

L2000S1

ASLD - CURRENT STATUS INQUIRY - APP/LEASE/C.O.

1/15/1993

LAND#: 200-S-230-E-34-02-053-1000 ACTIVE

ACREAGE: 240.000 MINERAL

PAGE: 1

STATUS SEQ	KE /AUS	LEASE#/ORDER# ROLODEX NAME	AMEND#	ROLO#	CROSS REF CO#/ XKELEASE/XPAT#	EVENT/ APPROVAL	EFFECTIVE/ EXPIRATION
00		NEW			LEASE		
	0.0	008-052526-00-000 HALTERMAN	0	7831 U	- /	11/12/1992	12/30/1992
					- /	1/11/1993	12/29/1997
					- /		

< < End of status records > >  
More parcels exist

OPTION: L2000S0  
/15/1993

ASLD - CURRENT STATUS INQUIRY - LEGAL

1

LAND#: 200-S-230-E-34-02-053-1000 ACTIVE

COUNTY: 02 COCHISE	- - A C R E S - -
GRANT: 053 COUNTY BOND	SURFACE: 0.000
CLASS:	OIL/GAS: 0.000
OWNER: 10 STATE TRUST LAND	MINERAL: 240.000
OPENCODE:	
LEASED: Y	URBAN: N
	OPEN: N
	LAST MAINTENANCE: 1/11/1993

CD	CD	DESCRIP	LINE	- - - - -	LEGAL DESCRIPTION	OR	COMMENT	- - - - -
03	MIN		1		NW N2SW			

< < End of legals/comments > >  
More parcels exist





JABA INC.  
2100 N. Wilmot Rd. #218  
Tucson, AZ 85712  
(602) 885-9141  
(FAX) 721-2768

January 17, 1993

Mr. Douglas MacKenzie  
President  
Excellon Resources USA, Inc.  
Suite 200-20 Adelaide St.E.  
Toronto, On Canada M5C 2T6

Dear Douglas,

Re: Documentation of JABA owned or leased ground and maps showing its relationship to the Tombstone Development Co., and other mining claims, within the Tombstone Mining District, Cochise Co., Arizona.

In relation to your request associated with your offer on the above referenced JABA property in the Tombstone Mining District of January 8, 1993, and my acceptance of same on that day, we have prepared a document entitled EXCELLON RESOURCES, USA INC., TOMBSTONE PROJECT LAND STATUS, TOMBSTONE MINING DISTRICT, COCHISE CO., ARIZONA, JANUARY 15, 1993. This Document shows all of the JABA claims and leases and their relationship to other claims in the district, on a district wide map at a scale of 1 inch equals 2,000 feet. Four blocks of claims are shown. On separate documents each claim is listed with its name, county recording data, BLM Serial Number and legal description location. All but the Escapule lease have accompanying maps showing each claim in more detail in relation to the public survey.

This document has been shipped to you via Fedral Express and should arrive at your office Monday, 01/18/93, by 10 am.

We have not shown the Robbers Roost leases because lack of funding from Excellon over the last 2 years dictated that these leases be dropped. We have reapplied for them and they shall be added to our documentation later.

Very truly yours

A handwritten signature in cursive script, appearing to read "James A. Briscoe".

James A. Briscoe  
ADM01/17/93  
CC:Lawrence Hecker, Esquire



VALDEZ GOLD INC.  
Suite #200  
20 Adelaide Street East  
Toronto, Ontario  
M5C 2T6

EXCELLON RESOURCES INC.  
Suite #200  
20 Adelaide Street East  
Toronto, Ontario  
M5C 2T6

JOINT PRESS ANNOUNCEMENT

January 15, 1993

FOR IMMEDIATE RELEASE

Valdez Gold Inc. (ASE-VAZ) and Excellon Resources Inc. (VSE-EYN) jointly announce that, subject to regulatory approval, they have entered into an agreement with USMX, Inc. (NASDAQ-USMX). USMX plans to initially explore and if warranted enter into a joint venture to further explore, develop, and mine certain patented and unpatented mining claims in Cochise County, near Tombstone, Arizona presently under lease to Excellon. Valdez/Excellon are in the process of leasing additional patented and unpatented mining claims in the same vicinity from the same owner of the land presently under lease which, if acquired, will form part of the overall joint venture. Under a previous agreement Valdez acquired the right to earn up to 75% of Excellon's interest in the Tombstone properties. Excellon is 48.5% owned by Valdez which in turn is 94% owned by MVP Capital Corp. of Toronto.

The agreement provides that USMX shall have an initial period of 60 days to investigate the properties and satisfy itself as to the state of title and shall fund an exploration program of at least \$75,000 on the properties (all figures in U.S. dollars). USMX may elect to extend the initial investigation for 60 days by making additional exploration expenditures of \$75,000 before April 30, 1993.

If USMX wishes to proceed it will enter into a joint venture agreement with Excellon/Valdez which will provide that USMX must spend the following additional exploration expenditures on the mining properties to earn a 65% interest:

May 1, 1993 to July 1, 1993	\$100,000
August 1, 1993 to June 30, 1994	500,000
July 1, 1994 to December 31, 1994	500,000

F.Y.I.

2/2/93

Tom

Just came  
in on my  
fax

I haven't  
had a chance  
to look at.

Jim

In addition to the exploration expenditures, beginning on March 1, 1993 USMX will take over property payments totalling \$20,000 per month until it has equalled payments made by Valdez/Excellon to February 1, 1993 of \$132,500. Subsequent to USMX having made property payments equal to those made by Valdez/Excellon, these payments will be shared equally by USMX and Valdez/Excellon. Once USMX has earned a 65% interest, property payments will be paid according to joint venture interests and Valdez/Excellon will be reimbursed an amount to adjust the total payments to that date to equate to 65% USMX and 35% Valdez/Excellon.


The agreement provides for a right of first refusal participation by all parties on after acquired properties in an area of mutual interest.

Initially, the participating partners in the joint venture will be USMX 65%, Excellon 17.5% and Valdez 17.5%. In addition to its contribution of its interest in the Leases and Mining Properties, Valdez will, as part of its initial contribution and until USMX has earned its 65% interest, contribute any moneys required which are not provided by USMX. It is the intent of the parties that until USMX and Valdez have completed their respective initial contributions, the interest of Excellon in the Joint Venture will be carried and non-assessable and Excellon will not be required to fund any expenditures in order to maintain its joint venture interest.

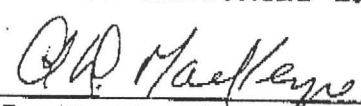
Excellon/Valdez are in the process of negotiating to acquire additional ground in Cochise County in the general Tombstone area from third parties.

USMX expects to commence a drilling program on the initially acquired properties within the next 10 days.

On behalf of  
VALDEZ GOLD INC.

