL

FOR

ARGOSY MINING COMPANY

BY

HEINRICHS GEOEXPLORATION COMPANY
810 W. GRANT ROAD, P.O. BOX 5964, TUCSON, ARIZONA 85703. PHONE: (602) 623-0578

Vekol Silver Mine, Pinal County, Arizona

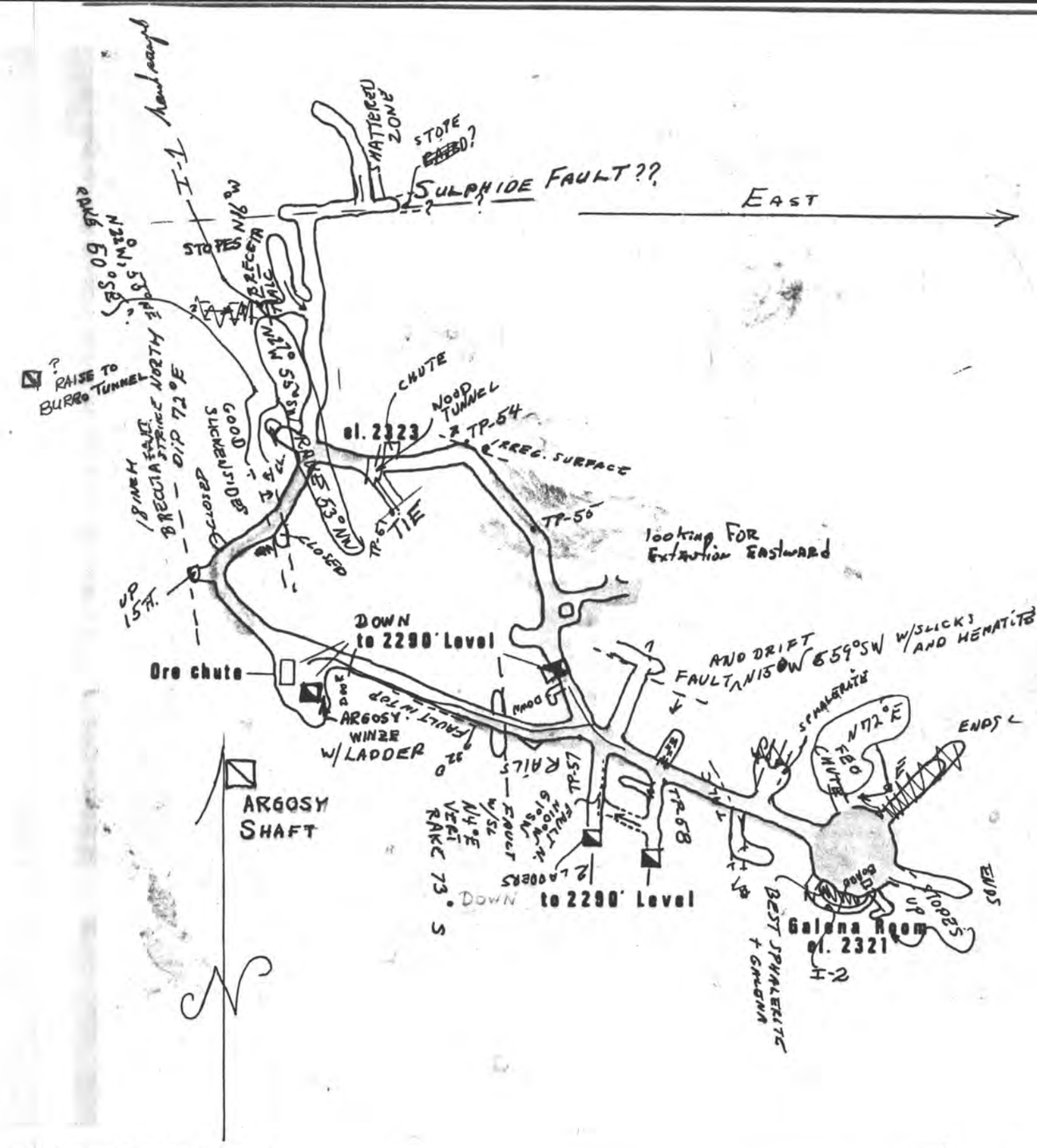
COMPOSITE GEOLOGIC & GEOCHEMICAL MAPPING

Field Notes Sketch ARGOSY ORE BIN LEVEL

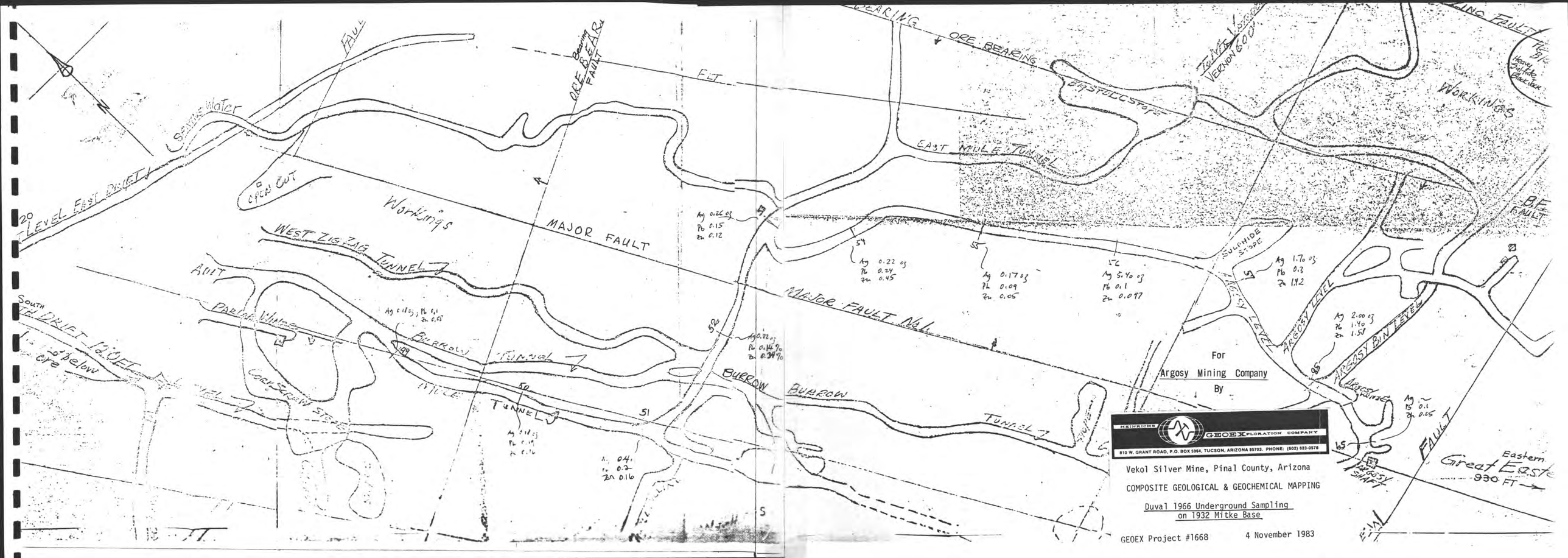
GEOEX Project #1668 4 November 1983

N

0 50 100
scale in feet
1 in. = 50 ft.
1:600



Mapped and drafted by Robert B. Larson and Edwin J. Pond



For

Argosy Mining Company

By

HEINRICHS GEOEXPLORATION COMPANY

810 W. GRANT ROAD, P.O. BOX 5964, TUCSON, ARIZONA 85703. PHONE: (602) 623-0578

Vekol Silver Mine, Pinal County, Arizona

COMPOSITE GEOLOGICAL & GEOCHEMICAL MAPPING

Duval 1966 Underground Sampling on 1932 Mitke Base

GEOEX Project #1668 4 November 1983

HEINRICHS GEOEXPLORATION COMPANY

P.O. BOX 5964, TUCSON, ARIZONA 85703. 806 WEST GRANT ROAD. PHONE: (602) 623-0578

August 19, 1983

Argosy Mining Company
5244 N. 25th Street
Phoenix, AZ 85016

Attention: Mr. Arthur Hendricks

Re: GEOEX JOB #1650, Phase 1a
Vekol Mine & Vicinity
Pinal County, Arizona

Dear Mr. Hendricks:

Please find enclosed Phase 1a Bibliography and this letter report by Richard B. Leisure, Exploration Geologist.

A one week office study of the material listed in the bibliography brought to light the following information which bears directly on the Phase 1(b) and 1(c), surface and underground mapping as we proposed. The accompanying bibliography includes 35 items.

General

Surface mapping will require less regional mapping than originally envisioned, and detailed local surface mapping will take us only briefly outside the patented claim boundaries by approximately 300 feet. Therefore our arbitrarily limited estimate for Phase 1b remains at $3500.00.

The underground map of Vekol Mine by Mitke, 1932, shows more stopes and drifts than recently mapped by Larson and Pond. Old reports mention as much as eight miles of underground workings. The Mount Vernon prospect at one time had 90 feet of tunnel, which should be cleaned out and prospected. On the basis of these new ideas our item 1(c) estimate of 4100 feet of apparently accessible workings is probably a lower limit figure. However, since we will be mapping a limited number of geological parameters as listed under field mapping, our arbitrarily limited estimate for Phase 1 c remains at $10,000.00, but I can foresee a need for some new ladder work to provide access to critical points in the mine, and perhaps the cleaning of old prospect pits and tunnels.

Geology

The only target of economic interest seems to be the mineralized and dolomitized upper horizon of the Escabrosa limestone within a few tens of feet below the Contact Shale Bed. This horizon apparently has been the most reactive to the mineralizing solutions.

This favorable horizon seems to be uniformly widespread throughout the top and west side of the northwest trending Vekol Mine Ridge and even extends as far south as the Great Eastern Mine.

The favorable horizon strikes NW parallel to the Vekol Mine Ridge and dips 20-30° SW. It reportedly may be 100 ft. thick.

The economic target is oxide ore to a certain depth from the present land surface and sulfide ore below that depth. This depth will likely vary in absolute elevation from place to place.

The channel ways for the mineralizing solutions seems to have been the two main systems of faults and fractures. The major system described as striking N 10-20° W, dipping from 70°E to 70°W and a minor system described as striking N 70-80°E and dipping 80°N.

A system of igneous intrusives; described by Carpenter as the Tertiary Andesite Vekol Dike; by Mitke as altered intrusive porphyry (talc) sills; and by Tenney as Diorite Porphyry dikes; seems to have followed the same general path as the mineralizing solutions. This igneous system may well have been the immediate source of the mineralizing solutions.

The time relationship between the mineralization, faulting and igneous dike intrusion is complex and poorly known.

Upon a preliminary study of Carpenter's Plate No.8, the Geologic and Topographic Map of the Vekol Mine Area, I have designated (Fig. 1) a series of seven fault blocks as follows:

Alpha Fault Block - Bounded on south by Vekol Andesite Dike, on west by Mill Fault.

Lookout Fault Block - Bounded on north by Vekol Andesite Dike, on west by Breccia Fault, on south by Argosy Fault.

Mount Vernon Block - Bounded on north by Argosy Fault, on west by Breccia Fault Extension.

Beta Fault Block - Bounded on east by Mill Fault, on south by Vekol Andesite Dike, on west block is covered by Quaternary Valley Alluvium.

Gamma Fault Block - Bounded on north by Vekol Andesite Dike, on east by Breccia Fault, on west by Daggs Fault.

Epsilon Fault Block - Bounded on north by Vekol Andesite Dike, on east by Daggs Fault, on west by Smith Fault.

Grandfather Fault Block - Bounded on north by Vekol Andesite Dike, on east by Smith Fault, on west block is covered by Quaternary Valley Alluvium.

Determination of Ore Reserves

Ease or difficulty of prospecting each block varies with the following factors:

1. Geological Factors

   Outcrop of favorable horizon
   Thickness of limestone above favorable horizon
   Complexity of faulting
   Recognition of mappable beds within massive limestone

2. Engineering Factors

   Amount of underground access within fault block
   Mobility of drill rig on surface
   Configuration of Patented Claims

My ideas on the individual fault blocks are as follows:

Alpha Fault Block

The outcrop of the favorable horizon abruptly goes northwest outside the limits of the Vekol patented claim, thus severely limiting the chance of developing ore, even though the Vekol (400 ft) Shaft is on the edge of this block.

Lookout Fault Block

This contains most of the past production and has probably been mined out except for the eastern part where the favorable horizon should outcrop. Reports indicate little underground prospecting beyond the faults bounding the west and south sides of this block.

Mount Vernon Block

This is the most promising of the seven blocks. The Mount Vernon Prospect and 90 foot tunnel on the east edge should be cleaned out and prospected. The block contains the favorable horizon within easy reach of both underground and surface drill sites.

Beta Fault Block

The favorable bed does not outcrop and the base of the favorable horizon would be approximately 370 vertical feet from surface and 100 to 300 horizontal feet from the bottom of Vekol (400 Ft) Shaft. The configuration of Grandfather Patented Claim limits the prospecting potential of this fault block.

Gamma Fault Block

This block is entirely within patented claims and can be prospected easiest by underground drilling from the bottom of Argosy (215 Ft.) Shaft. This block is second in prospecting potential after Mount Vernon.

Epsilon Fault Block

The favorable horizon outcrops at only the northeast corner, but old maps show a shaft called Combination Shaft which might be cleaned out. The base of the favorable horizon would be from 0 to 370 feet below the surface.

Grandfather Fault Block

The favorable horizon does not outcrop and no exploration of this block is known. The horizon would be at least 370 feet below surface and projects below valley alluvium. This block will be the most difficult to prospect of the seven blocks.

Field Mapping

Phase 1b & 1c surface and underground mapping should produce the following maps at a scale of 1 inch = 100 Ft.

1. Structural Contour and Partial Assay Map of Favorable Horizon (Mineralized and Dolomitized Upper Horizon of Escabrosa Limestone).

2. Structural Contour Map on Base of Contact Shale Bed in Lowermost Naco Limestone.

3. Structural Contour Map on Base of Carpenter's Naco Bed (d.) soft brick red shale, 40 feet thick, 130 feet above base of Naco Limestone.

4. Isopach Map of Vertical Distance From Surface to Favorable Horizon.

5. Geologic Map of Igneous Dikes and Sills.

6. Preliminary Cross-Sections Through Proposed Drill Sites.

Phase 2 detailed mapping would produce some of the above maps and cross sections at a scale of 1 inch = 50 Ft. or 1 inch = 25 Ft.

Specific Recommendations

Enlarge photographically by 2X Carpenter's Plate No.8 to produce a surface base map at a scale of 1 inch = 100 feet.

Reduce photographically by 4/5X Mitke's underground mine map of September 2, 1932 to produce an additional underground base map at a scale of 1 inch = 50 feet.

The Mount Vernon prospect and its reportedly 90 feet of tunnel should be cleaned out for mapping and sampling.

Wooden ladders should be made to provide access to critical underground workings for mapping and sampling.

The new aerial photographic coverage of the patented claims as discussed by Walter Heinrichs does not appear to be a critical item at this time.

Respectfully submitted,

Richard B. Leisure
Exploration Geologist

Richard B. Leisure

Walter E. Heinrichs, Jr.
Geological Engineer - Geophysicist
P.E. & C.P.G.S.

BIBLIOGRAPHY

VEKOL SILVER MINE AND VEKOL MOUNTAINS

PINAL COUNTY, ARIZONA

August 19, 1983

Best Information

The Geology and Ore Deposits of the Vekol Mountains, Pinal County, Arizona, by Robert H. Carpenter, Stanford University PhD Dissertation, July 1947.

Geology of Vekol Mountains & Vicinity from thesis of R. H. Carpenter, July 1947. Topography from U.S.G.S. Vekol Mountain Quadrangle, 1963. Scale: 1" = 1000'. This is an ink on mylar tracing of Plate 3 of Carpenter.

Vekol Mine - Main Shaft to Argosy 1150', Blue Print Map by C.A. Mitke, Casa Grande, Arizona, Scale: 1" = 40'. Map Size 17.5 X 35. inches. Underground Mine Map dated September 2, 1932.

Reconnaissance Geologic Map of Vekol Mountains Quadrangle, Arizona, by Roger Dockter and William Keith, 1978. Scale 1:62500, 1 inch = 1 mile. U.S. Geological Survey. Miscellaneous Field Studies Map MF-931.

Reports by Consulting Geologists

Geological and Feasibility Overview of the Vekol Mine, Pinal County, Arizona, by Keith C. Crandall, Consulting Geologist, Mesa, Arizona, November 8, 1978. 13 pages.

Letter by D. W. Litchfield and Associates, Inc., October 12, 1978, 2 pages.

A Compilation of Reports on the Vekol Silver by Hamilton A. Higbie, Registered Geologist, Scottsdale, Arizona, January 12, 1969. 30 pages.

Vekol Mine Report by C. A. Mitke, Casa Grande,Arizona, August 30, 1932, 11 pages with three pages of Smelter Returns, 3 figures.

Regional Geology

Economic Geological Reconnaissance of Casa Grande Mining District, Pinal County, Arizona by J. B. Tenney, 1934, 24 pages.

Younger Precambrian Geology in Southern Arizona by A. F. Shride, 1967, U.S. Geological Survey Professional Paper 566, 89 pages.

Precambrian and Paleozoic Sedimentary Rocks on the Papago Indian Reservation, Arizona, by Neal E. McClymonds, pp 77-84, in Southern Arizona Guidebook II, Edited by L. A. Heindl. 1959

Stratigraphic Relations of the Bolsa Quartzite, Vekol Mountains, Pinal County, Arizona. U.S. Geological Survey Jour. Research, Vol. 2. No. 2, p. 143-146, by M. A. Chaffee, 1974.