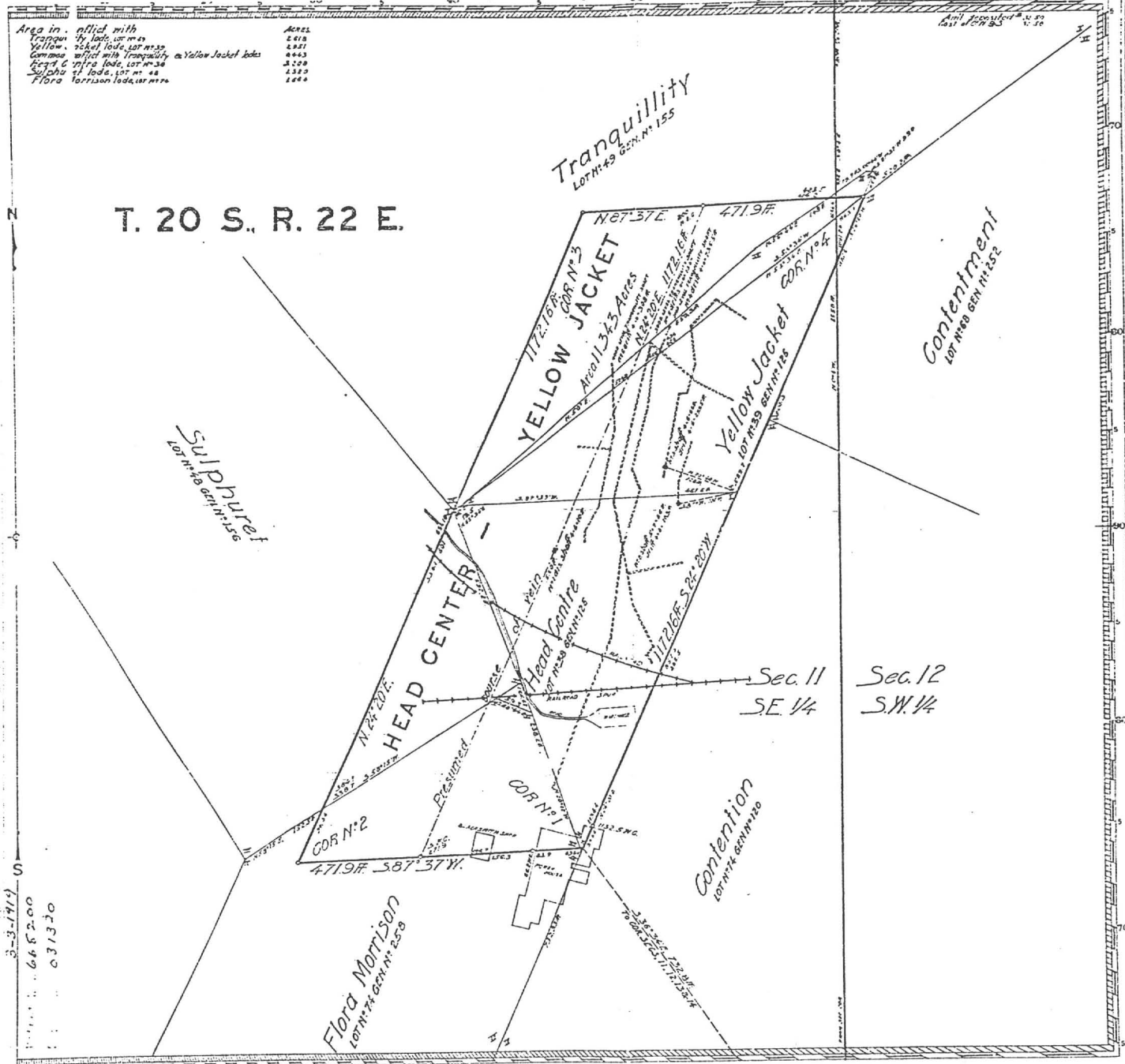
  
Richard W. Brissenden  
President  
(416) 867-1100

On behalf of  
EXCELLON RESOURCES INC.

  
A.D. MacKenzie  
President  
(416) 867-1100

Neither the Vancouver Stock Exchange nor the Alberta Stock Exchange has reviewed nor accepts responsibility for the adequacy or accuracy of the content of this Press Release which has been prepared by management.

BOB HEHNING



Claim Located Amended June 17, 1915

Mineral Survey No. 3213

Lot No. Arizona Land District.

PLAT

OF THE CLAIM OF

Bunker Hill Mines Company  
KNOWN AS THE  
Head Center-Yellow Jacket

IN Tombstone MINING DISTRICT,  
Cochise COUNTY, Arizona  
Containing an Area of 11.343 Acres.

Scale of 150 Feet to the inch.  
Variation 12' 15" E.

SURVEYED August 20-21, 1915 BY

Ralph L. Motz U.S. Deputy Mineral Surveyor,

The Original Field Notes of the Survey of the Mining Claim of  
Bunker Hill Mines Company  
known as the  
Head Center-Yellow Jacket

from which this plat has been made under my direction, have been examined and approved, and are on file in this Office, and I hereby certify that they furnish such an accurate description of said Mining Claim as will, if incorporated into a patent, serve fully to identify the premises, and that such reference is made therein to natural objects or permanent monuments as will perpetuate and fix the locus thereof. I further certify that Five Hundred Dollars worth of labor has been expended or improvements made upon said Mining Claim by claimant or its grantors and that said improvements consist of 3 shafts & 2202 ft. of drifting, total value \$23514.

that the location of said improvements is correctly shown upon this plat, and that no portion of said labor or improvements has been included in the estimate of expenditures upon any other claim. And I further certify that this is a correct plat of said Mining Claim made in conformity with said original field notes of the survey thereof, and the same is hereby approved.

U.S. Surveyor General's Office, *Frank D. Ingalls*  
Phoenix, Arizona U.S. Surveyor General for  
December 8, 1915, Arizona.

Post-It® Brand  
Fax Transmittal Memo 7672

Company BOB HEHNING  
USMX

Location  
Fax # (303) 980-1363 Telephone #

No. of Pages 1 Today's Date 1-7-93 Time 10:30 A.M.

From THOMAS E. WALKER, JR.  
Company TARA, INC.

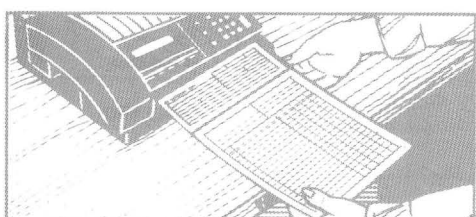
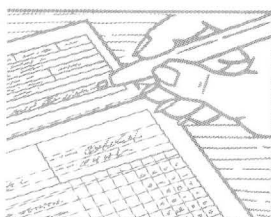
Location  
Fax # (602) 721-2768 Telephone # (602) 885-9141  
Original Disposition:  Destroy  Return  Call for pickup

-Bob- Hemming  
~~MS 3213~~ USMX  
303-985-4665  
FAX 980-1363

~~Ruth-Carford~~  
~~Seas Catalog~~  
~~Bankruptcy Court~~  
Call Chuck 326-4188  
~~722-7144 Shirley Keaton~~  
1-10-

Mardie Please send  
this via fax to  
Bob Hemming USMX  
FAX 303-~~985-4665~~  
980-1363  
P-159-01

1-8/93



7672  3M



January 8, 1993

To: Jim Briscoe

From: A.D. MacKenzie

Subject: JABA - Briscoe Ground

The following summarizes my understanding of our verbal agreement during my last trip to Tucson.

- (1) JABA - Briscoe will sell to Excellon Resources Inc. its holdings in the Tombstone Area. We will need a map and list of the claims but are those we have talked about during the past two years.
- (2) The purchase price is 475,000 shares of Excellon Resources Inc. The foregoing assumes an exchange rate of 1.00 U.S. = 1.25 Cdn. and a market price of \$0.27 per Excellon share. This is, of course, subject to Vancouver Stock Exchange approval. V.S.E. approval will be related to the market price at the time they approve the project. (USA)

In addition JABA - Briscoe will be entitled to a 2.5% Net Smelter Return royalty from any metals and minerals extracted from the property, i.e., includes gold, silver, base metals, etc. We will append a N.S.R. definition to the agreement. Excellon will have the right to purchase, at any time, for U.S. \$250,000, a 1 percentage point of the aforementioned royalty, with JABA - Briscoe retaining a 1.5% royalty.

JABA will have a 1.5% N.S.R. royalty on any State or Federal ground subsequently acquired within the attached Area of Interest. There is no buyback provision. This royalty applies only to ground acquired directly from the state or federal government and specifically excludes ground acquired from third parties. JABA agrees not to acquire any ground within the area of interest for itself or others unless Excellon has specifically waived its right to acquire such ground.

- (3) It is agreed that no royalty is payable to JABA - Briscoe on the TDC ground already under lease (the Contention Lease) and ground currently under negotiation with TDC. Furthermore, no royalty is payable to JABA - Briscoe on any internal fractions acquired within or adjacent to any TDC ground or any other party properties acquired or located within the TDC ground.
- (4) Upon completion of the transaction, Jim Briscoe will be invited to join the Board of Excellon Resources Inc. and will be entitled to stock options as approved by the Board of Directors.

Yours truly,

*A.D. MacKenzie*

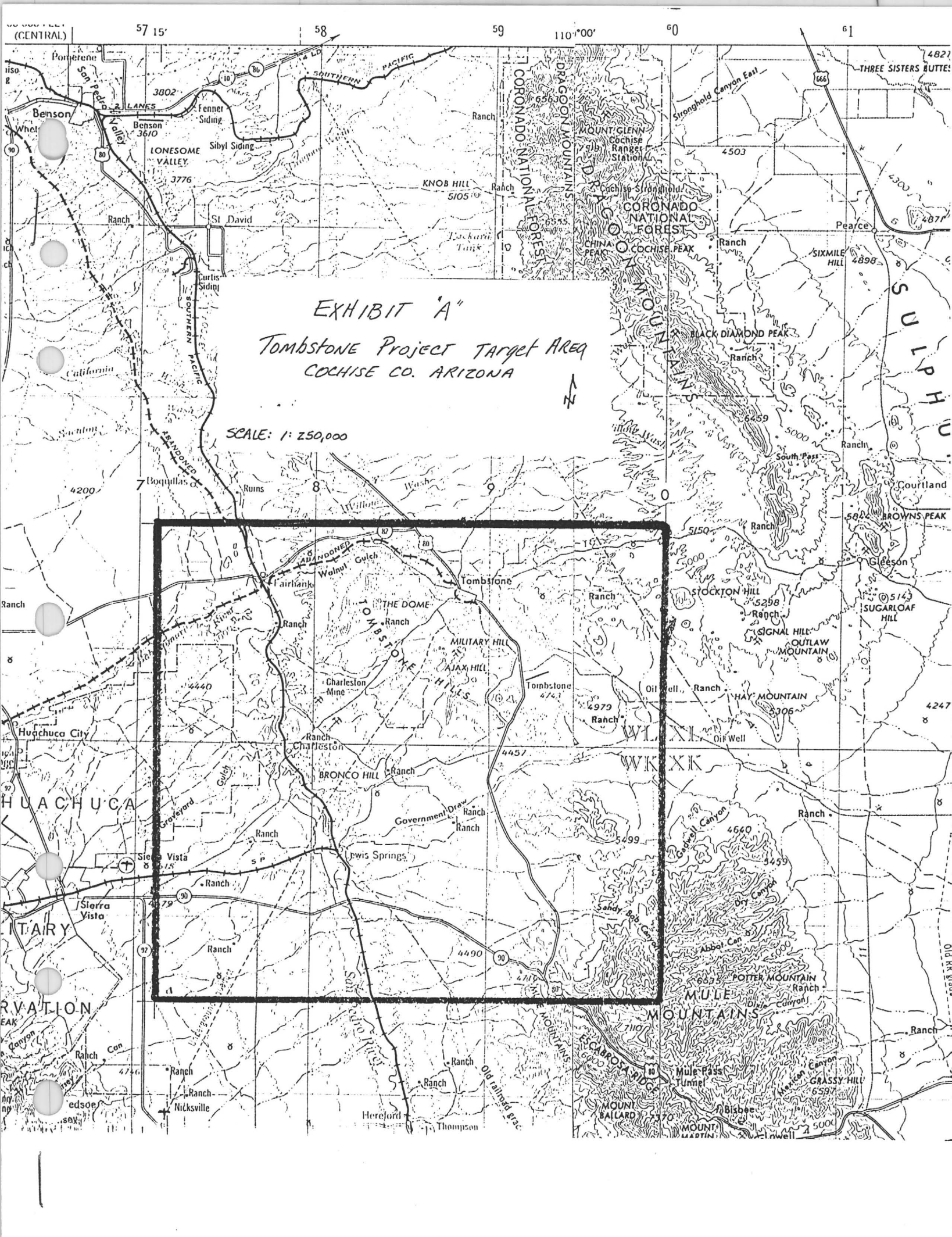


EXHIBIT 'A'  
Tombstone Project Target Area  
COCHISE CO. ARIZONA

SCALE: 1:250,000





JABA INC.  
2100 N. Wilmot Rd. #218  
Tucson, AZ 85712  
(602) 885-9141  
(FAX) 721-2768

January 8, 1993

Mr. Jerome Neidfelt, President  
Tombstone Development Company, Inc.  
P. O. Box 1445  
Grand Island, NE 68802

RE: Return of notebook entitled "Application for a Groundwater Quality Protection Permit", Grand Central Leaching Facility, dated August 3, 1988, Tombstone Mining District, Cochise County, Arizona - JABA Project #101-01

Dear Mr. Neidfelt:

Pursuant to your request of Jim Briscoe to return the above-referenced notebook, please find it included herewith.

Thank you for the loan and use of the application materials.

Sincerely,

A handwritten signature in cursive script that reads "Thomas E. Waldrip, Jr.". The signature is written in dark ink and is positioned above the printed name.

Thomas E. Waldrip, Jr.

TEW/ms

cc: James A. Briscoe  
A. Douglass MacKenzie



JABA INC.  
2100 N. Wilmot Rd. #218  
Tucson, AZ 85712  
(602) 885-9141  
(FAX) 721-2768

M E M O

TO: A. Douglass MacKenzie  
FROM: Thomas E. Waldrip, Jr.  
DATE: January 8, 1993

RE: Zebra Gold Prospect, Tombstone Mining District, Cochise County, Arizona - JABA  
Project #159-01

Doug,

Pursuant to information received from Primo Gold Ltd., a report entitled "The Zebra Property", by Leroy Halterman P.G. of MinSearch, Inc., dated March 30, 1991, on the above referenced prospect, please find following my evaluation of factors which may have a bearing on potential negotiation for this property.

**Item #1:**

Please refer to the attached map of Zebra Prospect Land Status. As can be seen, Primo has limited their land acquisition activities to state lands over their target areas. During the initial stages of exploration, it is my feeling that a more extensive land package might be warranted, specifically along the apparent axial trend of mineralization. Generally speaking, most ground on trend and flanking the targets is also state mineral/surface in nature. I would recommend an attempt be made to consolidate these properties under permit until a closer evaluation can be made geologically to ascertain other potential target areas on trend or paralleling the current targets. Initial costs are minimal for permits, at approximately \$2.00 per acre (rental for 2 years) and a work commitment of \$10.00 per acre per year (which doesn't need to be done unless you want to retain the permitted area for more than the first year). Being that Primo has not elected to consolidate more state property given the minimal holding costs involved, a strong argument exists, I feel, to strictly limit their ownership and royalty interest, if their property is included in any Tombstone consolidation to that associated with their currently defined property position.

**Item #2:**

Please refer to Page 3, last sentence, "...when the prospecting permits are converted to state leases, they will be subject to a 5% net value production royalty...". I believe this statement is insufficiently detailed. Referencing my conversation with Mike Price of the State Land Office (602) 542-2685 of this date, hard rock mineral royalties are based on a 2% to 8% net production sliding scale royalty. Their formula calculates the royalty by assuming total cost of production and a 20-year past average of commodity prices; a type of "Net Present Value". Thus, if your total production costs currently amount to say \$250 per ounce of gold produced and the average gold price over the preceding 20 years came to \$275, the NPV break even point under these calculations is nearly attained and you would pay a minimal royalty, apparently unrelated to current market prices. I assume

Memo to A. Douglass Mackenzie from TEW  
RE: Zebra Gold Prospect  
January 8, 1993  
Page 1 of 2

those production costs are taking into account the amount of royalties paid the State.

Price stated a good general figure might be estimated at a 5% net production royalty (net smelter return) for mine planning purposes. However, each mining lease is evaluated at the time of initial mining, and each year thereafter, with the royalty being adjusted accordingly up or down. He is sending more literature regarding this method of calculation of royalties on state lands which hopefully will help clarify our understanding of how royalties are calculated.

**Item #3:**

As will be noted on the attached map of the Zebra Prospect Land Status, all prospecting permits are due to expire within the next six months (by the end of June, 1993). Should the permits be allowed to expire, there is a risk associated with trying to reapply and the ability of Primo (or anyone else) to be successful in reacquiring the leased area. On opening of the area for reapplication by the state, chances are that multiple applications could be received by the state from any number of individuals or companies. In this situation of simultaneous filing for an area, drawings are held between the applicants to determine who will be awarded the permit. The likelihood of re-consolidating the target area in tact thus becomes very slim, if Primos data should become widely known. It might be noted that P.P. #95362 in Section 34 expired on 11/10/92. Current status of the area covered is unknown.

**Item #4:**

The preferable way to extend your rights to an area are to proceed toward a State Mineral Lease, which then allows you to mine and extract mineral values. Leases are for an initial term of 20 years, and for so long thereafter as mining continues, renewable on a yearly basis. In the past it was not difficult to obtain a Mineral Lease, often only based on geologically indicated resources. However, those days have past. In today's environment, one must be able to demonstrate a tonnage of at least drill-indicated Possible Ore. Chances of success for obtaining a Mineral Lease improve with increased definition of ore into the Possible and Proven categories for each 20 acre tract. With the current amount of geologic and drilling information available, it would appear that sufficient data exists to proceed toward acquiring Mineral Leases on certain areas of the prospecting permits.

**Item #5:**

The property information received in the Halterman report is not current enough to allow proper analysis. At the time of this memo (Item #3), AZ prospecting permit #95362 would have expired unless application for Mineral Lease was undertaken. All other permits are due to expire within the first 6 months of this year. You should be aware of these points in negotiation with Primo. We need a clearer picture from them on their plans to hold their state mineral rights longer than the next six months, and the costs of doing so.