Younger Precambrian Formations and the Bolsa (?) Quartzite of Cambrian Age, Papago Indian Reservation, Arizona in Geological Survey Research 1964, U.S. Geol. Survey Prof. Paper 501-C, p. C43-49, by L. A. Heindl and N. E. McClymonds,1964.

Devonian Rocks and Paleogeography of Central Arizona, by Curt Teichert, 1965. U.S. Geological Survey Professional Paper 464, 181 pages.

The Mississippian and Pennsylvanian Systems in the United States-Arizona by H. Wesley Peirce, 20 pages, in U.S. Geological Survey Professional Paper 1110, Section Z.

Possible Arizona Faulting as Suggested by Mississippian Facies Analysis and Plate Tectonics - A Strato Tectonic Approach by W. J. Purves, 1976, in Tectonic Digest Ariz. Geol. Soc. Digest v.10, p259-286.

Introduction and Regional Analyses of the Pennsylvanian System, Part 1 of Paleotectonic Investigations of the Pennsylvanian System in the U. S. - Arizona, by Edwin McKee in U.S. Geol. Survey Prof. Paper 853 Pages 295-309.

The Pennsylvanian System of S. E. Arizona by K. C. Havenor, 1959, in Arizona Geol. Soc. Guidebook II, p 34-37.

Cretaceous Paleogeography of Southeastern Arizona and Adjacent Areas, by P. T. Hayes 1970, U.S. Geol. Survey Prof. Paper 658-B, 42 pages.

Mesozoic Formations in the Vekol Mountains, Papago Indian Reservation, Arizona by L. A. Heindl, 1965, p G1-G9. in U.S. Geological Survey Bulletin 1194-G.

Geophysical Reports

Geologic Report Supporting Lease Application in Vekol and Quijotoa Areas, Papago Indian Reservation Arizona by Stebbins Mineral Surveys Incorporated, Old Greenwich, Connecticut, July 1964.

Report of Mineral Exploration Throughout the Papago Indian Reservation, Arizona for the Papago Exploration Company, September 1961 - October 1963, by Stebbins Mineral Surveys Incorporated, Old Greenwich Connecticut, November 1963.

Report on a Combined Induced Polarization and Resistivity Survey at the Vekol Mine, Pinal County, Arizona by GEOEX, Job No. 270-68, for Gunnex Limited, Toronto, Canada, December 1968.

Report on a Seismic Survey, Kohatk to Reward Mine, Papago Indian Reservation, Arizona U.S.A., by Hunting Survey Corporation Limited, Toronto Canada, October 1962.

Base Maps and Aerial Photographs

Vekol Mountains Quadrangle, Arizona, 15 Minute Series (Topographic), 1963. Scale 1: 62,500

Copperosity Hills Quadrangle, Arizona.
7.5 Minute Series (Topographic). 1981, Scale 1:24,000. Covers Vekol Mine.Adjoining sheet to east is Kohatk Quadrangle 7.5 Min.

Black Line Copy Map. Vekol Mine Main Adit, Claim Boundaries and Topography. Contour Interval 50 feet. Scale 1 inch = 200 ft. Drafted by E. J. Pong. Map Size 19 X 24 inches.

Black Line Copy Map, Vekol Mine, 2320 Foot Level. Scale 1" = 50', 1:600. Mapped and drafted by Robert B. Larson and Edwin J. Pond. Map Size 9 X 15.5 inches.

Black Line Copy Map. Vekol Mine 2290 foot level. Scale 1"=50', 1:600. Mapped and Drafted by Robert B. Larson and Edwin J. Pond. Map size 9 X 15.5 inches.

Black Line Copy Map, Vekol Mine, Main Adit and Upper Levels. Scale 1" = 50', 1:600. Mapped and drafted by Robert B. Larson and Edwin J. Pond. Map size 20 X 15.5 inches.

Pacific Air Industries, Long Beach,California. Aerial Photographs of the Papago Indian Reservation, Arizona. Prepared for Hunting Geophysical Services, Long Beach, California 196?. Collection of 13,700 stereoscopic photos includes color transparencies, positive prints and photo indexes showing flight patterns. The Papago Indian Tribal Council, Sells, Arizona has the original accompanying text which was prepared by Stebbins Mineral Surveys. Mozaics and Index photos available at GEOEX Tucson, photo collection at U. of A. Library.

Miscellaneous - Reward Mine Area

The Vekol Copper Deposits (Pinal County) by Edwin Higgins, Engineering and Mining Journal, V.91, p. 473-474, 1911.

Exploration of Reward Zinc Deposit in Vekol Mountains, by Thomas Denton and P. S. Haury, 1946, 42 Pages. U.S. Bureau of Mines, Report of Investigation 3975.

Reward Mine and Christmas Gift Mine, by Newmont Mining Company available at U.S. Department of Interior, Bureau of Indian Affairs, Phoenix, Arizona.

Vekol Hills Copper Deposit, Pinal County, Arizona (Abstract), by H. J. Steele of Newmont Exploration Ltd., Tucson, in Arizona Geological Society Digest Vol. XI, Proceedings of the Porphyry Copper Symposium, March 18-20, 1976.

Richard B. Leisure
Exploration Geologist

GEOLOGIC AND TOPOGRAPHIC MAP OF THE VEKOL SILVER MINE AREA

PINAL COUNTY, ARIZONA

BY ROBERT H. CARPENTER (1947)

UNSURVEYED SECTION 34 T 9 S, R 2 E
UNSURVEYED SECTION 35 T 9 S R 2 E
COPPEROSITY HILLS QUADRANGLE, ARIZONA

GRAPHIC SCALE

0 100 200 300

1 INCH = 100 FEET
1:1200

Contour interval 50 Feet

EXPLANATION

QUATERNARY — Qal — ALLUVIUM
Coarse, angular, alluvial debris. Often cemented by caliche

TERTIARY — Ta — ANDESITE
Well altered, brownish, porphyritic andesite

LOWER PENNSYLVANIAN — Cn — CORAL MARKER SHALE MEMBER — NACO LIMESTONE
Light grey, generally aphanitic limestone with red shale partings

BASE OF NACO LIMESTONE

CONTACT SHALE
Five to ten feet thick red shale

LOWER MISSISSIPPIAN — Ce — ESCABROSA LIMESTONE
Thick bedded light to dark grey, granular, cliff forming limestone

UPPER DEVONIAN — Dlo ? — MARTIN UPPER MEMBER — LOWER OURAY FORMATION
Thin bedded, soft, pinkish brown limestone

UPPER DEVONIAN — Dm — MARTIN MIDDLE MEMBER — MARTIN LIMESTONE
Cliff forming, massive, buff limestone and thin bedded brown limestone

UPPER DEVONIAN — Dpc ? — MARTIN LOWER MEMBER — PICACHO DE CALERA FORMATION
Blue and tan, cliff forming dolomite and sandy limestone

UPPER CAMBRIAN — €a — ABRIGO UPPER MEMBER — ABRIGO FORMATION
Thin bedded brown limestone and sandy shale

MIDDLE CAMBRIAN — €sb — ABRIGO MIDDLE MEMBER — SOUTHERN BELLE QUARTZITE
Cross bedded, brown, calcareous quartzite

MIDDLE CAMBRIAN — €sc — ABRIGO LOWER MEMBER — SANTA CATALINA FORMATION
Thin bedded, impure, micaceous shale and sandstone

MIDDLE CAMBRIAN — €b — BOLSA QUARTZITE
Does not outcrop on this map

37 — strike and dip of beds

FAULTS
1. Observed
2. Possible
3. Projected from underground workings

Arrow shows dip, U on Upthrown Side, D on Downthrown Side, with amount of throw in feet

Geological Contact

Shaft — Tunnel — Roads

Trails — Mine dump

DH — Drill Hole By Previous Leasee

POP (5) — Proposed Drilling Pad

●GCS-1 Geochemical Sample By Geoex.

●EX-1575-46 Geochemical Sample By Duval Corp.

PREPARED FOR

ARGOSY MINING COMPANY

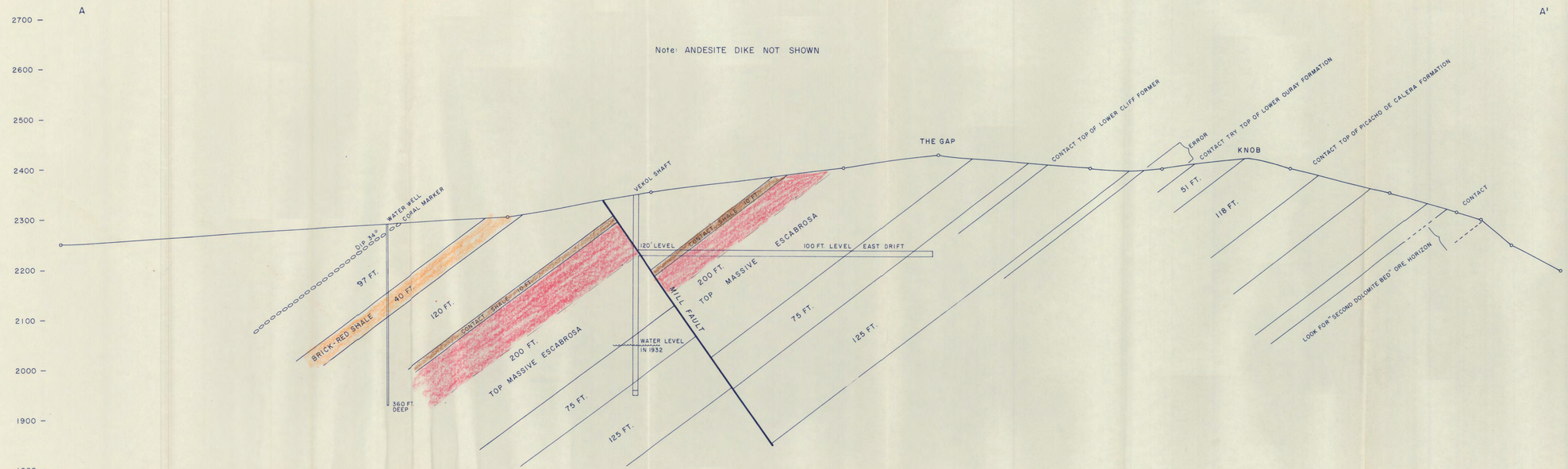
BY

HEINRICHS GEOEXPLORATION COMPANY

810 W. GRANT ROAD, P.O. BOX 5964, TUCSON, ARIZONA 85703 PHONE (602) 623-0578

PROJECT No. 1668

GEOLOGIST	TOPOGRAPHY	DRAFTSMAN
R.H. CARPENTER (1947) R.B. LEISURE (1983)	CARPENTER	S.W. Beebe
SCALE 1:1200 1 INCH = 100 FEET	DATE 4 NOVEMBER 1983	PLATE No. 1 PRELIMINARY

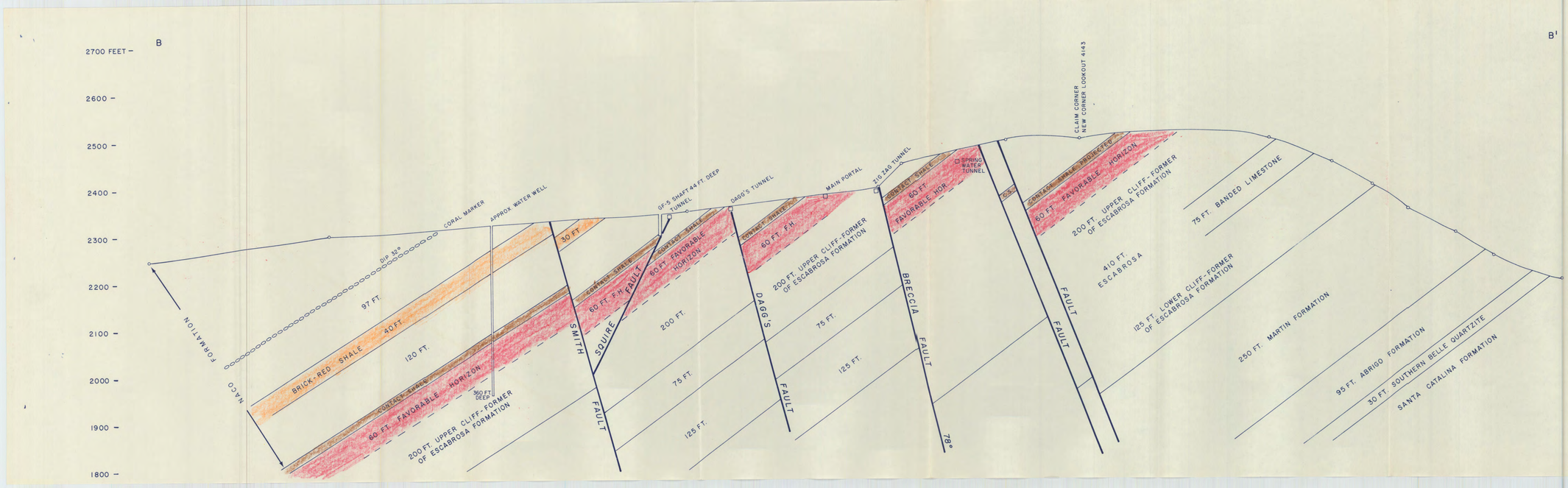


CROSS – SECTION A – A'
LOOKING N 20° W

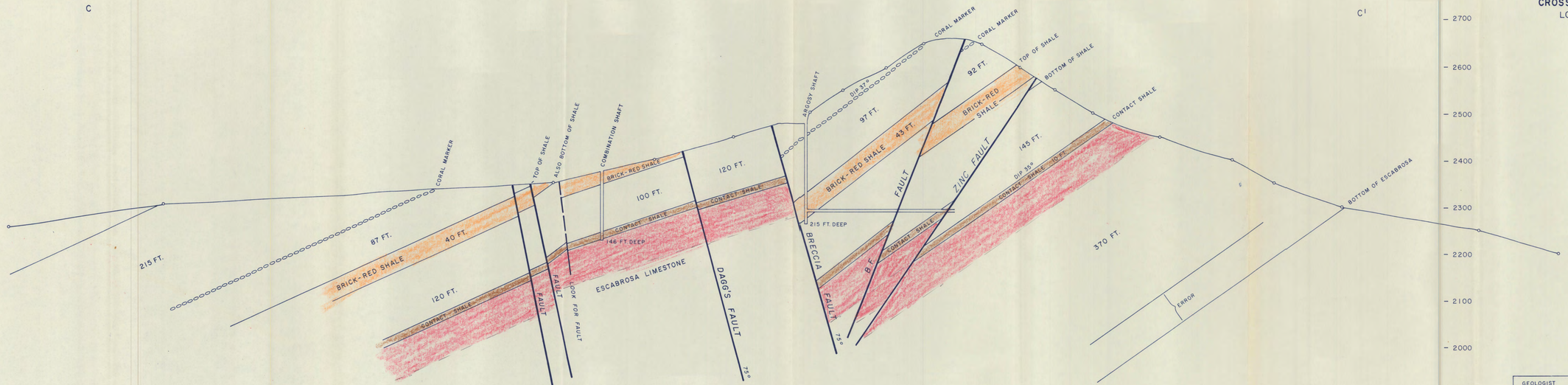
GEOLOGIST: R.B. LEISURE	SCALE: Vertical and Horizontal 1 Inch 100 Feet
DATE: 4 NOVEMBER 1983	PLATE No. 2

CROSS - SECTION B - B'

LOOKING N 19° W

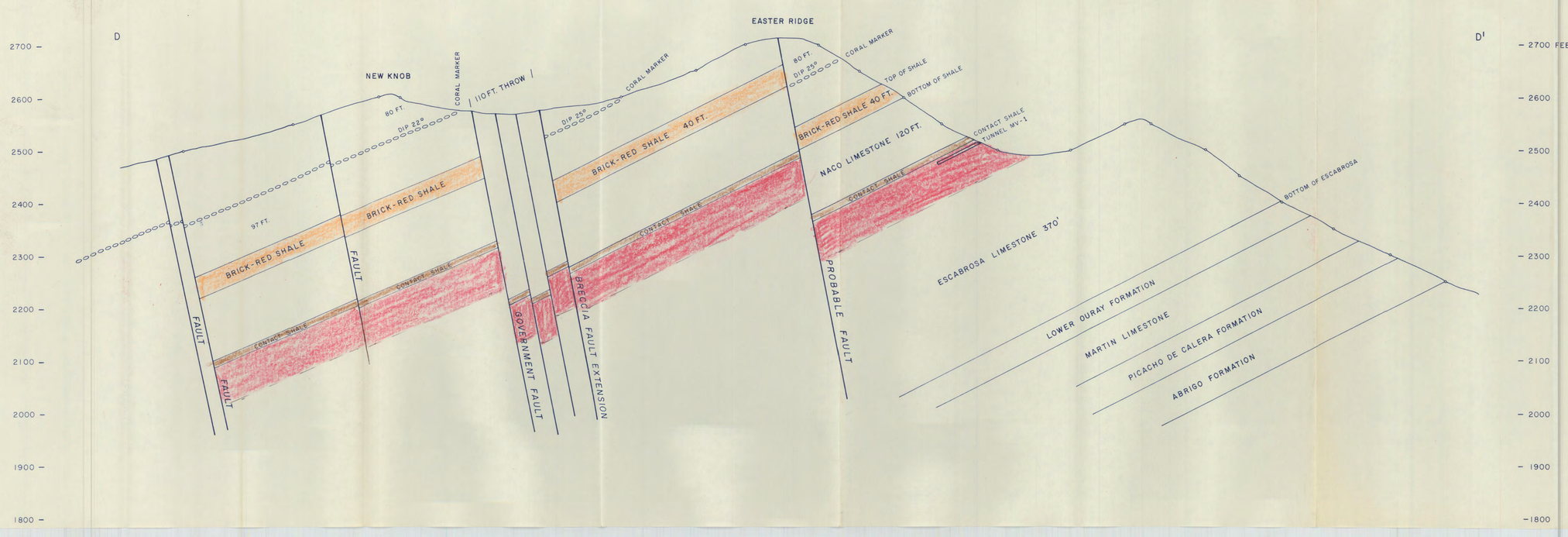


GEOLOGIST	SCALE
R.B. LEISURE	Vertical and Horizontal 1 Inch 100 Feet
DATE	PLATE No.
4 NOVEMBER 1983	3