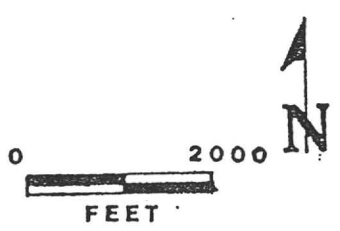
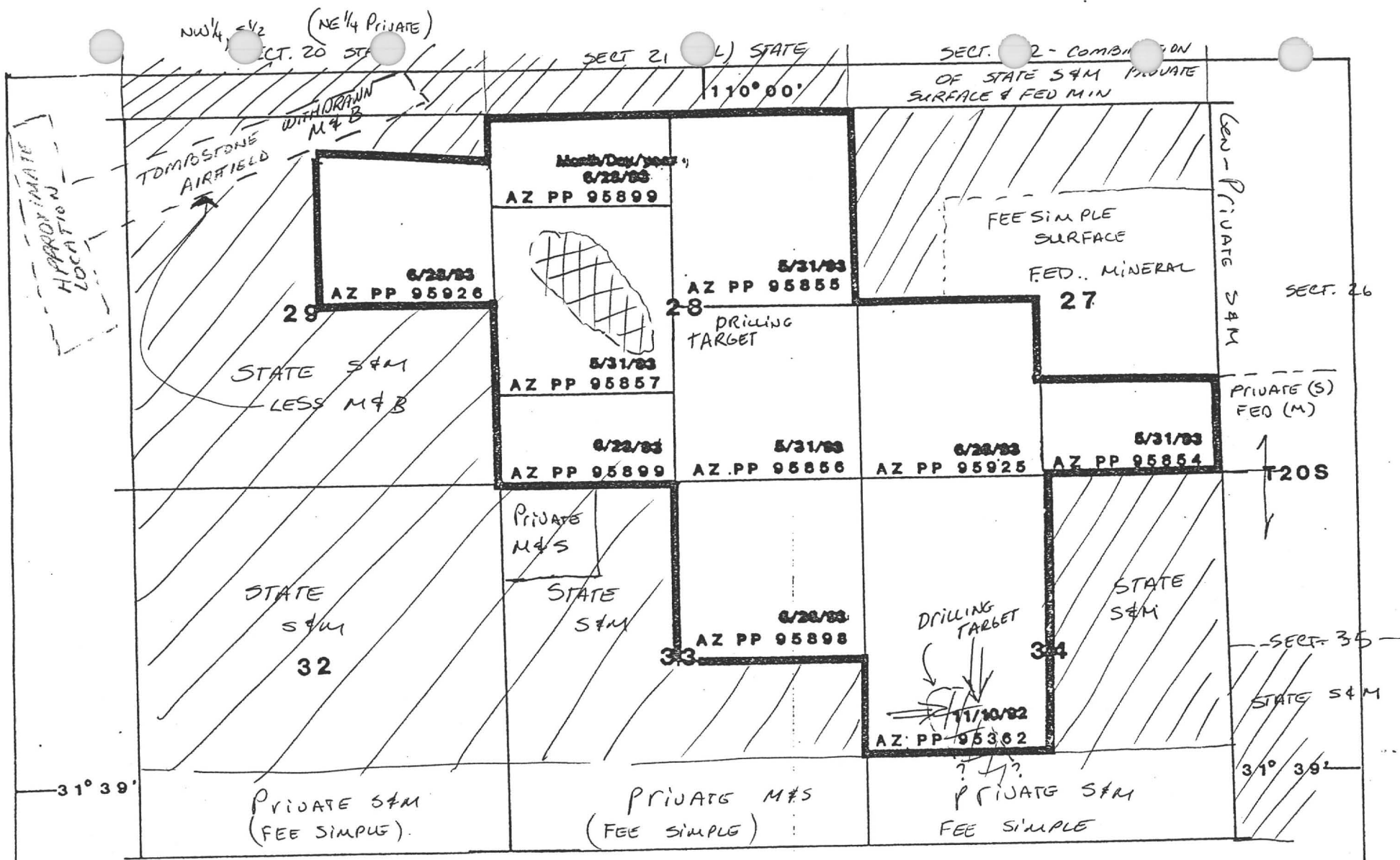


Tom

TEW/ms

Memo to A. Douglass Mackenzie from TEW  
RE: Zebra Gold Prospect  
January 8, 1993  
Page 2 of 2





R23E

ZEBRA PROSPECT  
LAND STATUS  
FIGURE 2

110° 00'



JABA INC.  
2100 N. Wilmot Rd. #218  
Tucson, AZ 85712  
(602) 885-9141  
(FAX) 721-2768

January 7, 1993

Mr. Jerome Neidfelt, President  
Tombstone Development Company, Inc.  
P. O. Box 1445  
Grand Island, NE 68802

RE: Leases and assessment filings, TDC claims, Tombstone Mining District, Cochise County, Arizona - JABA Project #101-01

Dear Mr. Neidfelt:

Pursuant to my continuing review of title information for you on TDC patented and unpatented mining claims, I find that I am missing a number of documents which have been in effect over the last few years. I would appreciate it if you could check your company files and send entire copies of the following documents:

1. Lease or agreement between Frank Magini d.b.a. Cochise Silver Mines, Inc. and TDC, effective at some point between July 9, 1985 and January 1, 1988.
2. A release or Quit Claim of claims in above lease or agreement.
3. Lease between Harbor Financial, Inc./PBR Minerals, Inc. and TDC, dated January 1, 1988.
4. Lease between Santa Fe Pacific Mining, Inc. and TDC, dated February 11, 1988.
5. Any documentation related to leasing to Santa Fe Pacific Mining, Inc. of mineral rights below the 4,100 foot elevation on the patented mining claims held under lease by Harbor Financial, Inc./PBR Minerals, Inc., and owned by TDC (claims per Item #2 above).
6. Evidence of filing of Proof of Labor on unpatented mining claims T.S.A. #'s 51 thru 62 (these unpatented claims were leased to Santa Fe) with the county and B.L.M., for 1992
7. A release or Quit Claim for claims and/or mineral rights held under lease by Santa Fe Pacific Mining, Inc. (Items #3 and #4 above).

Jerome Niedfelt, President  
Tombstone Development Co.  
RE: Leases and Assessment Filings  
January 6, 1993  
Page 1 of 2

8. A Quit Claim to TDC for unpatented claims located by Santa Fe Pacific Mining, Inc.- claims and any assessment documents filed with the county and B.L.M. for 1992 calendar year - including but not limited to SAC #17 thru #20, TOMB #1 thru #6, #8 thru #11, #14 and #16.
9. A county recorded Notice of Non-Liability for the lease between Tombstone Exploration, Inc. (T.E.I.) and TDC - lease dated February 7, 1979.
10. A county recorded Notice of Non-Liability for lease between Frank Magini, d.b.a. Cochise Silver Mines, Inc. and TDC.
11. A county recorded Notice of Non-Liability for lease between Harbor Financial, Inc./PBR Minerals, Inc. and TDC - lease dated January 1, 1988.
12. A county recorded Notice of Non-Liability for lease between Santa Fe Pacific Mining, Inc. and TDC - lease dated February 11, 1988.

Your help in providing us with the above requested documentation is appreciated.

Thank you!

Sincerely,

*Thomas E. Waldrip, Jr.*

Thomas E. Waldrip, Jr.

TEW/msb

cc: James A. Briscoe





JABA INC.  
2100 N. Wilmot Rd. #218  
Tucson, AZ 85712  
(602) 885-9141  
(FAX) 721-2768

January 6, 1993

A. Douglass MacKenzie  
Excellon Resources  
20 Adelaide St. E., Suite 200  
Toronto, Ontario, Canada M5C 2T6

RE: Notice of Non-Liability, USMX T.D.C. Claims, Tombstone Mining  
District, Cochise County, Arizona - JABA Project #159-01

Dear Doug:

With the changing of companies performing work on the Contention lease area, I think it is of importance that the operating company, i.e., USMX, file a new Notice of Non-Liability pursuant to the terms of Excellon Resources USA, Inc. lease with T.D.C., in order for them to be in compliance with that lease during their earn-in period (I assume USMX will be earning into a joint venture interest by their work commitment).

Subsequent to the earn-in period or upon formation of the joint venture, the Joint Venture should also file a new Notice of Non-Liability so that adequate protection is provided in all cases to TDC pursuant to the lease terms.

Sincerely,

A handwritten signature in cursive script that reads 'Thomas E. Waldrip Jr.' The signature is written in dark ink and is positioned above the typed name.

Thomas E. Waldrip, Jr.

TEW/ms

1/8/92 Tom:

Thanks. Note my comments

on pg 2

JTB

### MEMO

TO: James A. Briscoe  
FROM: Thomas E. Waldrip, Jr.  
DATE: January 6, 1993

RE: Information related to washed rock, equipment on TDC property, Tombstone Mining District, Cochise County, Arizona - JABA Project #159-01

Jim,

Pursuant to my review of records, the following is indicated from various court records:

1. According to a Complaint for Declaratory Judgement, filed by Plaintiff T.E.I., dated July 22, 1985, T.E.I. contended that they had approximately 30,000 tons of washed rock which they could sell for \$4.00/ton, which they believed was for benefit of their estate. An additional 1,960,000 tons of extracted but unwashed rock was contained on the property, but Plaintiff made no claim thereto.
2. The Honorable William A. Scanland, U.S. Bankruptcy Court Judge, ordered in open court on September 30, 1985, the lease between T.E.I. and TDC, dated February 7, 1979, was terminated. T.E.I. had until September 8, 1985, to remove from the leased premises all personal property, machinery, tools, appliances, supplies, pumps, pipe and equipment owned by T.E.I. Any property which was not removed by September 8, 1985, became the property of TDC. No mine tailings, ore or minerals could be removed from the leased premises pending determination by the court of the parties respective rights thereto.
3. The Honorable William A. Scanland, U.S. Bankruptcy Court Judge, ordered in open court on December 4, 1985, that the above washed rock, 30,000 tons, were the property of TDC.
4. Circa April 27, 1987, Frank Magini, d.b.a. Cochise Silver Mines, Inc., was actively working the previously crushed material and stacking it on the pad, according to Andrew Rendes of Arizona Department of Health Services, Southern Regional Office memo.
5. May 12, 1987, a request from Gary Lindroos to ADHS requested approval to remove tailings on the Impoundment Area to the Houghton Pad (approved by Martin Engineering) to the north of the Impoundment Area. Requests were made periodically thereafter until early November, 1987.

From these records, it would seem at this time that TDC owns all the equipment, supplies, buildings, waste rock and crushed rock on the property, unless they have a subsequent verbal or written record to the contrary. I think this clearly solves the problem that Jerry was having while we were down at Tombstone with he and Doug as to who owned what. Of more importance as far as TDC is concerned is the fact that substantial tonnages of washed crushed rock has been removed from the property since mid-1987. Was Cochise Silver Mines allowed to sell materials? According to their Groundwater Protection Permit, there was no indication that they were selling or capable of selling washed materials as a product. It appears they were required to stack all their washed rock on double lined pads. Their operation was limited to a pilot scale slurry leach milling plant for the purpose of treating soils and/or tailings contaminated with cyanide (per their GWPP). Therefore, I am left with the conclusion that the washed rock must have been stolen by parties as yet unidentified, subsequent to January, 1988, the period identified for the property being leased to PBR/Harbor.

*The PBR allow lease allow the selling of "ground" w/a #2 column rocks going to TDC*

With what information is at hand, it would appear that TDC owns all equipment left on the property and any improvements connected therewith. I would, therefore, believe it is up to TDC to provide any care, maintenance, removal or security necessary to protect these items.

Tom

TEW/msb

*much of the equipment belongs to the creditors of PBR - Ed Williams. E not addressed in the above chronology. JAB 1/8/93*

Memo.

To: Douglas Mackenzie

From: Thomas E. Waldrip, Jr.

Date January 5, 1993

Re: T.O.C. Property Status ~~Land Status~~, Tombstone  
Mining District, Cochise County, Arizona Gaba  
Project 159-01

Doug.

While completing the copying and organization of the data T.O.C. sent us <sup>before the holidays</sup> (as <sup>you</sup> were aware it was primarily title information on T.O.C. and other owners claims in the District) several things have come to my attention which I feel bear some consideration and possibly immediate attention

Item I

The P.B.R. lease with T.O.C. nor a memorandum was ever recorded to the <sup>Austin Mining</sup> best I can tell. Neither was the T.E.I. (Tom Schloss) lease nor the court mandated release by T.E.I. of the claims. Santa Fe Mining did record a memorandum <sup>of lease</sup> but I find no record in my files of a release being recorded. All in all this indicates a very un-disciplined attempt to keep a clear title on their property by T.O.C.

Recommendations

1. T.O.C. should file for record the court mandated release of T.E.I. - Austin Mining lease.

Bob



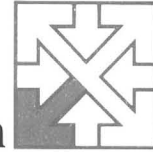
**Southwestern  
Exploration Associates, Inc.**  
Tucson, Arizona

2. T.O.C. should probably record a memorandum of the lease or the lease if a memorandum is not available for Harbor Financial, Inc. P.B.R. Minerals, Inc. lease dated January 1, 1988
3. T.O.C. should obtain (if not available) a release from Santa Fe Mining for the claims they had under lease.
4. Excellon, USA should formulate a memorandum of their lease with T.O.C. and have that recorded.
5. Excellon, U.S.A. should formulate a memorandum of their option granted to USMX and have this recorded (Note: U.S.MX should be required to post and provide a Notice of Non-liability for any work they carry on in the lease area by them during the period of the option. Furthermore U.S.MX needs to hold T.O.C. harmless for liability, labor and materials furnished.)
6. The above Notice of Non-liability should be recorded, within 30 day of agreement being reached with them by Excellon.

## Item II

Santa Fe's lease on T.O.C.'s property included eight (8) patented claims which were also under earlier valid lease to P.B.R. Minerals. Nothing indicated, that I've reviewed, <sup>that</sup> there was any distinction made about one party.

James A. Briscoe  
President  
Registered Professional Geologist



**Southwestern  
Exploration Associates, Inc.**

4500 E. Speedway, Suite 14/Tucson, Arizona 85712/602-795-6097

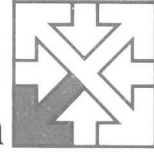
Exploration Consultants In:  
Base and Precious Metals, Uranium, Geothermal and Fossil Fuels  
Air Photo Interpretation

having surface / mineral rights to certain depth (2)  
and the other party having mineral and mining  
rights below that depth, as indicated on Santa Fe  
land maps circa 1988. The eight claims in conflict are:  
Item III Sydney, Sulphuret, Mayflower, Variety - Nine  
Last Chance #2, Boss, Grand Digger & Telephone.

It's becoming clear that Santa Fe must have  
had some sort of <sup>subsequent</sup> agreement with P.B.R./  
Cowichan or T.O.C. which I'm not  
aware of. The reason I say this is  
that Santa Fe did drilling on claims  
held by P.B.R./Cowichan but not  
included in their <sup>(Santa Fe's)</sup> lease with T.O.C.  
This helps explain why possibly much  
of the geologic data is missing from  
T.O.C.'s files. I believe these points  
should be checked out at length or  
at least clarified. It's beginning to  
seem that Santa Fe did work on  
the P.B.R./Cowichan lease area without  
either party receiving data (T.O.C. or  
Cowichan) at least what I've seen  
to date. Is it possible that Santa Fe  
was drilling and collecting samples on  
properties which they didn't control?  
as was indicated on their land status  
maps of 1988 vintage.



James A. Briscoe  
President  
Registered Professional Geologist



**Southwestern  
Exploration Associates, Inc.**

4500 E. Speedway, Suite 14/Tucson, Arizona 85712/602-795-6097

Exploration Consultants In:  
Base and Precious Metals, Uranium, Geothermal and Fossil Fuels  
Air Photo Interpretation

Head Center lot 38 General <sup>M.S.</sup> 125 Surveyed 4/5/1879 rejected  
Yellow Jacket lot 39 " M.S. 126 " 4/5/1879 "

Head Center - Yellow Jacket. M.S. 3213 8/20-21/1911  
patent issued. 3/3/1919  
pat # 668200  
serial # 031320

Michael Spitman

Bellefleur Montana 59105

282 West Chester Sq South

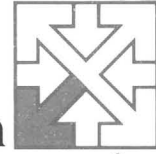
→ (14)  
19-20-  
Dennis Lance

101

→ Cost proposals ←

1. tying up to surface
2. drilling in to logs. ← New - & bold
3. land status.

James A. Briscoe  
President  
Registered Professional Geologist



**Southwestern  
Exploration Associates, Inc.**

4500 E. Speedway, Suite 14/Tucson, Arizona 85712/602-795-6097

Exploration Consultants In:  
Base and Precious Metals, Uranium, Geothermal and Fossil Fuels  
Air Photo Interpretation

Title to SAC - 17-20

SANTA FE

4 Tomb Claims 1-6, 8-11, 14 & 16



Did TDC Get These  
claims..

✓ & see if Santa Fe filed on behalf of  
T.D.C. The TSA claims. 51-62 claims  
for 1992

claims ?

According to  
Complaint for Declaratory  
Judgment filed by Plaintiff T.E.I.  
30 k washed rock  
As of December 4, 1985  
Honorable William A. Scanland  
December 4, 1985  
30 k tons washed  
rock are property  
of T.O.C.