CROSS – SECTION C – C'
LOOKING N 18° W

GEOLOGIST	SCALE
R.B. LEISURE	Vertical and Horizontal 1 Inch = 100 Feet
DATE	PLATE No.
8 NOVEMBER 1983	4



CROSS – SECTION D – D'

LOOKING N 22° W

GEOLOGIST	SCALE
R.B. LEISURE	Vertical and Horizontal 1 Inch = 100 Feet
DATE	PLATE No.
4 NOVEMBER 1983	5

#278 HAMMER UNIV OF ARIZ #171
D.F. 1961 Geol + Ore Dep of Jackrabbit Area

#82 MINTZ COLUMBIA UNIVERSITY, 1943
SLATE MOUNTAIN VOLCANO-LACCOLITH

MCCLYMONDS - PRECAMBRIAN AND PALEOZOIC OF PAPAGO IND. RES
ARIZ GEOL SOC. GUIDEBOOK II p. 77-84

TAKAHASHI - (1960) Supergene alteration of zinc and lead deposits
in limestone Econ. Geol. V. 55 p 1083-1115

~~7.1~~

$5\overline{)39.7}$

35

47

50

8

$5\overline{)40}$

6.85

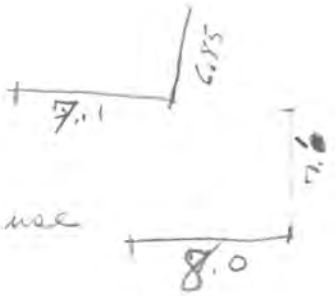
$5\overline{)34.25}$

30

42

40

25



x 5

K-Ar DATES ON INTRUSIVE ROCKS AND ALTERATION ASSOCIATED WITH THE LAKESHORE PORPHYRY Cu DEPOSIT.
BY W. P. JOHNSON. IN ISOCHRON/WEST No 4 AUGUST 1972
P 29+30
ALES 67.3 ± 2.2 MY ON LAKESHORE STOCK.. BIOTITE QUARTZ MONZONITE

AGE OF TERTIARY VOLCANISM AND TILT-BLOCK FAULTING IN WEST-CENTRAL ARIZONA. (ABST.) GEOLOGICAL SOC OF AMER ABST W/ PROGRAM V. 9 P 466-467 (1977). MILLER, LEE, DAMON, SHAFIQUL LAH

CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA
GEOL SOC AMER BULL V 89 P 921-940 (1978)
L.D. EBERLY + T. B. STANLEY. EXXON HAVE

WHOLE ROCK ANALYSIS

MR. BILL LINDEK

SKYLINE

INST-AA D50 ±2%

Si GRAV. ±½% 12.00

5.00 ea

11 hand samples - multiple element discount 3.00 per element

TUCSON TRACTOR

SOUTH SAHUARO

DRAGOON TO SAHUARO

1775 W. SAHUARO

DATA SHEET

Vekol Mine, Papago Indian Res., Pinal County, Arizona

1575 - 1	Sample of dump, south of Vekol Mine.
1575 - 2	Cut along strongly altered lst. (kaolin).
1575 - 3	Cut through nodulous lst., some alteration (kaolin).
1575 - 4	Fresh lst., chip sample.
1575 - 5	Decomposed lst., grab sample.
1575 - 6	Main mineralized zone, open pit cut, chip sample along vertical face.
1575 - 7	Highest dump (north), 10 foot interval sample.
1575 - 8	Side dump (east), 10 foot interval sample.
1575 - 9	Channel sample along caterpillar cut on lower dump.
1575 -10	Tailings, vertical cut.

dumps (See maps)

dolomite altered jasperoide, clay, limonite

-46 favorable horizon

-49 Abrigo

-48 Bolsa

7-25-66 CWL:gaf

GARRELS, R.M. AND R.M. DREYER
MECHANISM OF LIMESTONE REPLACEMENT AT LOW T. AND P.
GEOL SOC OF AMERICA BULL. V. 63 NO. 4 P 325-379 ONLY FAIR

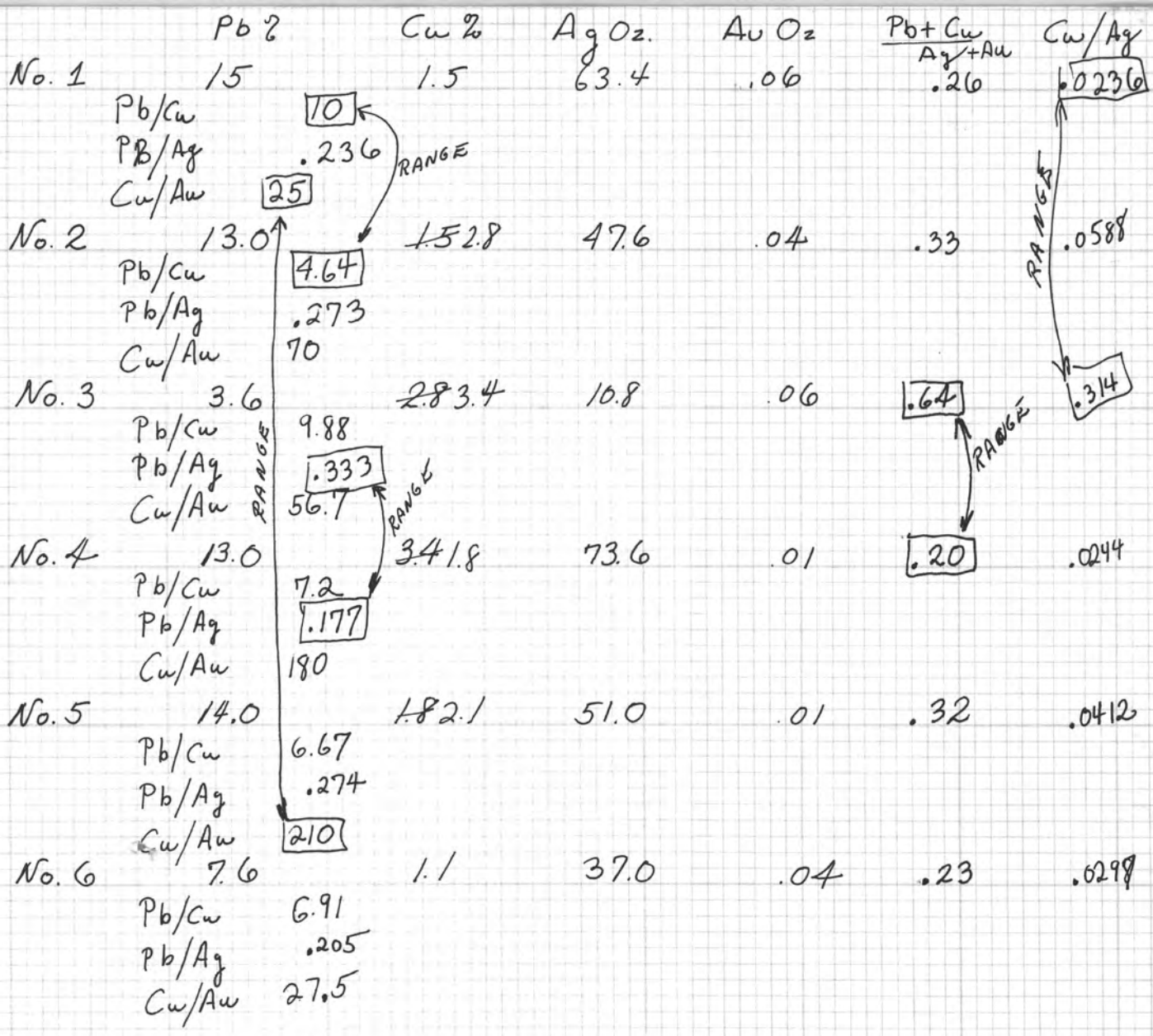
MICROPALEO. V. 3 NO 2 P 165-170 (1957)

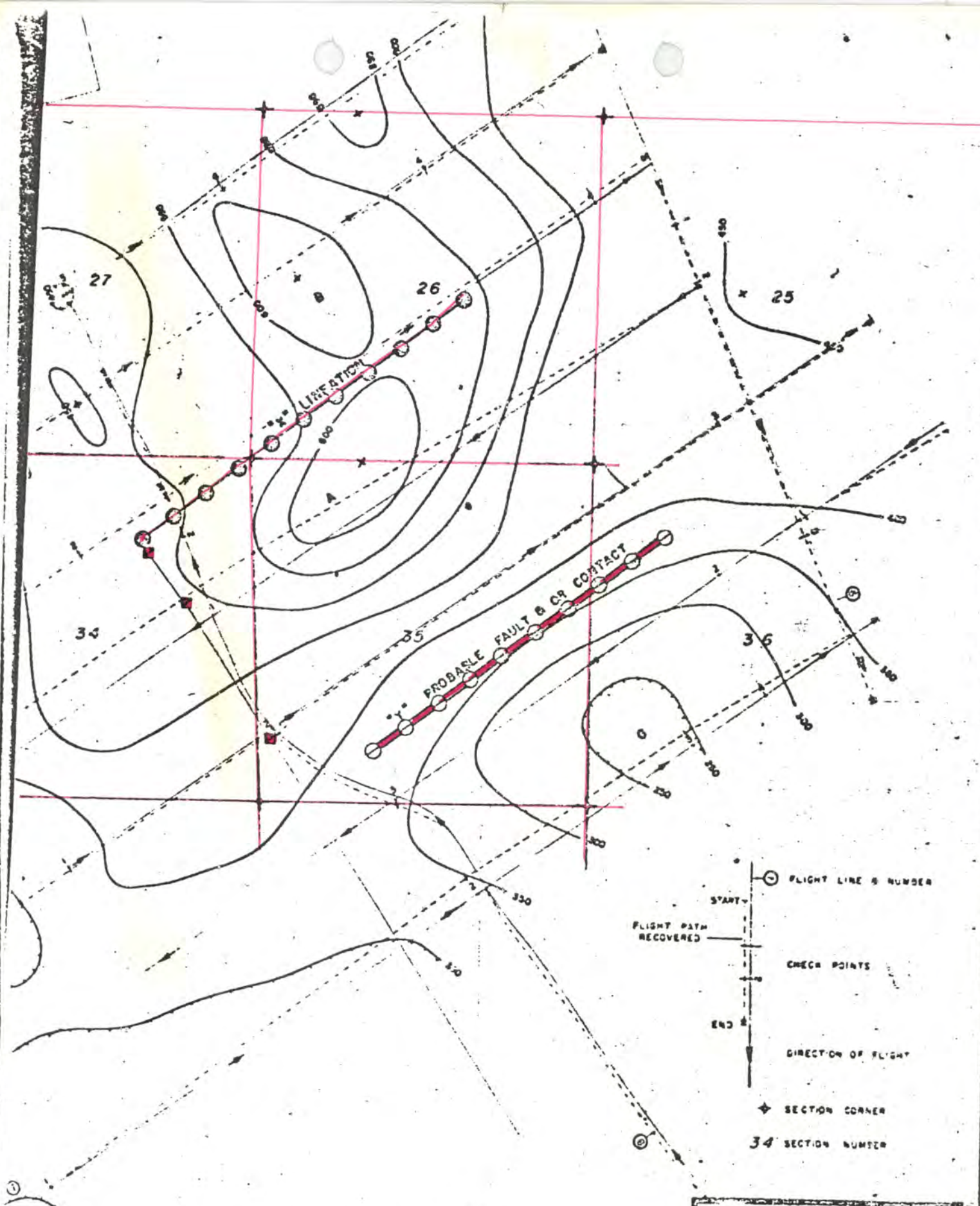
BRYAN, KIRK
USGS BULL 730b (1922) GEOLOGICAL RECON MAP IN PIECES
USGS WATER SUPPLY PAPER 499 (1925)

STOYANOW. GEOL. SOC. AMER. VOL 47, P 459-540, (1936) GOOD
FIND CLEANER BOOK

HEINDL (#18) USGS OPEN FILE REPORT (1960)
→ (#23) Ariz State Land Dept Water Res. Rep 9. (1961)

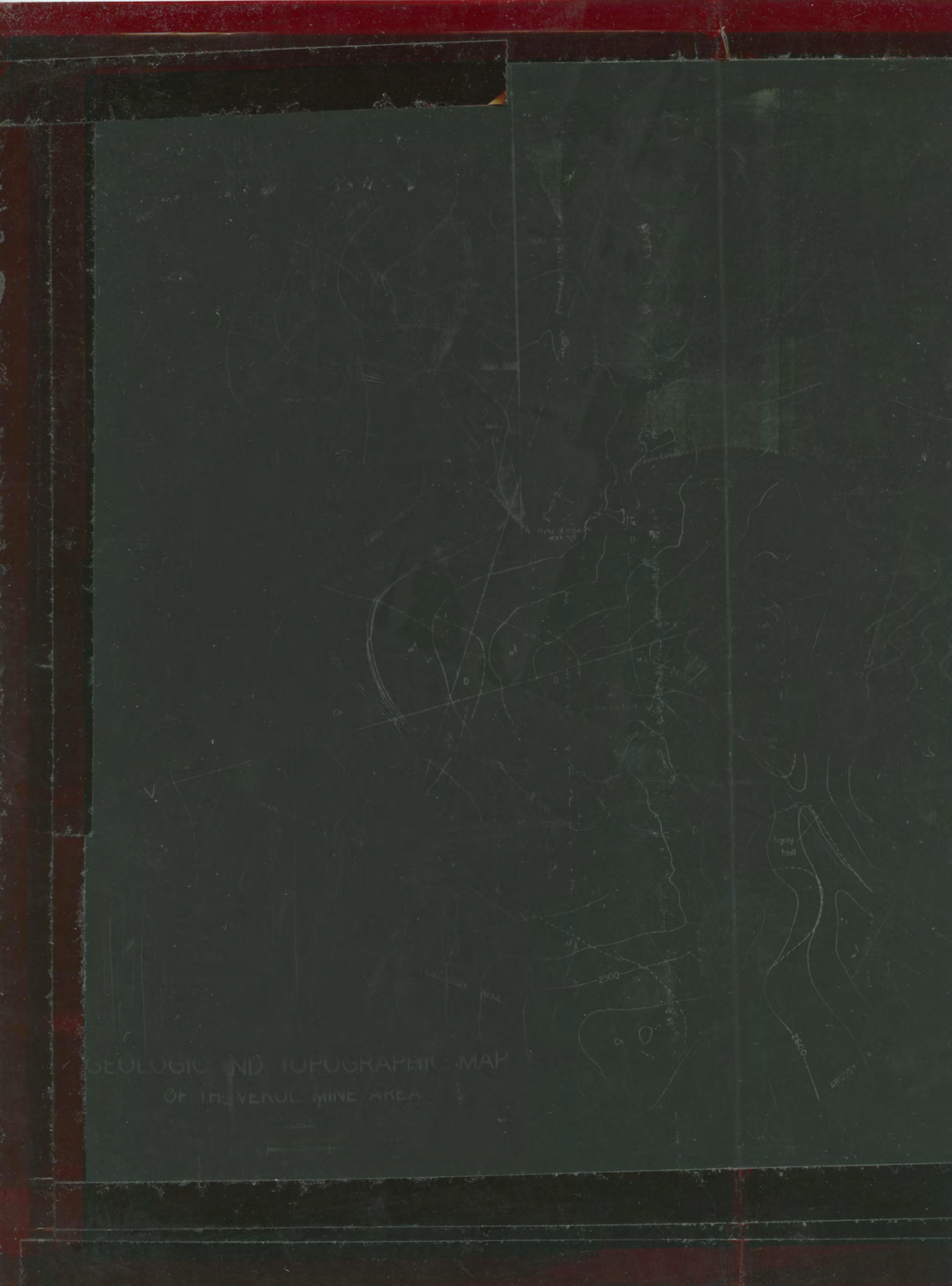
ROMSLO - (1950) INV. OF LAKE SHORE COPPER DEPOSITS
US BUREAU OF MINE R.I ~~4850~~ 4706
ARIZONA MANGANESE-SILVER ORES RI 4097 XEROX


Pb %
Cu %
Ag Oz.
Au Oz
Pb+Cu / Ag+Au
Cu/Ag
No. 1
15
1.5
63.4
.06
.26
.0236
Pb/Cu
10
Pb/Ag
.236
Cu/Au
25
RANGE
No. 2
13.0
~~1.5~~ 2.8
47.6
.04
.33
.0588
Pb/Cu
4.64
Pb/Ag
.273
Cu/Au
70
RANGE
.314
No. 3
3.6
~~2.8~~ 3.4
10.8
.06
.64
Pb/Cu
9.88
Pb/Ag
.333
Cu/Au
56.7
RANGE
RANGE
RANGE
No. 4
13.0
~~3.4~~ 1.8
73.6
.01
.20
.0244
Pb/Cu
7.2
Pb/Ag
.177
Cu/Au
180
No. 5
14.0
~~1.8~~ 2.1
51.0
.01
.32
.0412
Pb/Cu
6.67
Pb/Ag
.274
Cu/Au
210
No. 6
7.6
1.1
37.0
.04
.23
.0298
Pb/Cu
6.91
Pb/Ag
.205
Cu/Au
27.5


LINEATION
PROBABLE FAULT & OR CONTACT
A
B
C
25
26
27
34
35
36
FLIGHT LINE & NUMBER
START
FLIGHT PATH RECOVERED
CHECK POINTS
END
DIRECTION OF FLIGHT
SECTION CORNER
34 SECTION NUMBER
R 2 E
PAPAGO INDIAN RESERVATION
AERIAL MAGNETIC COMPOSITE
VEKOL MINE PROJECT
PINAL COUNTY, ARIZONA
DUVAL CORPORATION

ALPHA FAULT BLOCK
VEKOL 4143
MILL FAULT
BETA FAULT BLOCK
Coral marker
Vekol Shaft
Mill
VEKOL ALOEMIC DIKE
Portal of main workings
GAMMA
40 FT
LOOKOUT FAULT BLOCK
Breccia fault
63 FT
FAULT
FAULT
BLOCK
GRANDFATHER FAULT BLOCK
GRAND FATHER 4143
COMBINATION SHAFT
Argosy Shaft
Argosy fault
ZINC FAULT 113 FT
BRECCIA FAULT ETENSION
FLAT IRON 4143
ARGOSY 4143
MOUNT VERNON FAULT BLOCK
Coral marker
SOFT SHALE BRICK-RED 40 FT
N 35°W
2500
2300
2400
2600
2200
Cn
Qal
Ta
Ea
V'

Fig 1



Geochem Samples from
Vekol Silver mine 10/11/83
Job # 1650

Southwestern Assayers

- GCS-1
- GCS-2
- GCS-3
- GCS-4
- GCS-5
- GCS-6
- GCS-7
- GCS-8

assay for Pb. Zn. Cu, Ag

we expect PPM amounts on these
mostly Fe rich shale

Report appendix:
Hawkes & Webb (or
whatever).
table of ave. elemental
content of Rx.