22 July 1985  
\$4.00/ton  
+ 1,960,000 unvested  
NSR

Period

July 8, 1985  
January 1, 1988

Frank Magini  
Duty Escaped

1-6  
8-11, 14 & 16

ATTACHMENT 1  
Page 1 of 2  
**MINING PROPERTIES INCLUDED IN LEASE AGREEMENT (Dated \_\_\_\_\_)**  
**Between**  
**Tombstone Development Company (Owner)**  
**and**  
**Excellon Resources U.S.A., Inc. (Lessee)**  
**Tombstone Mining District, Cochise County, Arizona**

Mine/Claim Name	Mineral Survey No.	County Records*		BLM Serial No.
	(Patented Claims only)	Book	Page	(Unpatented Mining Claims)
<b>Patented Mining Claims: (1*)</b>				
Alta (M&B only)	289	7	405	
Antelope	3227	29	300	
Banner	792	15	385	(Less surface reservations of patent)
Big Comet	3224	29	310	
Black Hawk	3696	30	411	
Blue Monday	Gen.265	15	458	
Bunker Hill	810	12	11	
C.O.D.	928	15	108	
Contact	679	9	536	
Defence	Gen.279	14	289	
East Side	Gen.280	14	272	
East Side #2	376	14	278	
Emerald	608	8	600	
Emerald South Mine	3712	30	387	
Escondido	3218	29	298	
Extacy	Gen.261	8	87	
First South Extention of the Toughnut	Gen.257	5	1	(Less surface ownership of record)
Floradara	3226	29	294	
Gilded Age	Gen.181	9	34	(Less surface reservations of patent)
Goodenough	Gen.278	14	311	(Less surface ownership of record & surface reservations of patent)
Hard Up	344	27	278	
Hawkeye-Little Wonder	3216	30	146	(Less surface ownership of record & surface reservations of patent)
Herald	Gen.268	15	261	
Hidden Treasure	676	11	556	
Hope	295			
Little Comet	3224	29	310	
Luck Sure	265	17	532	
Lucky Cuss	Gen.137	14	295	
Mammoth	812	12	1	
McCann	3217	29	302	
Mexican	682	9	541	
Miners Dream	3224	29	310	
North Extension of the Sulphuret	Gen.256	34	240	
Old Guard	785			
Oregon	3226	29	394	
Owl's Last Hoot	390	27	297	
Owl's Nest	259	14	319	
Poor X	Gen.223	4	3	(Less surface reservations of patent)
Prompter	477	27	273	
Rattlesnake	811	12	6	
Revenue	626	11	24	
San Rafael	3225	30	168	
Shoofly	3227	29	300	
Shorty	Gen.263	8	93	
Silver Plume	Gen.239	9	497	
Standard	801	11	547	
Survey	Gen.292	7	334	
Survey	267	14	304	(Less surface reservations of patent)

**ATTACHMENT 1**

Page 2 of 2

**MINING PROPERTIES INCLUDED IN LEASE AGREEMENT (Dated \_\_\_\_\_)**

Between

**Tombstone Development Company (Owner) &  
Excellon Resources U.S.A., Inc. (Lessee)  
Tombstone Mining District, Cochise County, Arizona**

Mine/Claim Name	Mineral Survey No.	County Records*		BLM Serial No.
	(Patented Claims only)	Book	Page	(Unpatented Mining Claims)
Toughnut	Gen.136	14	263	(Less surface ownership of record)
Tribute	Gen.281	14	325	
Verde	848	12	265	
Vizina	Gen.204	27	299	(Less surface reservations of patent)
Wayup	Gen.178	5	258	(Less surface reservations of patent)
Wedge	367	14	258	
Westside	Gen.282	14	283	

**Unpatented Mining Claims T.D.C. Group: (2\*)**

T.D.C. #1	340	207	A-MC-297997
T.D.C. #2	340	204	A-MC-297998
T.D.C. #3	340	208	A-MC-297999
T.D.C. #4	340	209	A-MC-298000
T.D.C. #5	340	210	A-MC-298001
T.D.C. #6	340	211	A-MC-298002
T.D.C. #7	340	212	A-MC-298003
T.D.C. #8	340	213	A-MC-298004
T.D.C. #9	340	214	A-MC-298005
T.D.C. #10	340	215	A-MC-298006
T.D.C. #11	340	216	A-MC-298007
T.D.C. #12	340	217	A-MC-298008
T.D.C. #13	340	218	A-MC-298009
T.D.C. #14	340	219	A-MC-298010
T.D.C. #15	340	220	A-MC-298011
T.D.C. #16	340	221	A-MC-298012
T.D.C. #17	340	206	A-MC-298013
T.D.C. #18	340	205	A-MC-298014
T.D.C. #19	1489	35	A-MC-298015
T.D.C. #20	1489	37	A-MC-298016
T.D.C. #21	1489	39	A-MC-298017
T.D.C. #22	1489	41	A-MC-298018
T.D.C. #23	1489	43	A-MC-298019
T.D.C. #24	1489	45	A-MC-298020
T.D.C. #25	1489	47	A-MC-298021
T.D.C. #31	1489	59	A-MC-298027

**Unpatented Mining Claims T.S.A. Group: (2\*)**

T.S.A. #51	1741	337	A-MC-215480
T.S.A. #52	1741	338	A-MC-215481
T.S.A. #53	1741	339	A-MC-215482
T.S.A. #54	1741	340	A-MC-215483
T.S.A. #55	1741	341	A-MC-215484
T.S.A. #56	1741	342	A-MC-215485
T.S.A. #57	1741	343	A-MC-215486
T.S.A. #58	1741	344	A-MC-215487
T.S.A. #59	1741	345	A-MC-215488
T.S.A. #60	1741	346	A-MC-215489
T.S.A. #61	1741	347	A-MC-215490
T.S.A. #62	1741	348	A-MC-215491

\*Notes

1. For patented mining claims - U.S. Patent Recording (Deed of Mines Book)
2. For unpatented mining claims location notice recording (Docket Book)

FILE

Tombstone Development Company

P.O. BOX 1445

TELEPHONE 308/382-7480

GRAND ISLAND, NEBRASKA 68802

received  
12/13/92 JNB

December 10th, 1992

Arizona Department of Environmental Quality  
3033 North Central Avenue  
Phoenix, Arizona 85012

Attention: Don Bell

Dear Sir:

I wish to thank you at this time for the time you took to meet with me along with Mr. Douglas McKenzie and Mr. Jim Briscoe on December 8th, 1992.

I feel we had a very productive meeting and will take necessary steps to correct areas in which Tombstone Development Company is deficient on behalf of PBR Minerals.

As requested at the meeting, Jaba, Inc. of Tucson will give you a written preliminary plan of action which we propose to accomplish in the near future.

Briefly, this will include taking water level measurements in 4 wells drilled on the site: Namely,

Tombstone Well No. 1  
TEI Water Wells No. 1, 2 and 3.  
PBR Water Well No. 1

They will then proceed to obtain water samples from these wells for the determination of water purity. They will also inspect the Grand Central Leaching Facility to monitor its integrity.

This plan should be presented to you on or before December 21st,

Very truly yours,

*Jerome Niedfelt*  
Tombstone Development Company  
By: Jerome Niedfelt, President

JN/ap

cc: Jaba, Inc.

Tombstone Development Corp.  
Remediation and Permitting  
page 1

DRAFT COPY ONLY

CERTIFIED MAIL  
Return Receipt Requested

Date: December 11, 1992  
Ref: WP92-

received  
12/11/92 JJJ

Tombstone Development Corporation  
Mr. Jerry Niedfeldt  
P.O.Box 1445  
Grand Island, Nebraska 68803

RE: Tombstone Development Corporation; Contention Mine, Processing, and Milling Site, Tombstone, Cochise County, Arizona; Remediation of the Compliance Problems and the Environmental Permitting of this Site.

Dear Participants:

TECHNICAL ASSISTANCE MEETING SUMMARY

A meeting was held on Tuesday December 8, 1992, at 1:30 pm, in the offices of the Arizona Department of Environmental Quality at 3033 North Central Avenue. During this Technical Assistance Meeting the following items were agreed upon:

1. Jim Briscoe, of Jabba Inc. (the landowner's and the lessee's consultant), will develop a preliminary compliance plan which will begin to develop the identification of the compliance problems (or the absence of a compliance problem) and the remediation steps that will be required. Included in these plans will be the sampling of the wells on site (for The EPA Safe Drinking Water Standards for Inorganics), and in the general area (where possible), as soon as possible to assist in the characterizations of these concerns. The plan will be submitted by December 22, 1992. The results of the testing will be submitted as the data becomes available.