Bob Metz re Duval ✓
Vekol data.

7/23/84

Art Hendricks called:

Will phone Richard

Dr. Carter (group)

Not

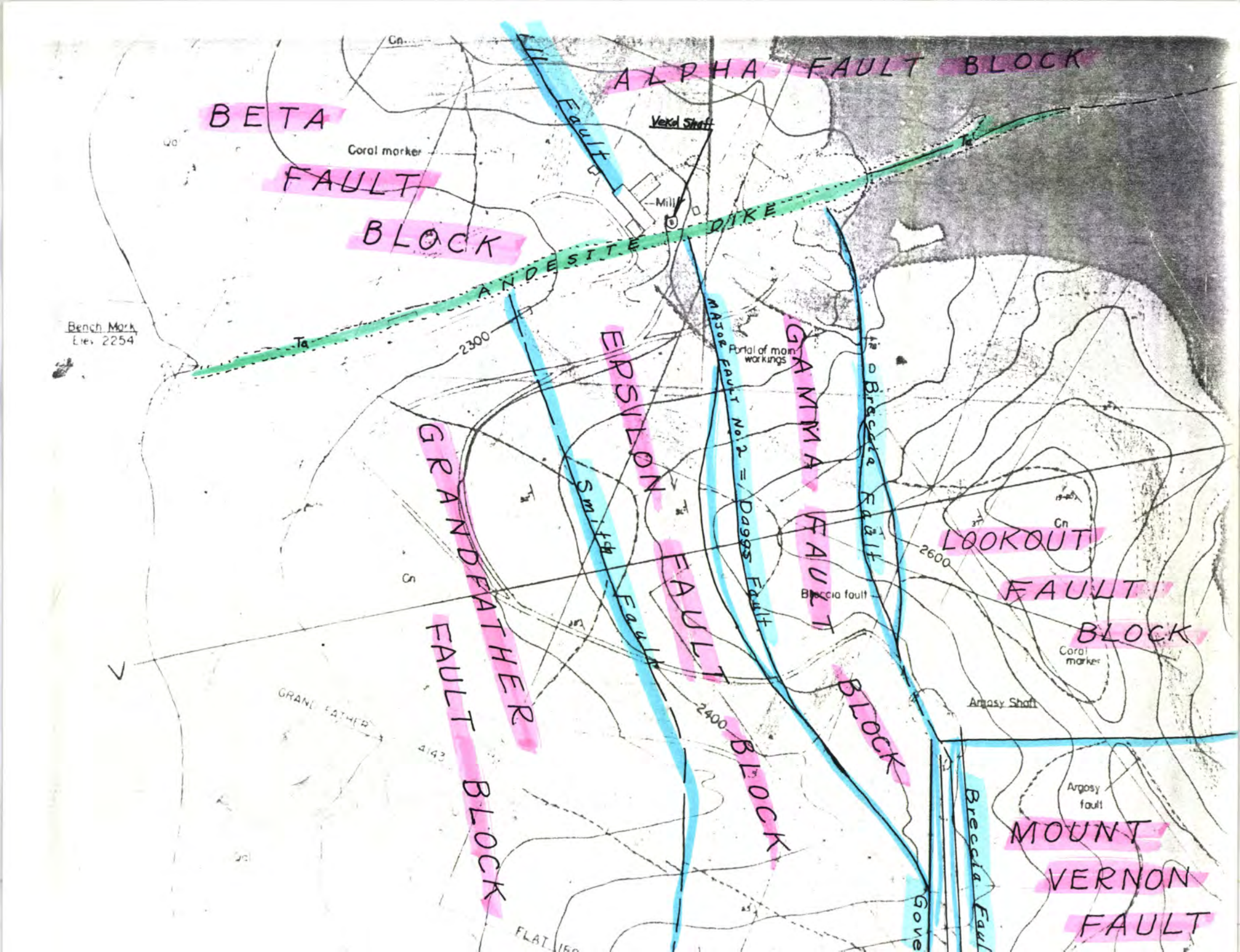
Haynesworth (group)

operations

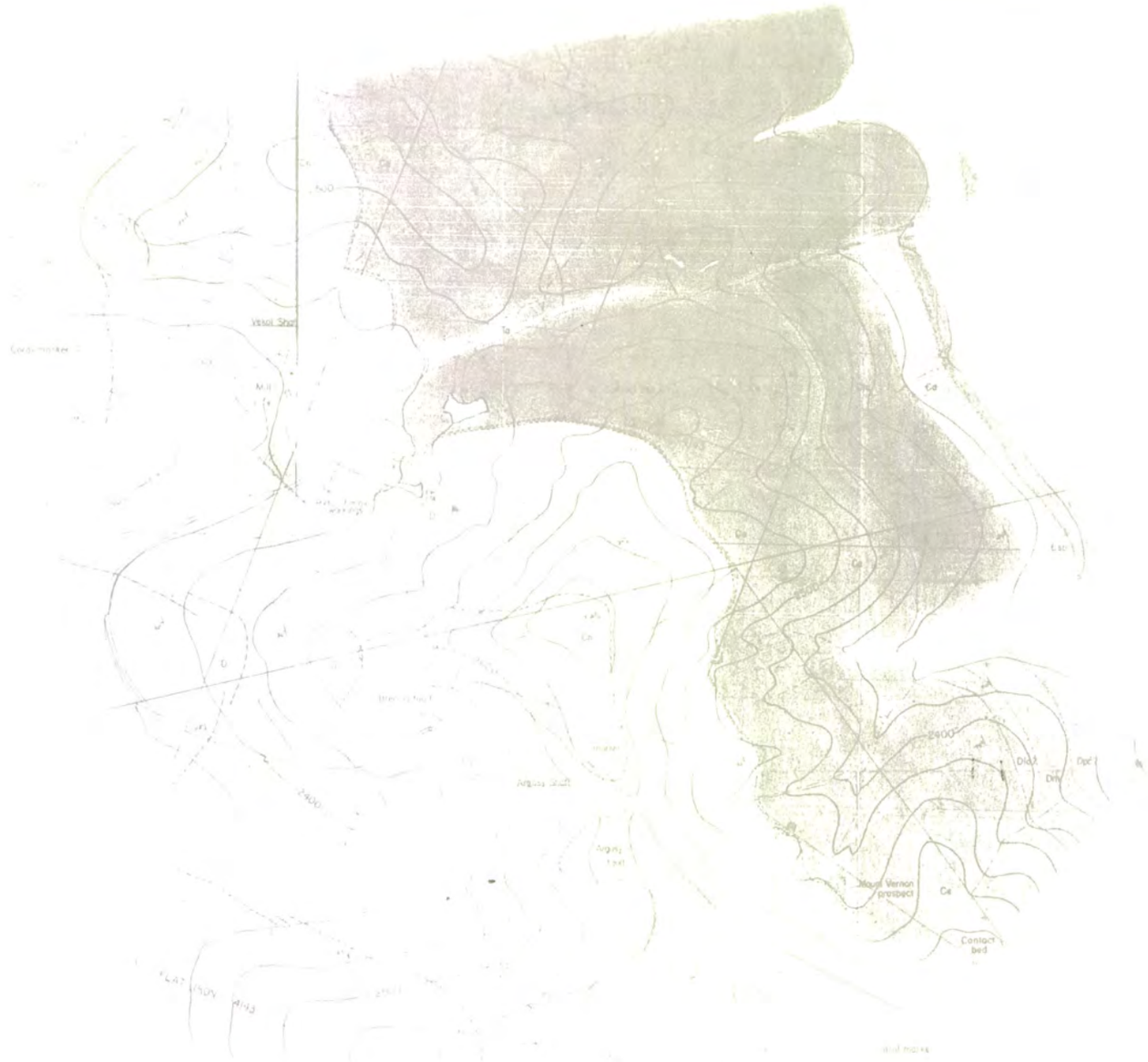
Closed now.

Joint venture

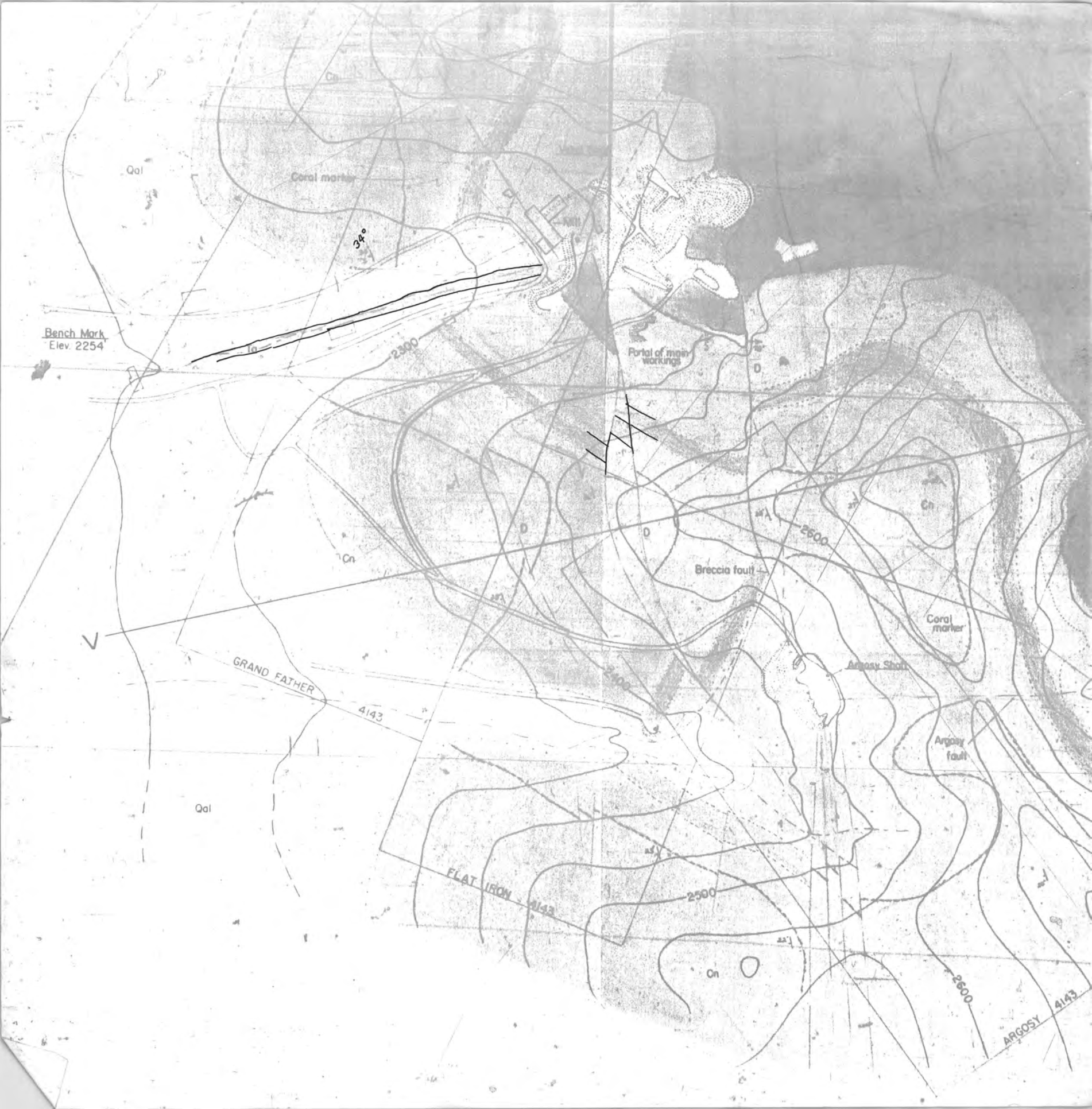
possible.

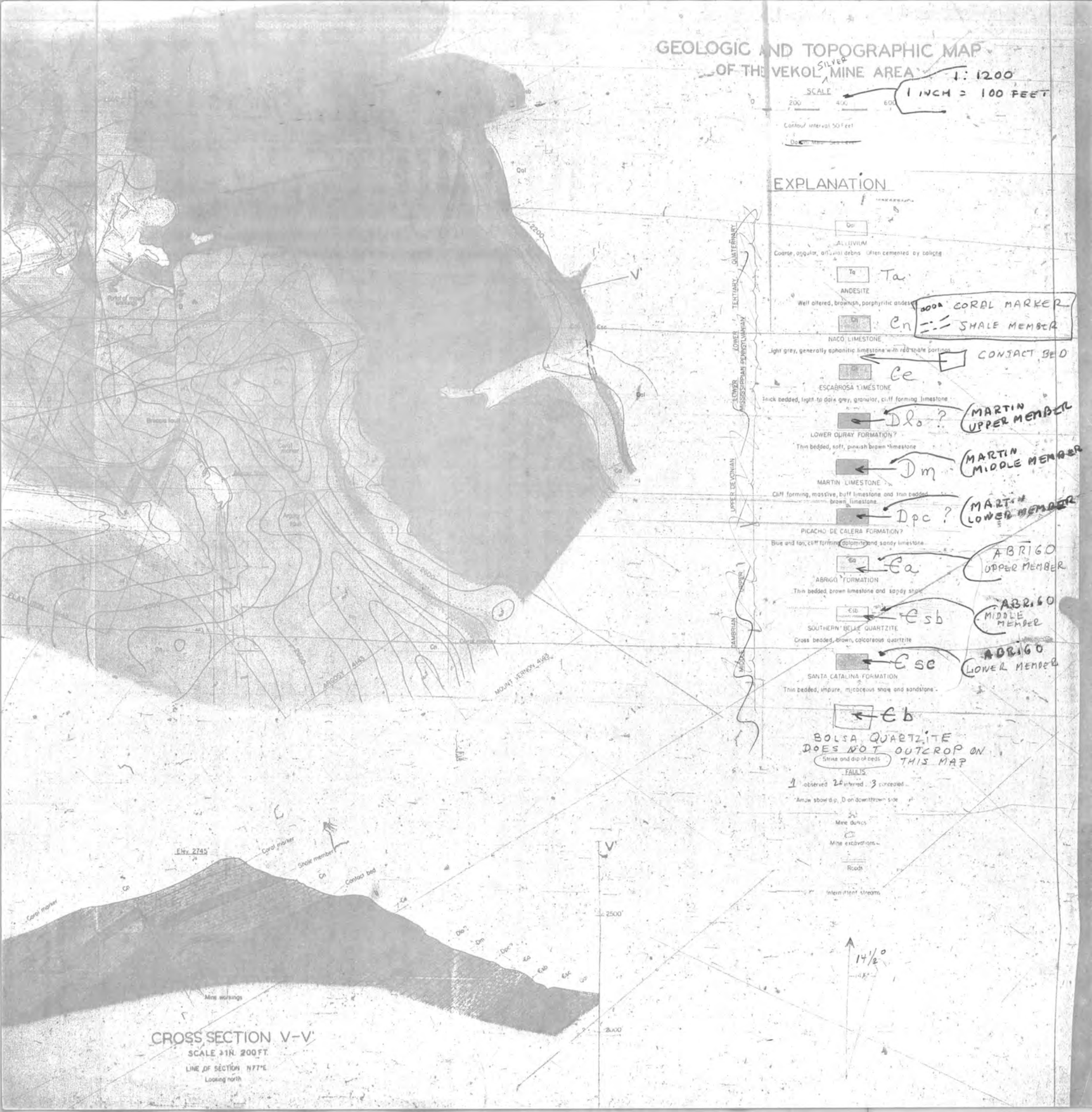


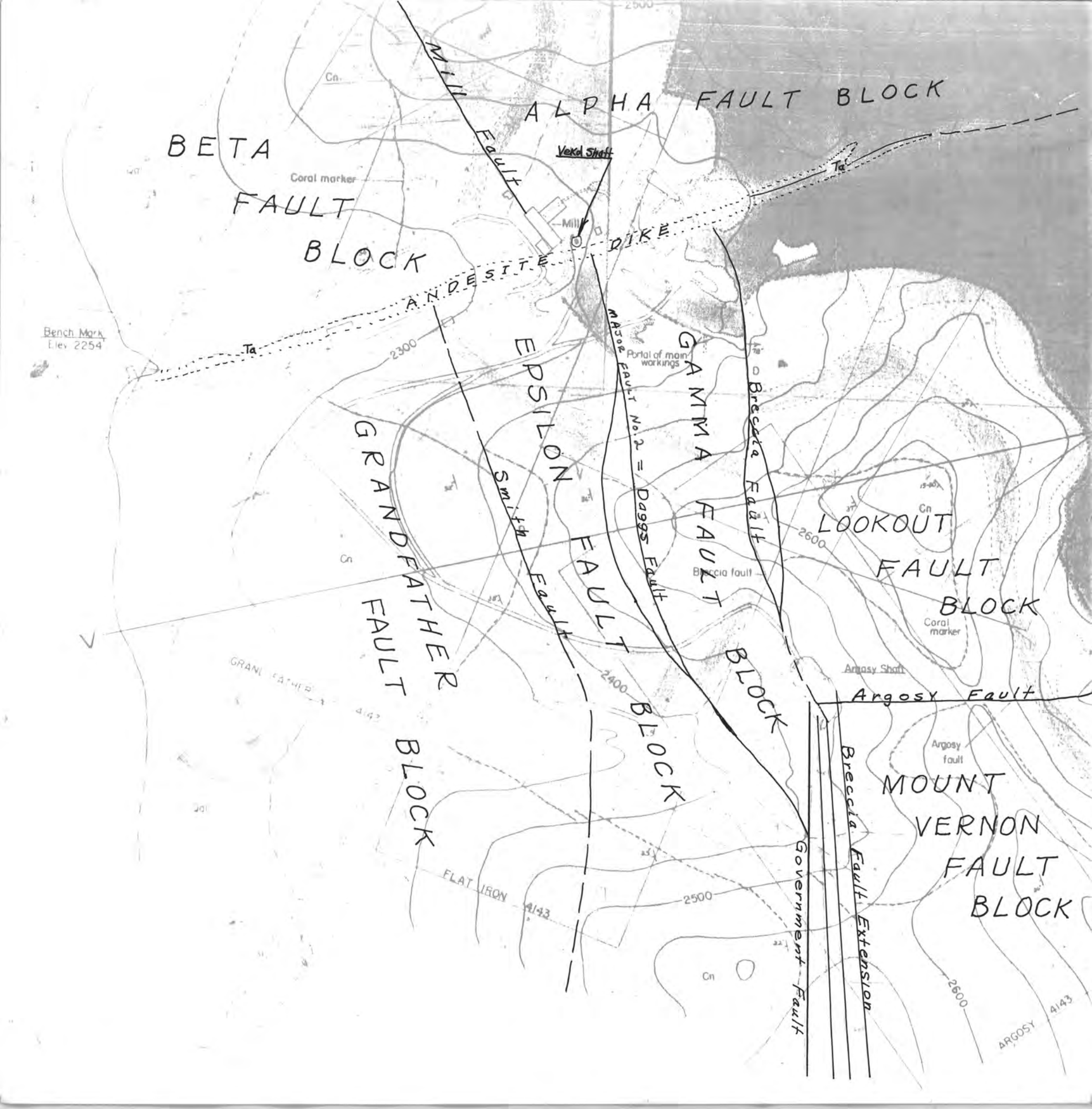
ALPHA FAULT BLOCK
BETA FAULT BLOCK
Coral marker
Vexal Shaft
Mill
ANDESITE DIKE
Ta
Bench Mark
Elev 2254
2300
EPSILON FAULT BLOCK
GRANDFATHER FAULT BLOCK
Smith Fault
MAJOR FAULT No.2 = Daggs Fault
Portal of main workings
GAMMA FAULT BLOCK
Breccia Fault
Breccia fault
2600
LOOKOUT FAULT BLOCK
Coral marker
Argosy Shaft
2400
GRAND FATHER
4143
Argosy fault
MOUNT VERNON FAULT
Breccia Fault
Gove

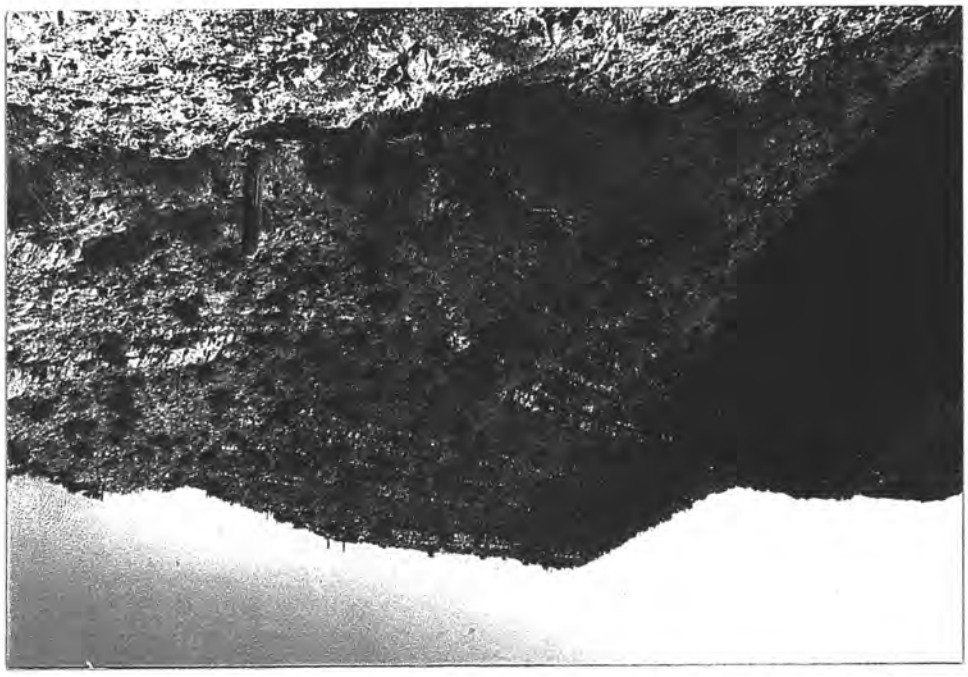


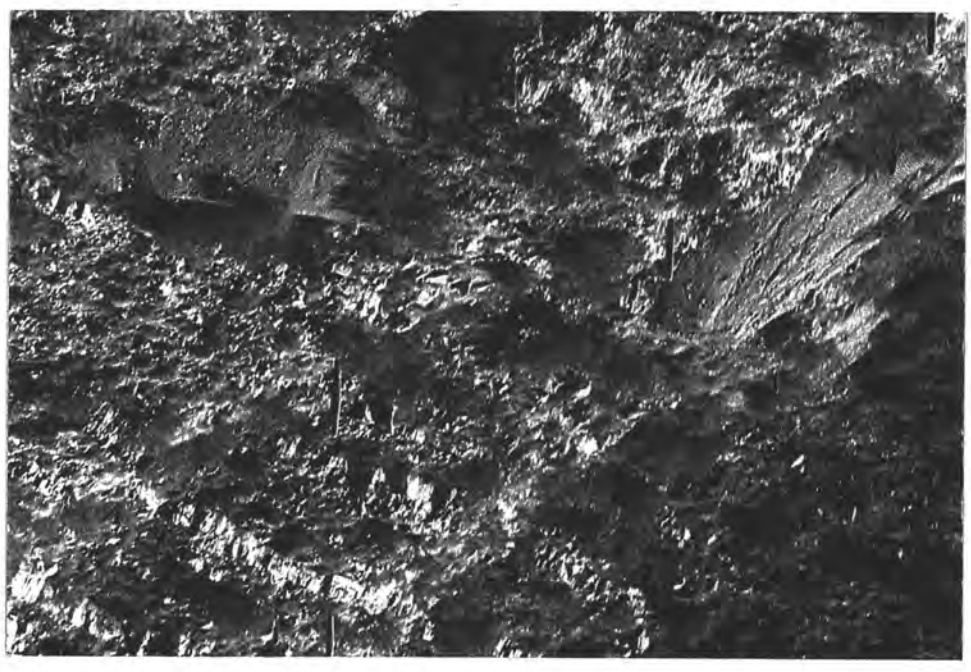
GEOLOGIC AND
OF TH VERC


Qal
Coral marker
Mill
34°
Bench Mark
Elev. 2254
Ta
2300
Portal of main workings
D
Cn
2500
Breccia fault
Coral marker
Argosy Shaft
GRAND FATHER
4143
Argosy fault
Qal
FLAT IRON
4143
2500
Cn
2600
ARGOSY
4143


GEOLOGIC AND TOPOGRAPHIC MAP
OF THE VEKOL SILVER MINE AREA
1: 1200
1 INCH = 100 FEET
SCALE
0 200 400 600
Contour interval 50 Feet
Datum Mean Sea Level
EXPLANATION
Qal
ALLUVIUM
Coarse, angular, alluvial debris. Often cemented by caliche
Ta
ANDESITE
Well altered, brownish, porphyritic andesite
Cn
NACO LIMESTONE
Light grey, generally aphanitic limestone with red shale partings
CORAL MARKER
SHALE MEMBER
CONTACT BED
Ce
ESCABROSA LIMESTONE
Thick bedded, light to dark grey, granular, cliff forming limestone
Dlo ?
MARTIN UPPER MEMBER
LOWER OURAY FORMATION?
Thin bedded, soft, pinkish brown limestone
Dm
MARTIN MIDDLE MEMBER
MARTIN LIMESTONE
Cliff forming, massive, buff limestone and thin bedded brown limestone
Dpc ?
MARTIN LOWER MEMBER
PICACHO DE CALERA FORMATION?
Blue and tan, cliff forming dolomite and sandy limestone
Ꞓa
ABRIGO UPPER MEMBER
ABRIGO FORMATION
Thin bedded, brown limestone and sandy shale
Ꞓsb
ABRIGO MIDDLE MEMBER
SOUTHERN BELLE QUARTZITE
Cross bedded, brown, calcareous quartzite
Ꞓsc
ABRIGO LOWER MEMBER
SANTA CATALINA FORMATION
Thin bedded, impure, micaceous shale and sandstone
Ꞓb
BOLSA QUARTZITE DOES NOT OUTCROP ON THIS MAP
Strike and dip of beds
FAULTS
1 observed 2 inferred 3 concealed
Arrow show dip, D on downthrown side
Mine dumps
Mine excavations
Roads
Intermittent streams
QUATERNARY
TERTIARY
LOWER PENNSYLVANIAN
LOWER MISSISSIPPIAN
UPPER DEVONIAN
UPPER CAMBRIAN
MIDDLE CAMBRIAN
Qal
2200
V
Brecca fault
Coral marker
Argosy fault
2000
MOUNT VERNON 4143
Elev. 2745'
Coral marker
Shale member
Contact bed
Cn
Ce
Dlo?
Dm
Dpc?
Ꞓa
Ꞓsb
Ꞓsc
Qal
V'
2500'
2000'
14½°
Mine workings
CROSS SECTION V-V'
SCALE 1 IN. 200 FT.
LINE OF SECTION N77°E
Looking north


ALPHA FAULT BLOCK
BETA FAULT BLOCK
GRANDFATHER FAULT BLOCK
EPSILON FAULT BLOCK
GAMMA FAULT BLOCK
LOOKOUT FAULT BLOCK
MOUNT VERNON FAULT BLOCK
Mill Fault
Vekol Shaft
Coral marker
Mill
DIKE
ANDESITE
Ta
Bench Mark
Elev 2254
2300
Portal of main workings
MAJOR FAULT No.2 = Daggs Fault
Smith Fault
Breccia Fault
Breccia fault
2600
Coral marker
Argosy Shaft
Argosy Fault
Argosy fault
Breccia Fault Extension
Government Fault
2400
2500
FLAT IRON
ARGOSY
4143
Cn





GEOLOGIC AND
OF TH VEKO

FIGURE 1
RICHARD B. LEISURE

COPPER STATE ANALYTICAL LAB., INC.

DNYANENDRA A. SHAH
ARIZONA REG. NO. 8888

REGISTERED ASSAYER
P. O. BOX 7517
TUCSON, ARIZONA 85725

710 E. EVANS BLVD.
PHONE 602-884-5811
884-5812

Heinrichs GEOEX
Box 5964
Tucson, AZ 85703

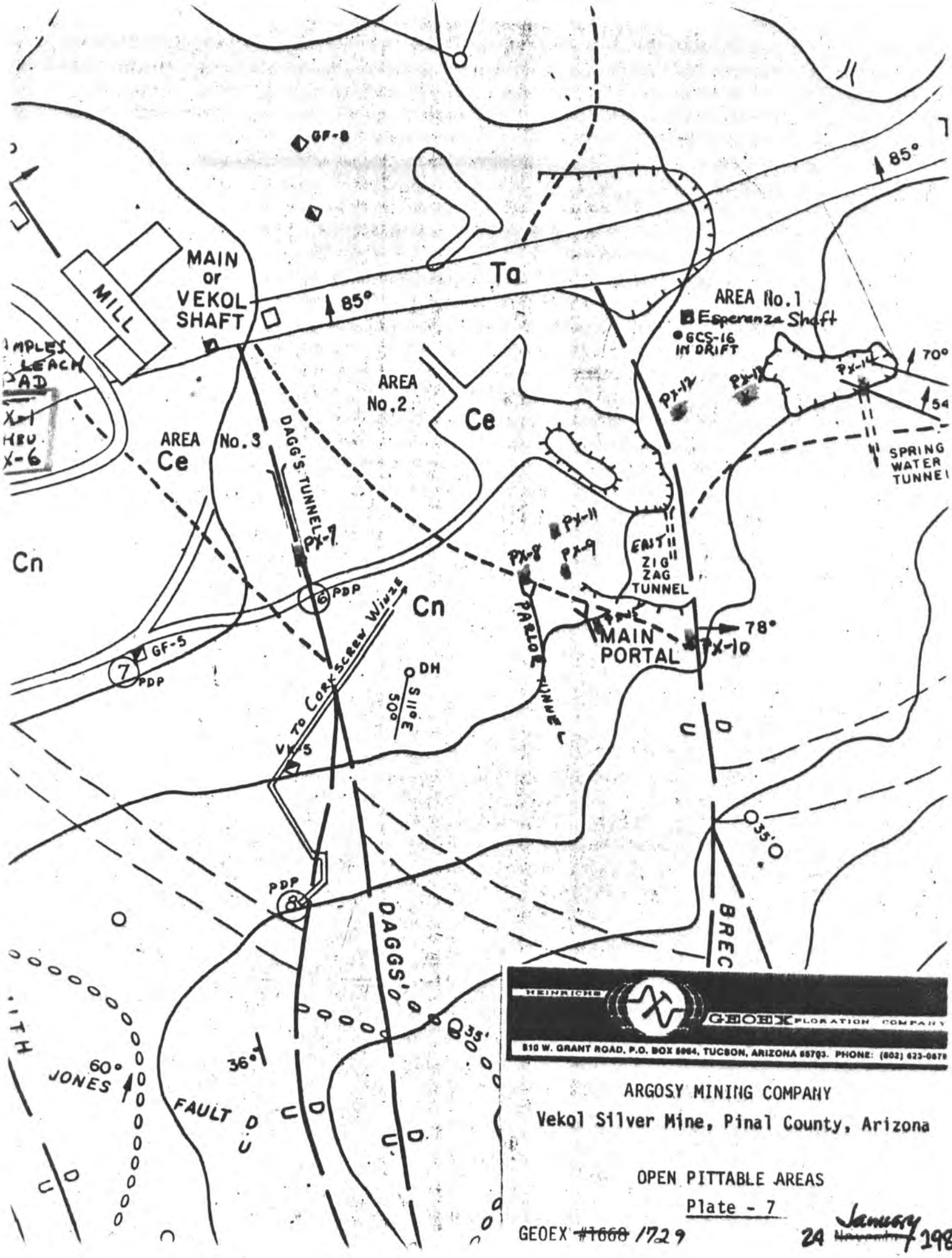
JOB# 002589
RECEIVED 10/12/83
REPORTED 10/21/83
INVOICE# C 2866

SAMPLE NUMBER	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Au opt	Ag opt	
GCS-#1	2.0	2	28	62			
2	1.6	4	16	60			
3	2.2	8	24	66			
4	2.0	10	26	68			
5	1.4	12	18	38			
6	0.6	14	24	50			
7	0.3	18	11	52			
8	<0.1	89	22	60			
9	2.6	10	28	80			
10	1.0	12	60	160			
11	1.2	12	14	16			
12	6.0	508	0.18%	580	.004	0.16	
13	1.8	16	32	116			
14	0.1	18	18	14			
15	<0.1	4	18	12			
16	13.0	4	224	169			

Shah 10-21-83

1 ppm = 0.0001% 1 troy oz./ton = 34.286 ppm 1 ppm = 0.0292 troy oz./ton

* Gold and Silver reported in troy oz. per 2,000 lb. ton.



HEINRICHS GEOEXPLORATION COMPANY

810 W. GRANT ROAD, P.O. BOX 5964, TUCSON, ARIZONA 85703. PHONE: (602) 623-0878

ARGOSY MINING COMPANY

Vekol Silver Mine, Pinal County, Arizona

OPEN PITTABLE AREAS

Plate - 7

GEOEX ~~#1660~~ /729

24 ~~November~~ January 1985

SAMPLE SUBMITTAL FORM

COPPER STATE ANALYTICAL LAB., INC.
P.O. Box 7517 – 710 E. Evans Blvd.
Tucson, Arizona 85725
(602) 884-5811 – 884-5812

Send Report To: ARTHUR BUSHYEAGER

Copy Of Report To: RICHARD LEISURE

Send Statement To: ARTHUR BUSHYEAGER

TYPE OF SAMPLES: ROCK CHIP ✓ CORE ____ SOIL ____ STREAM SEDIMENT ____
VEGETATION ____ WATER ____ OTHER ____

METHOD OF ANALYSIS: GEOCHEM ____ QUANTITATIVE ASSAY – A.A. ____ WET ____
FIRE ASSAY ____ OTHER ____

LIST SAMPLE NOS	ELEMENT TO BE ANALYZED	LIST SAMPLE NOS.	ELEMENT TO BE ANALYZED	LIST SAMPLE NOS.	ELEMENT TO BE ANALYZED
X-12	Cu, Pb, Ag	2 SACKS	TO BE COMBINED	65' VERTICAL	
X-13	Cu Pb, Ag	2 SACKS	✓ ✓	✓ END OF R. R. SLOT 110' VER	
X-14	Cu, Pb, Ag	2 SACKS	✓ ✓	MOUTH OF SPRING WATER TUNNEL 110'	
X-15	Cu Pb, Ag	2 SACKS	✓ ✓	INSIDE MAIN PORTAL 3' VERTICAL	

Special Instructions:
IF Ag IS OVER 30 PPM PLEASE RUN Ag + Au BY FIRE ASSAY

SAMPLES ALSO CONTAIN HIGH Zn + Mn

Shipment No.: ____
Date Shipped: ____
Shipped Via: ____
No. of Cartons: ____
No. of Samples: ____

Authorized Signature: ____

INDICATE DISPOSITION OF SAMPLES AFTER ANALYSIS	BULK REJECTS	PULP
Return at Client's Expense VIA:		
Store Temporarily Pending Instructions		
Discard Immediately		

Unless other arrangements are made, pulps and rejects are discarded after three months. Drill core rejects and pulps never discarded without permission of client. A storage charge will be levied after three months.