2. Douglas Mackenzie, of Valdez Gold Inc. (representing the present Lessee), will develop and submit, in conjunction with US Mining and Exploration (the company that will accomplish the drilling and testing), a general drilling plan with map. This plan shall indicate the precautions that the driller will use to prevent any pollution from the previous cyanide spill from the past



Tombstone Development Corp,  
Remediation and Permitting  
page 2

pregnant solution pond, and the general area that the sampling will be conducted in. This plan will be submitted by December 22, 1992.

3. Roger Kennett and Dave Anderson will review the available ADEQ documents and provide a list of Departmental concerns for this site from the past inspections and submittals. An inspection of the site with a representative of the Southern Regional Office and any of the other principles that wish to be there, shall be planned and scheduled for January. The list and the schedule will be submitted by January 10, 1993.

4. Beginning with January 15, 1993, and on the 15th of every month thereafter, until the site is permitted, Tombstone Development company shall have caused a report to be submitted explaining the progress made on this site toward the remediation of the compliance problems and the permitting of the premises. This may be done through their designated consultant or by the owners themselves.

5. All items shall be submitted through:  
Arizona Department Of Environmental Quality  
Don Bell-#205  
P.O. Box 600  
Phoenix, Arizona 85001-0600  
Telephone (602)207-4613  
Fax:(602)207-4634

Attached is a list of the persons, including their addresses, that need to receive copies of each of these transactions. Please send these and indicate that these people have been copied in your transmittal. This will save a considerable amount of time.

Please do not hesitate to call myself or any of the principles involved.

Sincerely,

Donald G. Bell  
Water Pollution Compliance Officer  
Arizona Department of Environmental Quality

cc:  
Attached List

B:\FBR\TA12892  
DB:DB:db

Tombstone Development Corp.  
Remediation and Permitting  
page 3

DISTRIBUTION LIST

Roger Kennett  
Arizona Department of Environmental Quality  
Aquifer Protection Permit Section-Mining  
P.O. Box 600  
Phoenix, Arizona 85001-0600  
Phone (602)207-4696  
FAX: (602)207-4674

Dave Anderson  
Arizona Department of Environmental Quality  
Aquifer Protection Permit Section-Hydrology  
P.O. Box 600  
Phoenix, Arizona 85001-0600  
Phone (602)207-4669  
FAX: (602)207-4674

Tombstone Development Corporation  
Mr. Jerry Niedfeldt  
P.O.Box 1445  
Grand Island, Nebraska 68803  
Phone:(308)-382-7480  
Fax:(308)382-7482

Jim Briscoe-Registered Geologist  
Jabba Inc.  
2100 N.Wilmot Rd.  
Tucson Az. 85712  
Phone:(602)-721-1375  
Fax:(602)298-6688

Douglas Mackenzie, P.E.  
Vice President  
Valdez Gold Inc.  
Suite 200, 20 Adelaide St. E  
Toronto, Ontario M5C 2T6  
Phone (416)867-1100  
Fax: (416)867-1109

Jay Skardon  
Assistant Attorney General-Arizona  
1275 W. Washington  
Phoenix Arizona 85007  
Phone (602)542-1610

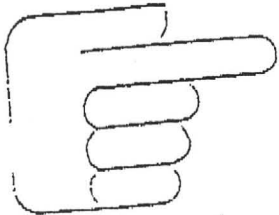
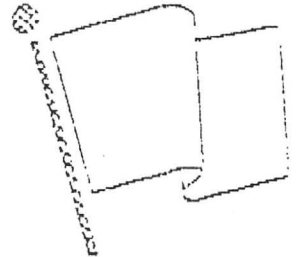
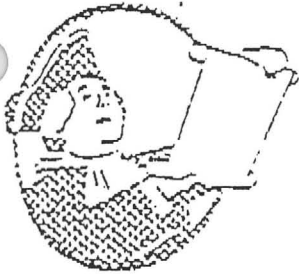
Tombstone Development Corp.  
Remediation and Permitting  
page 4

Donald Bell  
Arizona Department of Environmental Quality  
Water Pollution Compliance Unit-#205  
P.O. Box 600  
Phoenix, Arizona 85001-0600  
Phone (602)207-4613  
FAX: (602)207-4634 (or 2218)

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

WATER POLLUTION COMPLIANCE UNIT  
3033 North Central Avenue, 3rd Floor  
Phoenix, Arizona 85012

GENERAL INFORMATION  
(602) 207-2300  
ADEQ TOLL FREE (1-800-234-5677)



TO: Jim Baicsoe  
Fabba Inc  
ROOM NUMBER: \_\_\_\_\_

PHONE NUMBER: 602-721-1375

FAX NUMBER: 602 298 6688

FROM: Don Bell - Az Dept Environ Quality

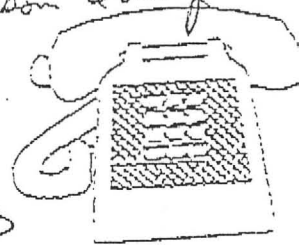
ROOM: 205

PHONE NUMBER: 602 207 4613

FAX NUMBER: (602) 207 - 4634

Number of Pages: 1  
(Including this page)

Any problems with copy quality, please  
call the person who sent the document.



M E M O

TO: A. Douglass MacKenzie  
FROM: Thomas E. Waldrip, Jr.  
DATE: December 8, 1992

RE: Memorandum/Chain of Title, Santa Fe Mining's work on TDC claims, Tombstone Mining District, Cochise County, Arizona (P159-01)

Doug,

Pursuant to your request, approximately a quarter of the available title information generated by Santa Fe Mining on TDC's Tombstone properties has been copied and organized. I have arbitrarily set out a five-phased work schedule to accomplish this task as follows:

1. Review of Santa Fe Mining information available for copying;
2. Copy and organize completed title search information for claims in Excellon's Contention lease for possible use by U.S.M.X.;
3. Set up an organizational system for filing additional title information on other patented claims;
4. Copy and file additional materials; and
5. Report on completion of copying work and additional necessary work.

Phases 1 through 3 have been accomplished, Phase 4 is approximately 1/4 done, and Phase 5 is addressed following.

PHASE 1 - Review of Information

Several hours of time was spent reviewing the information received and developing an organizational system in which to file the copied information. I settled on a notebook index system divided by mining claim name pertaining to the leased area. Behind each claim index page, further subdivisions were created by labeled colored sheets. Previous review of received information indicated a far too optimistic initial appraisal of the completeness, nature and organization of the Santa Fe data. During our meeting here in Tucson on Friday, November 20, 1992, we happened to look at one of the 15 completed claims (title searches) out of a total of 88 claims for TDC at Tombstone. The remaining 63 claims are in varying states of review, generally very incomplete and in general, information scattered throughout the files (not well organized). It appears complete title searches were started and generally completed on 15 of the claims (I have not reviewed these for completeness), later to defer to common chains of title for groupings of claims, and ultimately only very preliminary title work on others. Work seemed to be very piece-meal at best, as exemplified by the copying of recorded

Memo to A. Douglass MacKenzie  
From Thomas E. Waldrip, Jr.  
RE: Chain of Title TDC claims  
December 8, 1992  
Page ^N of 3

documents, maps and subsequent organization.

#### PHASE 2 - Copying Completed Title Files on Excellon Lease Claims

Seven completed Santa Fe claim files were copied and organized out of the 33 claims in the lease area. A separate notebook was set up for this material, ultimately to turn over to U.S.M.X. if necessary.

#### PHASE 3 - Organizational System - Remaining Claims

As above, a notebook system was tabbed with all patented claims in alphabetical order for the District. A duplicate copy of information (Phase 2 above) was placed in these notebooks for Excellon's copy of such information. An additional 8 completed (total of 15) Santa Fe claim files were copied and filed herein.

#### PHASE 4 - Copy other file information

Copying was started on additional files and maps located in the boxes, which was known not to exist in JABA files, currently. To keep copying costs down, I have tried to eliminate copying already duplicated data, as it can always be had from our files at a later date, if needed. I have crudely organized our notebook file information in a manner to quickly facilitate a review and check of information to see what other information is necessary, so it can be ordered or obtained quickly. My ultimate goal is to have a complete information base of documents, maps and abstracts for each of the claims in order to quickly compose a written memorandum and chain of title report on each individual claim in TDC's claim holdings. Some information will be available for third party claims, also, but much less complete than that for TDC. This information will be generated from Santa Fe's files, other data currently in our files, continued title work on TDC claims (common chain of title to a point now under separate ownership), etc. Work was discontinued until we could determine how you wish us to proceed.