MAIL ORIGINAL

008

SAMPLE SUBMITTAL FORM

COPPER STATE ANALYTICAL LAB., INC.

P.O. Box 7517 – 710 E. Evans Blvd.
Tucson, Arizona 85725
(602) 884-5811 – 884-5812

Send Report To:	Copy Of Report To:	Send Statement To:
ARTHUR BUSHYEAGER	R.B. LEISURE	ARTHUR BUSHYEAGER
POINT DEVELORING INC	7010 CALLE ORION	CLARION PA 16214
P.O. BOX 148	TUCSON AZ 85710	
CLARION, PA. 16214	PHONE 747-3793	

TYPE OF SAMPLES: ROCK CHIP ✓ CORE ____ SOIL ____ STREAM SEDIMENT ____
VEGETATION ____ WATER ____ OTHER ____

METHOD OF ANALYSIS: GEOCHEM ____ QUANTITATIVE ASSAY – A.A. ____ WET ____
FIRE ASSAY ____ OTHER ____

LIST SAMPLE NOS.	ELEMENT TO BE ANALYZED	~~LIST SAMPLE NOS.~~	~~ELEMENTS TO BE ANALYZED~~	LIST SAMPLE NOS.	ELEMENT TO BE ANALYZED
PX-1	Cu, Pb, Ag	2 SACKS	TO BE COMBINED	110" VERTICAL CHANNEL	
PX-2	Cu Pb Ag	2 SACKS	✓ ✓ ✓	PILE FROM SAME PIT	
PX-3	Cu, Pb, Ag	2 SACKS	✓ ✓ ✓	110" VERTICAL CHANNEL	
PX-4	Cu, Pb, Ag	2 SACKS	✓ ✓ ✓	PILE FROM SAME PIT	
PX-5	Cu, Pb, Ag	2 SACKS	✓ ✓ ✓	90" VERTICAL CHANNEL	
PX-6	Cu, Pb, Ag	2 SACKS	✓ ✓ ✓	PILE FROM SAME PIT	
PX-7	Cu, Pb, Ag	2 SACKS	✓ ✓ ✓	MOUTH OF DAGGS TUNNEL 72" VE	
PX-8	Cu, Pb, Ag	2 SACKS	✓ ✓ ✓	MOUTH OF PARLOR TUNNEL 40" VERT	
PX-9	Cu, Pb, Ag	2 SACKS	✓ ✓ ✓	OUTSIDE MAIN PORTAL	
PX-10	Cu Pb, Ag	2 SACKS	✓ ✓ ✓	MOUTH OF WEST ZIG ZAG TUNNEL	
PX-11	Cu Pb, Ag	4 SACKS	✓ ✓ ✓	OUTSIDE MAIN PORTAL 19 FT HORI	

Special Instructions:

ESTIMATED TURN-AROUND TIME: 10 DAYS

Shipment No.: ____
Date Shipped: ____
Shipped Via: ____
No. of Cartons: ____
No. of Samples: ____

Authorized Signature: Richard B. Leisure

INDICATE DISPOSITION OF SAMPLES AFTER ANALYSIS	BULK REJECTS	PULP
Return at Client's Expense VIA:		
Store Temporarily Pending Instructions		
Discard Immediately		

Unless other arrangements are made, pulps and rejects are discarded after three months. Drill core rejects and pulps never discarded without permission of client. A storage charge will be levied after three months.

MAIL ORIGINAL

008

1+1CC

GEOEX

1/25/85

Point Developing, Inc.,
P.O. Box 148
Clarion, PA 16214

Attn: Mr. Arthur Bushyeager

Re: Vekol Silver Mine
Pinal County, Az
GEOEX #1729

Dear Mr. Bushyeager:

Enclosed please find sample location map with sample site locations highlited in red.

Also enclosed are two pages of sample submittal forms from Copper State Analytical Lab. Inc., referencing the fifteen samples collected. last monday. You should receive the assayers report and their statement within fifteen days or by about 6 February. We will be checking with them in any case - just, for good measure.

When we have assimilated the results, Richard Leisure will give you a call to discuss whatever is indicated and give you the benefit of our further ideas and opinions.

Our (statement) final to you is also enclosed. Meanwhile, if you have any after thoughts or questions, please do not hesitate to get in touch.

Respectfully submitted,

Heinrichs GEOEX Exploration Co. (Inc.)

Encl: 4

by: Walter E. Heinrichs Jr., Geol. Engr. - Geophysicist, P.E. & C.P.G.

HEINRICHS GEOEXPLORATION COMPANY

P.O. BOX 5964, TUCSON, ARIZONA 85703. 806 WEST GRANT ROAD. PHONE: (602) 623-0578

November 29, 1984

Mr. Roger A. Van Camp
The Argosy Mining Company
7705 East Greenway Road
Scottsdale, AZ 85260

Re: Argosy Mining Co.
Vekol Silver Mine Project
GEOEX #1703

Dear Roger:

As mentioned in our phone conversation last Monday, we received a bundle of material from Silver State Mining Corporation of Denver, Colorado. Included was a copy of our report dated 4 November 1983 and an undated compendium prepared by Arthur Hindrichs titled: The Vekol Mine operated by the Argosy Mining Company Present Status and Future Potential. This compendium also includes our letter to Arthur dated 14 May 1984.

In our opinion, both as to your interests and ultimate objectives, as well as to our own interests on your behalf and as to certain potential adverse reflections on our professional reputation in the industry, this compendium has several problems.

From the perspective of qualified exploration geology and mining engineering, several points stand out immediately. Perhaps the main one relates to an obvious lack of quantitative fire assay and sample data relative to dump-ore feed grades and total tonnages processed, actual recoveries achieved and grades of waste material after processing. Such procedures are fully standard in the industry and are absolutely mandatory for a successful operation and avoidance of unnecessary and costly pit falls. Any assumptions of grade of product to be processed which are not fully substantiated by adequate sampling and assaying is almost a sure invitation to disaster as well as being an extremely unnecessary omission and amplification of the risks involved.

Next, is that without first sampling and completely determining the grade of material to be processed, any preoccupations with plant and processing are totally putting the cart before the horse. Obviously, if thorough and complete sampling and assaying reveal a grade that is likely too low to begin with, nothing further can or should be done. After all, the best of plants and operations are only going to recover a certain part, maybe 50% to 80% of what is actually there to be recovered in the first place. If 100% looks to be inadequate to start with then, that's it! In other words , kaput!

On the introductory page a statement is made that crushing down to -1/8" size rather than to -3/8" size will "double recovery" but, without quantitative supporting data about actual recovery achieved, this statement is meaningless and in any event cannot be done without first knowing the grade of the material you are starting out with. Also this page mentions that geological mapping is complete both on surface and underground. Actually, there has been NO underground geologic mapping whatsoever, at least done by us and, we consider the surface mapping at best to be only preliminary.

To any knowledgeable out side investor it is apt to be quite apparent that there are absolutely no established ore reserves of any kind on the property - at least none with any substantiating data submitted and therefore his potential investment in proposed "plant expansion and improvements", would be most ill advised at least until such data are acquired.

Based on Arthur's cost figures and assumptions of recovery, we can visualize the possibility of roughly $500,000 net from preliminary inferred open pittable surface ores but, these must first be quantitatively drilled, sampled, assayed and confirmed to be of actual potential ore grade and tonnage.

Off hand, the plant appears more or less adequite for handling a relatively small daily tonnage of oxidized silver ores. However, any potential new investor should be made aware that these facilities appear to be at least partly off the patented claims and on uncontrolled Indian Reservation property.

If you wish to go into these matters in greater detail we are of course at your service. We think the claims have merit and could be profitable if handled properly all around.

Respectfully submitted,
Heinrichs GEOEXploration Co., Inc.

Richard B. Leisure

By: Richard B. Leisure
Exploration Geologist - Associate

Walter E. Heinrichs, Jr.
Geol. Engr. - Geophysicist
P. E. & C.P.G.S.

/jh

P. S.:

After our phone conversation yesterday and reading our letter of 29 November 1984 to you over the phone, it seems likely that we still may not be getting through to you somehow. I will try one more time. Following are a few time tested tenets of universal and recommended mining practice. These have been developed by the documented successes and failures of centuries of mining history and are not merely our own personal fetishes:

1. Never build a plant until you have reasonably documented hard information regarding grade and tonnage of the product or products you hope to mine and process.

2. If, however, a plant is already built, certainly use it, but use it in the proper time tested and controlled manner for such operations. Analysis of recovered product alone provides no control as to what is going on over all. Experimenting with crushing sizes and recoveries is worth while information of course, but still, this information alone does not tell you all of what you really need to know.

3. The object should be to maximize profit by getting all that you can out of your product at the least cost. To do that you need to know more than just recovery. You also need to know percent of recovery. In other words, how much of the whole that you begin with are you recovering. I know Arthur says he doesn't care what is in an "ore", he just cares what he can get out of an "ore". The industry classifies that approach the same as flying by the seat of your pants or, "out of control" and the crucial trouble with such an approach is that if what is in the product to begin with is not enough, then whatever you recover is predestined not be enough either! One does not need to build a full blown plant to find that out because of the excessive costs involved in building a plant over the comparable costs of drilling, sampling and assaying, etc.

At the Vekol, we think there is still a reasonable chance to recover from this often fatal approach if the proper procedures are initiated in time and followed to the letter. That is, before too much more money is invested in the wrong places at the wrong time.

As Richard recalls Mr. Steen suggesting at the fairly recent Phoenix meeting, one does not necessarily need to sample the dumps in place per se, provided that the pad loading heads are properly sampled at the loading conveyor belt at constant intervals by stopping the belt and taking a five foot length of sample and splitting this down to a manageable size for fire assaying.

These are not just personal foibles of ours but represent the common recommended practice of the industry everywhere. Mining at best is a very risky business. Why people still insist in unnecessarily increasing this risk is beyond us who are in the business every day. Suffice to say that the record is repleat and literally strewn with "monuments" to those mining operators and investors who did not stick to the already proven straight and narrow. And, among the most common reasons for this are the above and all too common malpractices.

Walter E. Heinrichs, Jr.

HEINRICHS GEOEXPLORATION COMPANY

The compendium is being sent today under separate cover.

Silver State
Mining Corporation
Heinrichs GEOExploration
Company, Inc
810 West Grant Road
P.O. Box 5964
Tucson, AZ 85703
1600 Hudson's Bay Centre–1600 Stout Street–Denver, Colorado 80202
RECEIVED
OCT 8 1984
BOX 5964
TUCSON, AZ 85703

THE VEKOL MINE

OPERATED

BY

THE ARGOSY MINING COMPANY

PRESENT STATUS

AND

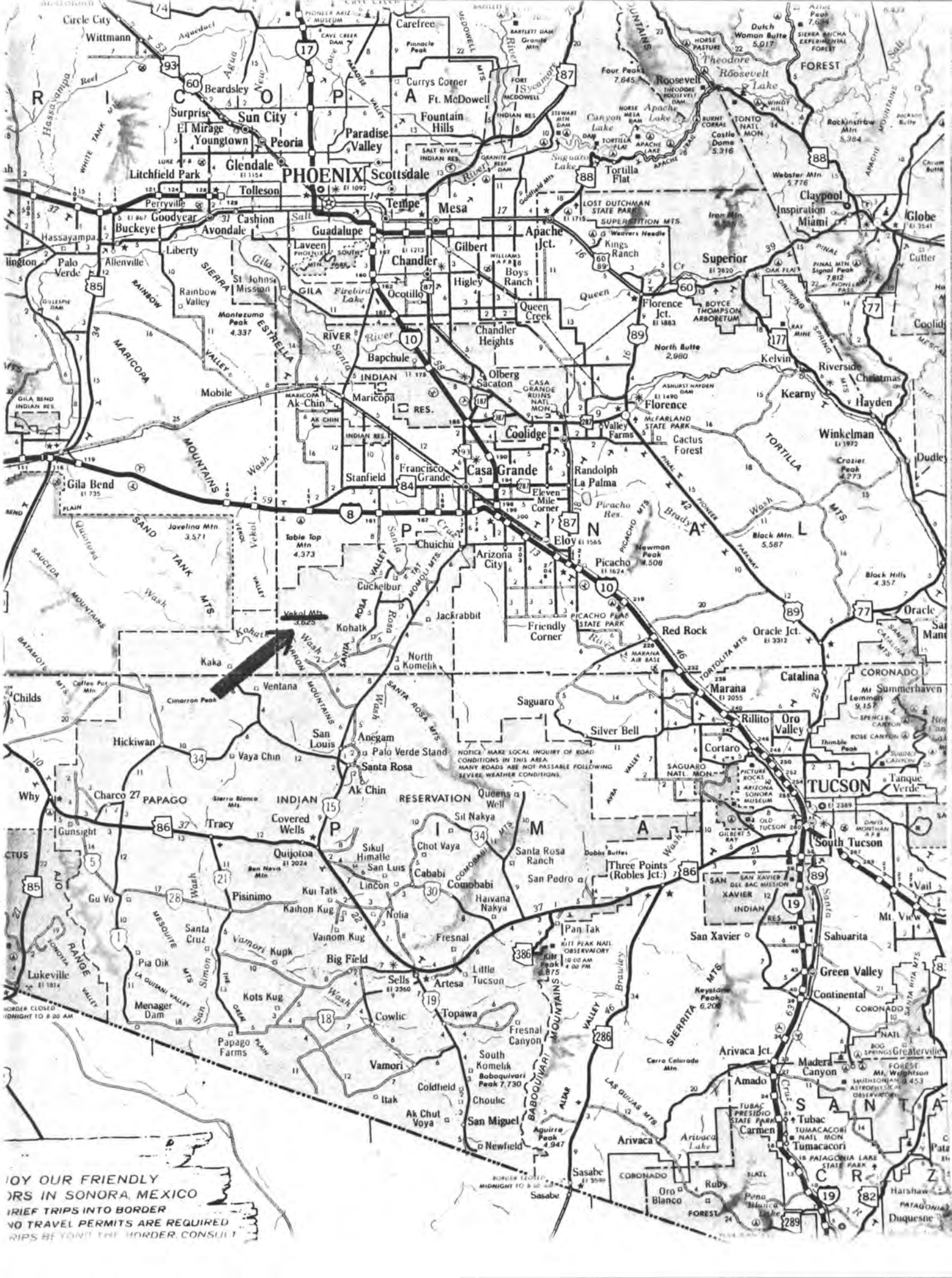
FUTURE POTENTIAL

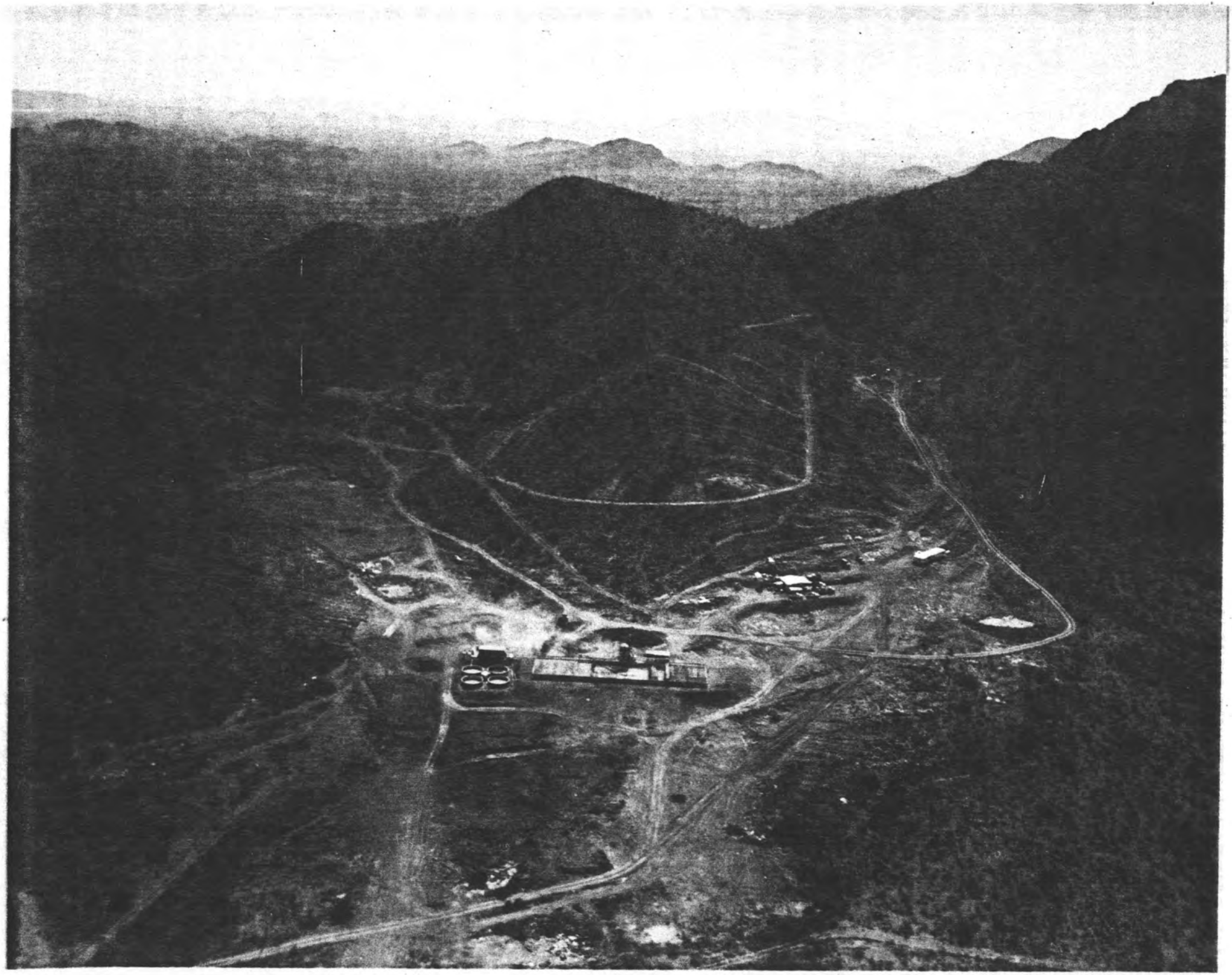
PREPARED

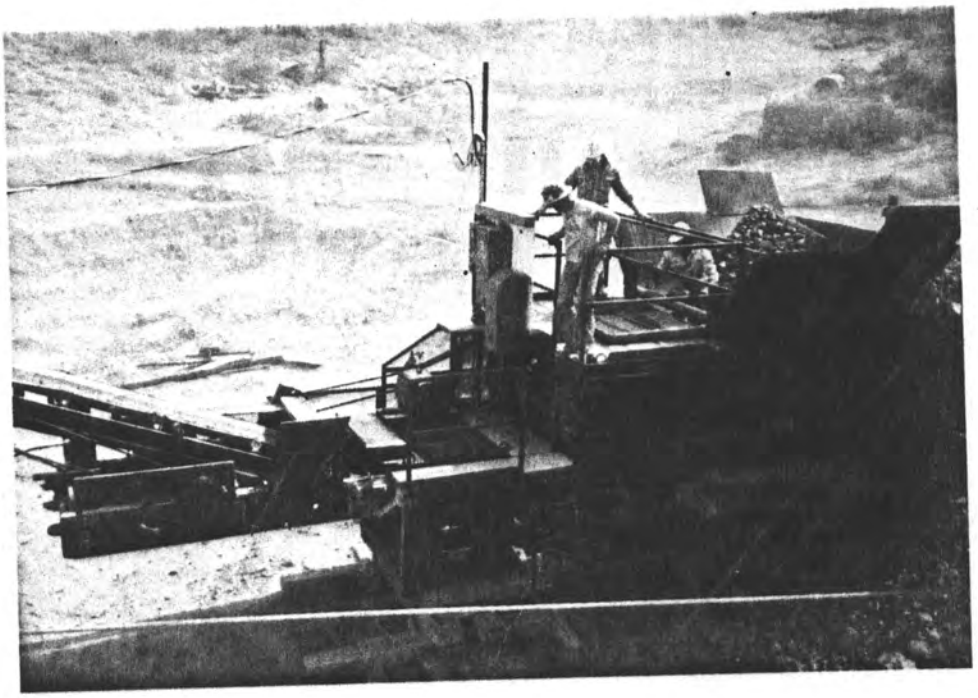
BY

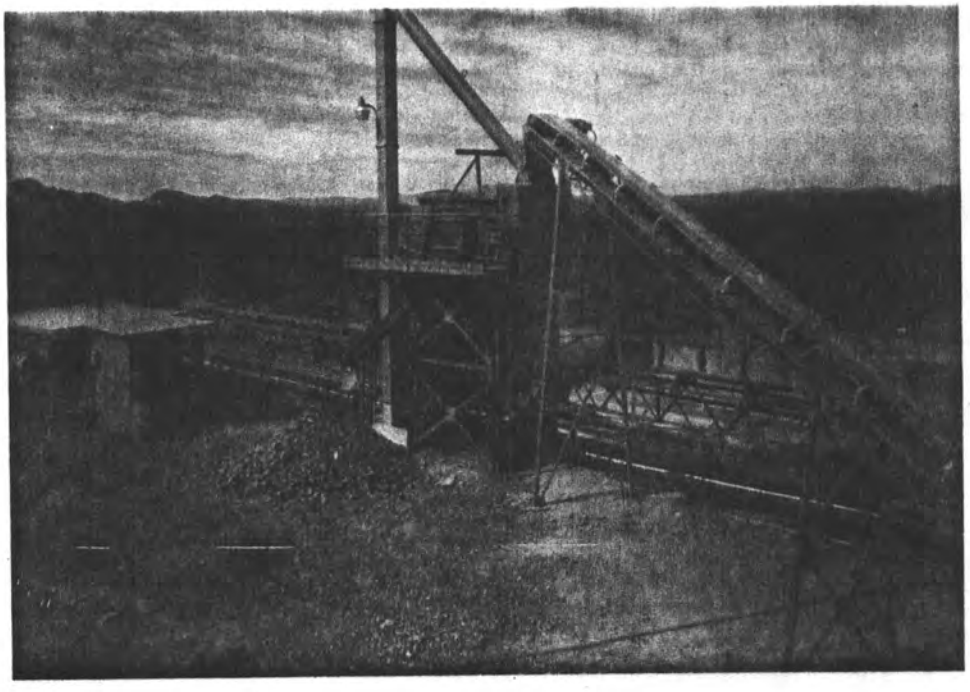
ARTHUR H. HINDRICHS

MANAGING PARTNER


PHOENIX
Scottsdale
Tempe
Mesa
Glendale
Peoria
Sun City
Surprise
El Mirage
Youngtown
Litchfield Park
Goodyear
Buckeye
Avondale
Tolleson
Cashion
Perryville
Guadalupe
Laveen
Gilbert
Chandler
Apache Jct.
Superior
Florence
Florence Jct.
Coolidge
Casa Grande
Eloy
Maricopa
Stanfield
Francisco Grande
Gila Bend
Ak-Chin
Mobile
Arizona City
Picacho
Red Rock
Oracle Jct.
Marana
Catalina
Oro Valley
Rillito
Cortaro
Silver Bell
Saguaro
TUCSON
South Tucson
Tanque Verde
Vail
Sahuarita
San Xavier
Green Valley
Continental
Three Points (Robles Jct.)
Why
Ajo
Gunsight
Tracy
Covered Wells
Quijotoa
Sells
Artesa
Little Tucson
Topawa
Cowlic
Vamori
Fresnal
Fresnal Canyon
South Komelik
Coldfield
Choulic
San Miguel
Ak Chut Voya
Newfield
Sasabe
Arivaca
Arivaca Jct.
Amado
Madera Canyon
Tubac
Tumacacori
Carmen
Nogales
Kitt Peak
Kitt Peak Natl Observatory
Lukeville
Menager Dam
Papago Farms
Kaka
Ventana
Hickiwan
Vaya Chin
Ak Chin
Santa Rosa
Anegam
San Louis
Palo Verde Stand
North Komelik
Jackrabbit
Kohatk
Cuckelbur
Chuichu
Friendly Corner
Picacho Peak State Park
Casa Grande Ruins Natl Mon
Florence
McFarland State Park
Valley Farms
Randolph
La Palma
Eleven Mile Corner
Coolidge
Stanfield
Bapchule
Olberg
Sacaton
Maricopa Ak-Chin
Chandler Heights
Queen Creek
Higley
Boys Ranch
Ocotillo
Firebird Lake
Laveen
Guadalupe
Tempe
Mesa
Scottsdale
Paradise Valley
Fountain Hills
Ft. McDowell
Currys Corner
Carefree
Cave Creek
Beardsley
Wittmann
Circle City
Litchfield Park
Luke AFB
Palo Verde
Allenville
Liberty
Hassayampa
Rainbow Valley
St. Johns Mission
Montezuma Peak 4,337
Javelina Mtn 3,571
Table Top Mtn 4,373
Vekol Mts 3,625
Cimarron Peak
Coffee Pot Mtn
Childs
Why
Charco 27
Gu Vo
Pisinimo
Kui Tatk
Kaihon Kug
Nolia
Vainom Kug
Kots Kug
Pia Oik
Santa Cruz
Sikul Himatle
Chot Vaya
Cababi
Comobabi
Santa Rosa Ranch
Pan Tak
Haivana Nakya
Sil Nakya
Queens Well
Three Points (Robles Jct.)
San Pedro
Dobbs Buttes
Picacho
Picacho Peak
Newman Peak 4,508
Black Mtn. 5,587
Table Top Mtn 4,373
Javelina Mtn 3,571
Vekol Mts 3,625
Baboquivari Peak 7,730
Aguirre Peak 4,947
Kitt Peak 6,875
Keystone Peak 6,208
Cerro Colorado Mtn.
Las Guijas Mts
Pajarito Mts
Atascosa Mts
Sierrita Mts
Tortolita Mts
Santa Rosa Mts
Roskruge Mts
Picacho Mts
Maricopa Mts
Sierra Estrella Mts
Superstition Mts
Four Peaks 7,645
Mazatzal Mts
Dutch Woman Butte 5,017
Theodore Roosevelt Lake
Apache Lake
Canyon Lake
Saguaro Lake
Tortilla Flat
Roosevelt
Globe
Claypool
Inspiration
Miami
Superior
Kelvin
Riverside
Christmas
Kearny
Hayden
Winkelman
Dudley
Oracle
Catalina
Marana
Rillito
Oro Valley
Cortaro
Silver Bell
Saguaro
Tanque Verde
South Tucson
Vail
Sahuarita
San Xavier
Green Valley
Continental
Arivaca Jct.
Madera Canyon
Amado
Tubac
Tumacacori
Carmen
Nogales
Arivaca
Sasabe
Ruby
Oro Blanco
Pena Blanca Lake
Patagonia
Harshaw
Duquesne
Kohatk
Cuckelbur
Jackrabbit
Friendly Corner
Red Rock
Oracle Jct.
Picacho
Eloy
Arizona City
Chuichu
Casa Grande
Francisco Grande
Stanfield
Gila Bend
Mobile
Ak-Chin
Maricopa
Sacaton
Olberg
Bapchule
Chandler Heights
Queen Creek
Florence
Florence Jct.
Superior
Apache Jct.
Gilbert
Chandler
Higley
Boys Ranch
Ocotillo
Firebird Lake
Laveen
Guadalupe
Tempe
Mesa
Scottsdale
Paradise Valley
Fountain Hills
Ft. McDowell
Currys Corner
Carefree
Cave Creek
Beardsley
Wittmann
Circle City
Litchfield Park
Luke AFB
Palo Verde
Allenville
Liberty
Hassayampa
Rainbow Valley
St. Johns Mission
Montezuma Peak 4,337
Javelina Mtn 3,571
Table Top Mtn 4,373
Vekol Mts 3,625
Cimarron Peak
Coffee Pot Mtn
Childs
Why
Charco 27
Gu Vo
Pisinimo
Kui Tatk
Kaihon Kug
Nolia
Vainom Kug
Kots Kug
Pia Oik
Santa Cruz
Sikul Himatle
Chot Vaya
Cababi
Comobabi
Santa Rosa Ranch
Pan Tak
Haivana Nakya
Sil Nakya
Queens Well
Three Points (Robles Jct.)
San Pedro
Dobbs Buttes
Picacho
Picacho Peak
Newman Peak 4,508
Black Mtn. 5,587
Baboquivari Peak 7,730
Aguirre Peak 4,947
Kitt Peak 6,875
Keystone Peak 6,208
Cerro Colorado Mtn.
Las Guijas Mts
Pajarito Mts
Atascosa Mts
Sierrita Mts
Tortolita Mts
Santa Rosa Mts
Roskruge Mts
Picacho Mts
Maricopa Mts
Sierra Estrella Mts
Superstition Mts
Four Peaks 7,645
Mazatzal Mts
Dutch Woman Butte 5,017
Theodore Roosevelt Lake
Apache Lake
Canyon Lake
Saguaro Lake
Tortilla Flat
Roosevelt
Globe
Claypool
Inspiration
Miami
Superior
Kelvin
Riverside
Christmas
Kearny
Hayden
Winkelman
Dudley
Oracle
Catalina
Marana
Rillito
Oro Valley
Cortaro
Silver Bell
Saguaro
Tanque Verde
South Tucson
Vail
Sahuarita
San Xavier
Green Valley
Continental
Arivaca Jct.
Madera Canyon
Amado
Tubac
Tumacacori
Carmen
Nogales
Arivaca
Sasabe
Ruby
Oro Blanco
Pena Blanca Lake
Patagonia
Harshaw
Duquesne
Kohatk
Cuckelbur
Jackrabbit
Friendly Corner
Red Rock
Oracle Jct.
Picacho
Eloy
Arizona City
Chuichu
Casa Grande
Francisco Grande
Stanfield
Gila Bend
Mobile
Ak-Chin
Maricopa
Sacaton
Olberg
Bapchule
Chandler Heights
Queen Creek
Florence
Florence Jct.
Superior
Apache Jct.
Gilbert
Chandler
Higley
Boys Ranch
Ocotillo
Firebird Lake
Laveen
Guadalupe
Tempe
Mesa
Scottsdale
Paradise Valley
Fountain Hills
Ft. McDowell
Currys Corner
Carefree
Cave Creek
Beardsley
Wittmann
Circle City
Litchfield Park
Luke AFB
Palo Verde
Allenville
Liberty
Hassayampa
Rainbow Valley
St. Johns Mission
Montezuma Peak 4,337
Javelina Mtn 3,571
Table Top Mtn 4,373
Vekol Mts 3,625
Cimarron Peak
Coffee Pot Mtn
Childs
Why
Charco 27
Gu Vo
Pisinimo
Kui Tatk
Kaihon Kug
Nolia
Vainom Kug
Kots Kug
Pia Oik
Santa Cruz
Sikul Himatle
Chot Vaya
Cababi
Comobabi
Santa Rosa Ranch
Pan Tak
Haivana Nakya
Sil Nakya
Queens Well
Three Points (Robles Jct.)
San Pedro
Dobbs Buttes
Picacho
Picacho Peak
Newman Peak 4,508
Black Mtn. 5,587
Baboquivari Peak 7,730
Aguirre Peak 4,947
Kitt Peak 6,875
Keystone Peak 6,208
Cerro Colorado Mtn.
Las Guijas Mts
Pajarito Mts
Atascosa Mts
Sierrita Mts
Tortolita Mts
Santa Rosa Mts
Roskruge Mts
Picacho Mts
Maricopa Mts
Sierra Estrella Mts
Superstition Mts
Four Peaks 7,645
Mazatzal Mts
Dutch Woman Butte 5,017
Theodore Roosevelt Lake
Apache Lake
Canyon Lake
Saguaro Lake
Tortilla Flat
Roosevelt
Globe
Claypool
Inspiration
Miami
Superior
Kelvin
Riverside
Christmas
Kearny
Hayden
Winkelman
Dudley
Oracle
Catalina
Marana
Rillito
Oro Valley
Cortaro
Silver Bell
Saguaro
Tanque Verde
South Tucson
Vail
Sahuarita
San Xavier
Green Valley
Continental
Arivaca Jct.
Madera Canyon
Amado
Tubac
Tumacacori
Carmen
Nogales
Arivaca
Sasabe
Ruby
Oro Blanco
Pena Blanca Lake
Patagonia
Harshaw
Duquesne
NOTICE MAKE LOCAL INQUIRY OF ROAD CONDITIONS IN THIS AREA. MANY ROADS ARE NOT PASSABLE FOLLOWING SEVERE WEATHER CONDITIONS.
IOY OUR FRIENDLY
ORS IN SONORA, MEXICO
RIEF TRIPS INTO BORDER
NO TRAVEL PERMITS ARE REQUIRED
RIPS BEYOND THE BORDER CONSULT







HEINRICHS GEOEXPLORATION COMPANY

P.O. BOX 5964, TUCSON, ARIZONA 85703. 806 WEST GRANT ROAD. PHONE: (602) 623-0578

May 14, 1984

Mr. Arthur Hindrichs
Argosy Mining Company
5244 N. 25th Street
Phoenix, AZ 85016

Re: Composite Geological and Geochemical Mapping Report of 4 November 1983
Vekol Silver Mine, Pinal County
Arizona
GEOEX #1668

Dear Arthur:

Per your request, here are further comments and specific cost estimates for the exploration core drilling program recommended in our main report of 4 November 1983.

Basis for recommending the core drilling program is the impressive past production from the property and the favorable geological conditions which continue well beyond the old productive area and which underlie 78% or 78.38 acres of the Vekol claim group.

The Vekol claim group produced one million troy ounces of silver from pods and lenses of oxide ore from 1880 to 1917, all from within a Favorable Horizon which probably averages 50 to 60 feet thick. This Favorable Horizon is defined as the uppermost 20 to 80 feet of the Escabrosa Limestone Formation which has been hydrothermally altered immediately beneath the impervious and barren Contact Shale Bed. The Favorable Horizon also represents the host bed for discontinuous sulfide lead-zinc-silver mineralization which has been later oxidized and upgraded in the vicinity of many structural faults which cut the Favorable Horizon. This sulfide mineralization is typical manto (blanket) deposition as contrasted with the more common epithermal vein deposits of western U.S.A.

Reiterating from our main report; successful mining in the past was limited to rich pods and pockets of high grade silver oxide ore which graded from 70 to 300 ounces per ton but were principally limited to "wash-tub to room-sized bodies".

This past production came almost entirely from within a single fault block bounded by the Breccia Fault on the west, the Zinc Fault on the east, the Andesite Dike on the north and the Argosy Fault on the south. This productive fault block represents an area and tonnage of only one tenth the total potential area and tonnage of the Favorable Horizon which lies within the Vekol claim group.

Even though the Favorable Horizon continues through the other six identified fault blocks which are of equal or greater size than the original productive fault block, very little underground exploration has been performed in the remaining fault blocks. The Favorable Horizon does not even outcrop in the western half of the property and that part is particularly virgin ground.

An acreage of 78.38 acres of manto mineralization averaging 60 ft. thick amounts to 17 million tons of Favorable Horizon to be prospected for a potentially significant amount of oxide ore of an unknown lesser amount than 17 million tons. Comparatively, we feel that this property is much more promising than the average precious metal property generally found available in the U.S.A. today.

A budget for the initial exploration, as proposed and recommended in our report of 4 November 1983, is as follows:

First Part: Open Pittable areas 1 through 3:

Initial mapping and engineering lay out of drill sites, at 1" = 20' scale, technical labor and salaries as per our letter of November 29, 1983 and sampling and hand sample assaying of open pittable area - technical labor and salaries.	$20,600.00	
Drill site access and preparation.	5,900.00	
Core drilling - 2,780 ft. @ $25.00/ft.	69,500.00	
Drill supervising and logging - technical labor and salaries.	32,500.00	
Core assaying.	7,750.00	
Transportation & housing.	6,750.00	
Contingency, approximately 15%.	21,500.00	
First part total:	$164,500.00	$164,500

Second Part: Surface drilling, PDP-1 through PDP-5
(PDP = Proposed Drill Pad).

Detailed mapping at 1" = 20' scale, sampling and assaying, technical labor and salaries.	$12,000.00	
Drill site access and preparation.	15,000.00	
Drill supervision and logging, technical labor and salaries.	25,000.00	
Core drilling 1350' @ $25.00 & $30.00/ft	64,000.00	

Second Part: (Cont'd)

Core assaying.	$ 6,000.00	
Transportation & housing.	6,000.00	
Contingency, approximately 15%	19,000.00	
Second part total:	$147,000.00	$147,000.00

Third Part: Underground drilling, PDP-6 through PDP-12.

Detailed mapping at 1" = 20' scale, sampling and assaying, technical labor and salaries	$ 46,700.00	
Drill site access and preparation	48,000.00	
Core drilling, 6640 ft. @ $35.00/ft.	232,400.00	
Drill supervision, logging and mining engineering, technical labor and salaries.	93,400.00	
Core assaying.	19,500.00	
Transportation & housing	22,000.00	
Contingency, approximately 15%.	69,000.00	
Third part total:	$531,000.00	$531,000.00
Grand total:		$842,500.00

Registered Professional Engineer (Mining) CERTIFICATE EXPIRES DEC. 31, 19 84 ARIZONA, U.S.A.

Respectfully submitted,
Heinrichs Geoexploration Company

Walter E. Heinrichs, Jr.,
Geol. Engr. - Geophysicist
P.E. & C.P.G.S.

Richard B. Leisure

Richard B. Leisure
Exploration Geologist, Associate.

WEH:jh

INTRODUCTION

In January of 1983 The Argosy Mining Company acquired a 31-year lease on six patented claims, known as the VEKOL MINE, and started installing a pilot plant to establish the feasibility of processing the dump material and at the same time initiate a geological mapping program to determine the potential of additional ore reserves, for open pit and underground mining.

The processing plant is now in production at the rate of 1000 tons per week on a single 5-day shift with recovery being constantly improved.

The geological mapping program, both, underground and on the surface, has also been completed and all available information concerning the property has been compiled and evaluated.

Since both objectives of the initial project have been achieved, the ARGOSY Management feels confident to proceed with the next phase:

- improve production and recovery rate,
  (bench tests of the ore presently leached show that Silver recovery can be doubled if the ore is crushed to -1/8" instead of -3/8")
- block out the ore in the identified areas for open pit mining,
- proceed with the recommended drilling program to locate the ore in the Favorable Horizon.

Present Facilities

Crushing and Screening Plant
3 Concrete Leaching Tanks, holding 525 Tons of Ore each
100' Horizontal Feed Conveyor
50' Horizontal Screw Conveyor
4 - 12000 gal. Plastic Pools with underground Piping
1 Stainless Mixer
1 Zinc Precipitation Unit (Merrill-Crowe)
1 Smelting Furnace

1 Terex Loader 72-21
1 Caterpillar Loader 941
2 International Dump Trucks
1 International Fuel Truck
2 4-Wheel Drive Pick-ups
1 1/2 Ton Pick-up

1 6000 gal. Fuel Tank
1 3000 gal. Water Tank

1 Generator 30kw
1 Generator 125kw

Welding and Cutting Equipment
Complete Workshop
Steam Cleaning Unit

2 Water Wells (1 in use)
Radio System (Base and 3 Mobile Units)
1 Trailer 14' x 65'

Runway 2200', unpaved

Proposed Program and Capital Costs

1) Plant Expansion and Improvements	
Crushing Equipment	$ 180,000
Equipment Upgrade	15,000
1 Dump Truck	7,000
1 Pickup Truck	8,000
2 Plastic Pools with Piping	2,000
1 Zinc Precipitator	6,000
Laboratory, incl. AA-Unit in Trailer	25,000
Sub-Total	$ 243,000
2) Drilling Program I	$ 164,500
Leaching Tests	3,000
Sub-Total	$ 167,500
3) Acquisition of Mining Equipment	
for open pit mining	$ 350,000
Sub-Total	$ 350,000
4) Drilling Program II	$ 147,000
Leaching Tests	1,500
Sub-Total	$ 148,500
Grand-Total	$ 909,000

Weekly Operating Costs

	5-Day Week	7-Day Week
Wages (5) (10) Men	$ 1,600	$ 2,240
Plant Supervisor	500	500
Lab Technician	400	400
Payroll Expenses	800	1,000
Managament	900	900
Fuel	1,050	1,500
Chemicals	1,200	1,800
Maintenance	400	600
Transportation	100	150
Insurance	150	150
Office, Radio	300	300
Food	50	50
Total	$ 7,450	$ 9,590

Proforma Weekly Operating Statement

Material: Ore - Open Pit Mining
Operation: 7-Day Week - 2 5-Day Crews
Production Rate: 225/250 TPD - Average 1575 TPW
Recovery: 3.5 ozs/ton (incl. Gold Recovery Equivalent)

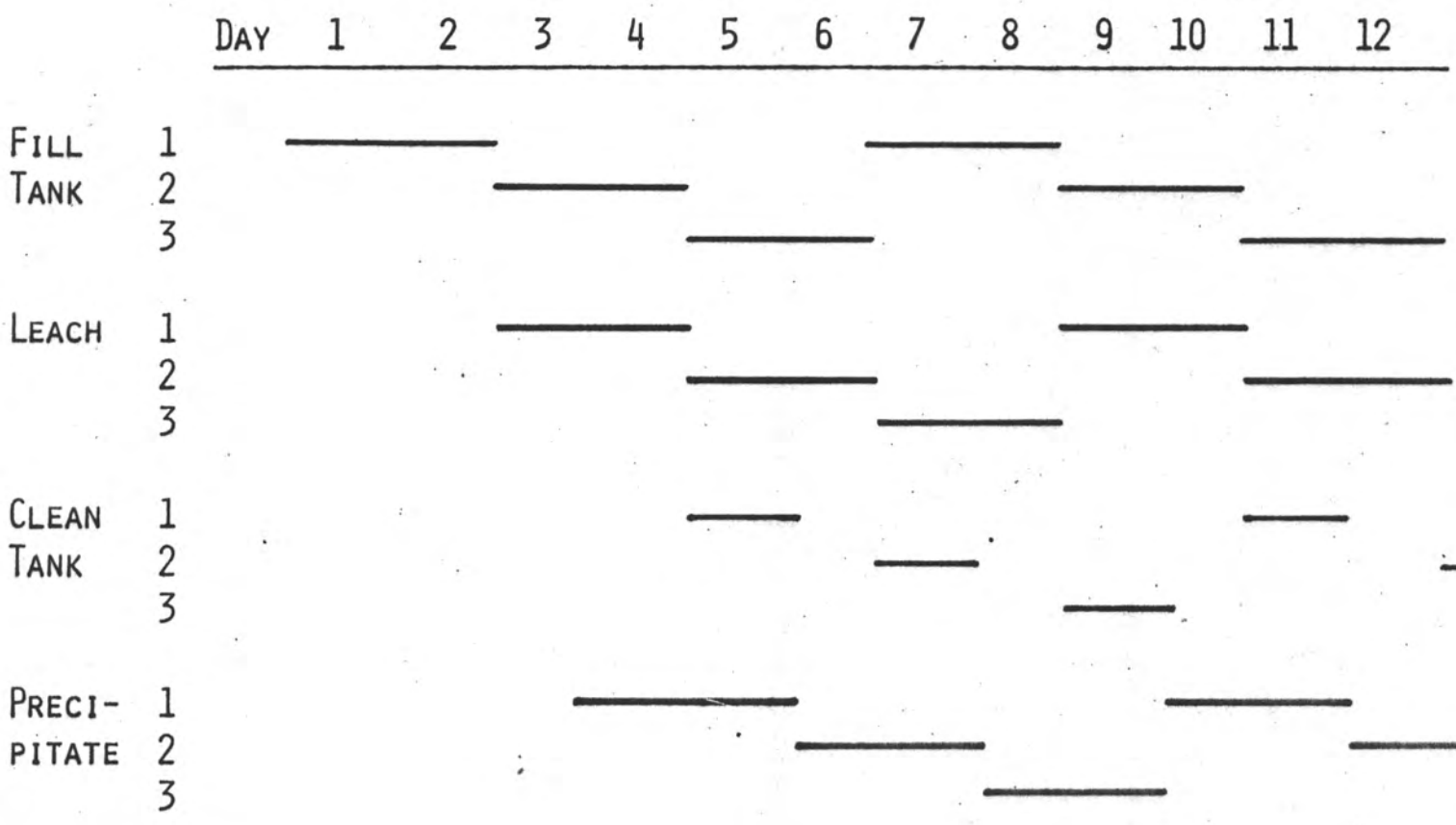
Operating Costs

Mining	$ 4.500
Processing	9.590
	$ 14.090

Revenue

Silver Price per Ounce	$ 9.00	$ 12.00	$ 18.00
5500 Ounces	$ 49.500	$ 66.000	$ 99.000
Royalty	7.425	9.900	14.850
Operating Costs	14.090	14.090	14.090
Cash Flow	$ 27.985	$ 42.010	$ 70.060
Cash Flow per Ton	$ 17.77	$ 26.67	$ 44.48

OPERATING SCHEDULE



Desert Reclaims Rich

By RICHARD HORNE

CASA GRANDE—In an era of Arizona history filled with violence and bloodshed, the mining camp of Vekol lived out a serene 12-year lifetime of unmarred peace.

Perhaps the camp's 200 inhabitants found a sort of Utopia on "the Grandmother's" gentle slopes. Or maybe the harmonious life and trade was due to the austere and disciplined leadership of Judge John D. Walker, the original mine owner.

The Vekol is 34 miles west-southwest of Casa Grande. The first 30 miles can be traveled on a gas line road, but the rest is a tortuous, grinding ride over trails suitable only to jeeps.

Dr. James T. O'Neil of Casa Grande and his son, Bob, 15, offered to take a Republic reporter on the trip to the old mine. A man of many interests, the doctor is also a mining engineer and head of Los Conquistadores, explorers' club of Casa Grande.

Dr. O'Neil knows the old mine well.

The Vekol was one of the best paying mines in the territory in its heyday. Company records show the mine produced approximately $1 million between 1882 and 1893.

Not much is left of the mine, or the community that sprang up around it. Only the more substantial adobe and stone structures still stand.

Records and old-timers speak reverently of Judge Walker, the mine owner. He was the paragon of sobriety, justice, leadership and simplicity, they agree.

Walker was a close friend of the Papago Indians, having led them on several expeditions against the Apaches around 1864. From them he learned in 1879 of the Vekol (Papago for "grandmother") and its rich silver deposits.

Walker was always fair with the Indians and dealt creditably with those who worked for him in the mines. He spoke their language, honored their customs, and was interested in their betterment. He reaped returns from the relationship.

According to the doctor, the mine contains nearly 8 miles of tunnel and shaft, connected by an intricate arrangement of stopes and prospecting tunnels. At the southeast end, the works are linked with the Argosy shaft, an untimbered 300-foot vertical excavation.

Dr. O'Neil said very little timbering was necessary throughout the mine, but cautioned that timbered areas are now in a state of disintegration that makes it very hazardous for exploration.

Mrs. Mabel Ludwig, a pioneer resident of Casa Grande, was one of the early dwellers in the camp. Mrs. Ludwig, who will be 80 this month, moved to Vekol with her family in 1883. Her father was Thomas Day, Vekol's mine superintendent.

"Vekol could be described as neither a holy nor an unholy place—there wasn't a saloon or a church in the camp," she recalls. "In the days when Tombstone was at its riotous peak we had no trouble out there. I think it was because of Judge Walker's ban against whisky.

"Alcohol was the Judge's single prejudice; he would not allow it near the camp."

Her mouth
ous incident

"My moth
dispel her l
ment of an

"One day
my father a
manifesto. '
then, how do
rejoiner. 'So

Most vivid
schoolhouse
marm who
father down

"Mother w

Mrs. Ludw
Walker's de
Day establis

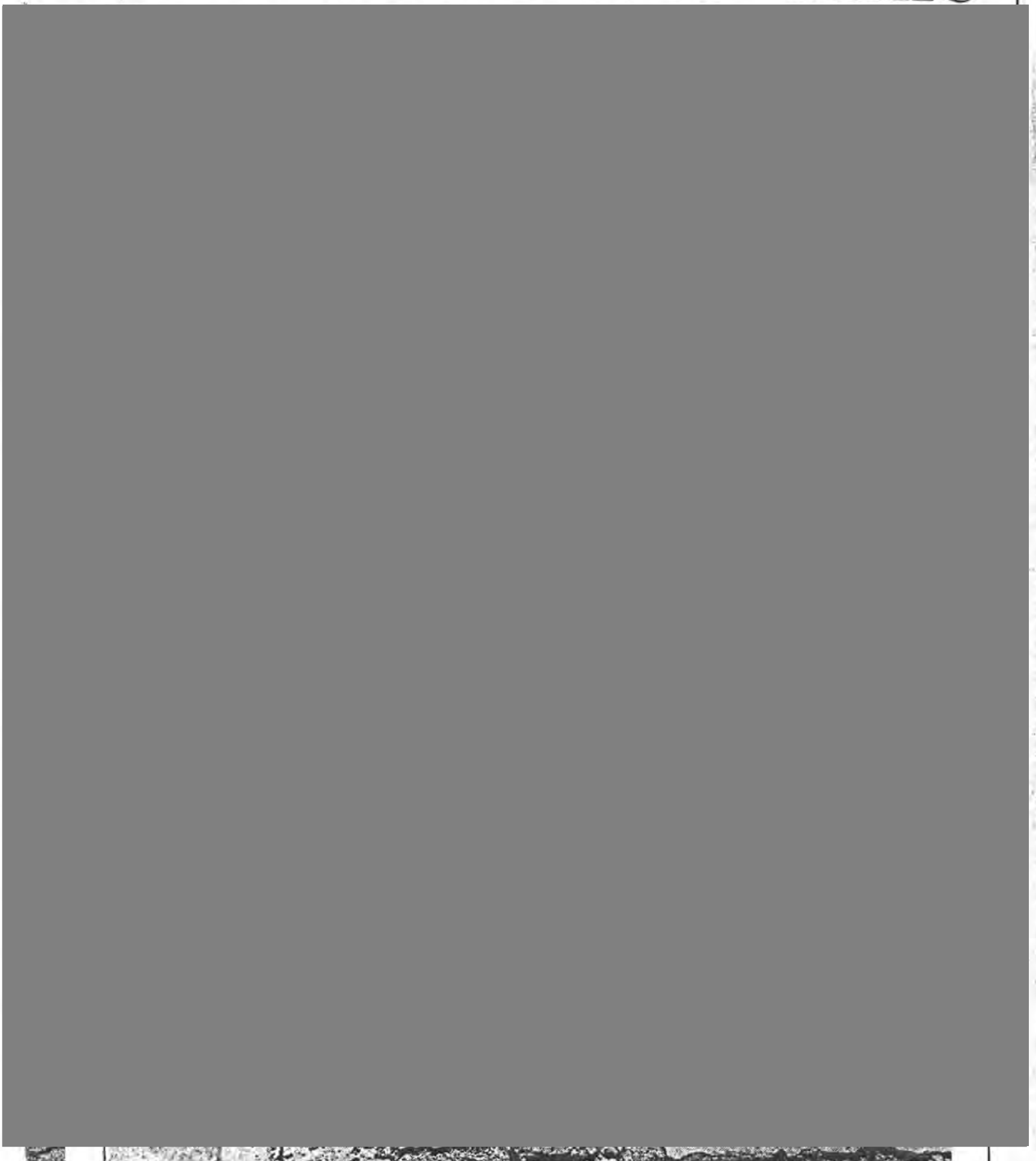
An anonym
of the diffic
because of
scorpions a
population.

"Public bu
lodging hous
two are still

All photos by Richard Horne

Remnants Of Vekol Camp Are Slowly Fading Back Into the Desert

ich Vekol Silver Mine



Horne

Smoke-Blackened Walls Of Storehouse Still Stand At Vekol