#### PHASE 5 - Recommendations

1. Complete copying and organization filing of Santa Fe data, estimated 10 to 12 man days of work.
2. Evaluate each of TDC's claims to ascertain additional information needed. Order needed copies of plats, data and documents from BLM, County Assessor and Recorder. Organize data when received.
3. Evaluate title documents for completeness.
4. Build additional chain of title where necessary from tract indexes and/or grantee/grantor indexes.

Memo to A. Douglass MacKenzie  
From Thomas E. Waldrip, Jr.  
RE: Chain of Title TDC claims  
December 8, 1992  
Page ^N of 3

5. Order documents, organize.
6. Build written Memorandum of Title and Chain of Title documents.
7. Transfer information to client.

It is my opinion that at the very least we should finish copying information provided to TDC and return the originals back to them immediately. Other items can be performed on an as needed basis. Nevertheless, if a title search is going to be required on the claims, the sooner we start with this, the better. Lead time necessary on obtained volumes of copied data is at minimum three weeks in most cases, and often more than a month, seasonally. Unavoidable delays in the future could come about, not only by these delays, but by other, higher priorities in work schedules. These conflicts do not exist now.

I would suggest representatives of TDC be approached to ascertain their attitudes about their completion of or at least splitting the cost on any title work done on their claims. It seems to me that they would benefit from such work, and it should have been done long ago. I also feel TDC's files in Grand Island should be reviewed, as it is clear they don't have a good handle on what is or isn't available in that regard. Assuming some title documents might be located, their work and costs would be proportionally reduced by assessing such information.

*Thomas E. Waldrip Jr*

Tom

TEW/msb

Memo to A. Douglass MacKenzie  
From Thomas E. Waldrip, Jr.  
RE: Chain of Title TDC claims  
December 8, 1992  
Page ^N of 3



JABA INC.  
2100 N. Wilmot Rd. #218  
Tucson, AZ 85712  
(602) 885-9141  
(FAX) 721-2768

PRELIMINARY UNEDITED COPY  
FOR DISCUSSION PURPOSES ONLY

December 8, 1992

Mr. Jerome Neidfelt, President  
Tombstone Development Company  
1028 South Adams  
Grand Island, NE 68801

RE: Ownership Title, T.D.C. Patented Mining Claims, Tombstone Mining District, Cochise County, Arizona - JABA Project #100-01

Dear Mr. Neidfelt:

Pursuant to a quick review of TDC's patented land position in the Tombstone Mining District, several important factors are coming to light regarding future potential of mining thereon, as well as surface issues. At this time, it is important to stress that a full analysis of these issues has not been undertaken, only a preliminary review. I am uncertain as to the exact understanding currently held by the stockholders of the company and their exact knowledge as to the status of these lands related to these issues. I would, therefore, like to propose a working relationship be established between TDC and JABA, Inc., whereby JABA, Inc. would be a consultant to advise and hopefully resolve many, if not all, title issues regarding TDC's Tombstone property.

Currently, I have recognized the following problems:

1. Within the Tombstone District, TDC owns or controls 88 patented mining claims (more or less), 16 of which have (greater to lesser) separate surface ownership not common with TDC. The majority of these, 16 claims lie (in part or in whole) within the established Tombstone Townsite. Many patents to these 16 claims reserved pre-existing surface improvements and acreage to those parties, in a retroactive fashion, without identified meets and bounds or lot description. What is apparent is that TDC owned or controlled 247 lots (10 of which are partial lots) within the Townsite area, as of 1935. Many of these lots have surface improvements and are assessed for tax purposes to other parties. Several claims outside the Townsite boundary also reserved surface improvements, and I assume unspecified surface acreage, as yet not found in available records. These caused the following problems:
  - a. What does TDC own surface-wise on these claims? It is assumed TDC owns the mineral rights, or do they?

Mr. Jerome Neidfelt, President  
Tombstone Development Co.  
RE: Ownership Title  
December 8, 1992  
Page ^N of 3



PRELIMINARY UNEDITED COPY  
FOR DISCUSSION PURPOSES ONLY

- b. TDC is being taxed (assessed surface value) for the entire area of the claims, while they apparently do not control the entire surface domain of the claims (Arizona only assesses surface estate not mineral).
  - c. In some cases, the occupant of the surface improvement is being double assessed separate from the surface owners (TDC).
  - d. Do the surface improvement occupants have leases? For how long? What control does TDC have over them?
  - e. TDC should own any and all surface improvement located on TDC's property, assuming expiration of any long-term leases. What has TDC done to re-establish their ownership to these properties, if any? Are there potential problems with adverse possession should TDC not assume proper ownership to these lands? Is TDC losing a potential income source in rentals or sales? What liability does TDC have to these properties and improvements should someone be injured or killed on the property?
  - f. What effects and how valid are zoning restrictions placed by the Town of Tombstone on mining on areas owned by TDC, including surface improvements (when this is done by assessed surface valuation) in which many of the surface occupants should not have been able to vote for zoning changes because they did not own the property (TDC does).
2. Within the area covered by the Goodenough, Empire, Toughnut, et al., claims, circa 1987, surface owners requested a change in zoning from I-2 (allowing mining) to R-2 (not allowing mining) from the city. The change was passed by City Council upon approval by a majority of property owners (assessed value of surface improvements). I feel this is a case of undue hardship being placed on TDC to limit their ability to mine and has diminished the value of their property. Furthermore, deeds to the surface ownership, specifically provided for reservations to the mineral holder to mine and remove minerals below 40 feet from these lands. Based on these reservations of these deeds, I feel the rezoning change was done improperly and that any surface assessed valuation established within the meets and bounds of such deeds should have abstained from voting on the rezoning issue. Was TDC contacted on this issue? If not, why not? This area roughly covers the second most productive portion of the District, and as such, amounts to a taking of TDC property rights, without due compensation.
  3. The same argument exists for establishment of the city limits over much of TDC's property. Was TDC apprised of such changes?
  4. Circa 1935, reference is made in documents that TDC had control of one, and possibly two,

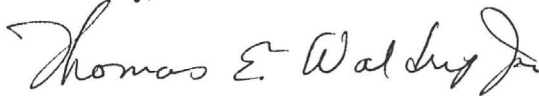
PRELIMINARY UNEDITED COPY  
FOR DISCUSSION PURPOSES ONLY

mill site areas on the San Pedro River. Have these been sold? Does TDC still own them? They could be very valuable properties, both surface and water-wise.

No complete, clear chain of title work appears to be available on TDC's property. I would strongly advise TDC to come to speed on what they do and don't control, any restrictions, right-of-way, etc. to those lands, and above all, become a concerned participant in community affairs and an active landlord/landholder. To accomplish this, I feel you need to undertake and build a complete chain of title to your properties, both surface and mineral. Because of the complex nature of ownership, restrictions, etc., a composite map or maps need to be constructed to show this ownership. Computer-aided drafting (CAD), which we employ in our business, is well suited to such a task. Once these tasks have been accomplished, then plans can be laid as to how to proceed with any problem areas, legal interactions, properties to keep and/or dispose of, etc.

I believe that the value of TDC's property lies in its mineral potential. It would be best to protect that right. With my strong background in both geology and land work, I feel I am well qualified to undertake and manage such an activity on behalf of TDC, keeping the emphasis on the mineral potential. I would, therefore, like to offer the services and extensive pre-existing data base of our company for such an undertaking. I look forward to future discussion and/or work related to these matters.

Sincerely,



Thomas E. Waldrip, Jr.

TEW/msb

cc: A. Douglass MacKenzie



MINERAL  
EXPLORATION &  
DEVELOPMENT

PRIMO GOLD LTD.

1305-1090

West Georgia St.

Vancouver

British Columbia

Canada

V6E 3V7

Telephone

(604) 685-9316

Facsimile

(604) 683-1585

December 7, 1992

Mr. Jim Briscoe  
JABA Inc.  
2100 N. Wilmont Rd. #218  
Tucson, AZ  
85712

Dear Jim:

Please find enclosed the Zebra Documents as per your request.

Sincerely,

PRIMO GOLD LTD.

A handwritten signature in dark ink, appearing to read "K.A. Cabianca".

K.A. Cabianca

KAC:clh

enclosure

**FILE** Tombstone M.D.  
Cochise Co., AZ

# NEWS UPDATE



MINERAL  
EXPLORATION &  
DEVELOPMENT

## ZEBRA GOLD PROSPECT - COCHISE COUNTY, ARIZONA

**PRIMO GOLD LTD.** The Zebra prospect is an epithermal, disseminated gold occurrence which appears to possess the potential for both a low grade heapleach deposit and a higher grade zone which may be recovered by conventional milling. The property as a whole has been examined geologically, geophysically and geochemically. These studies have located numerous areas of anomalous gold mineralization, a shallow gold reserve of unknown size which is only partially delineated, geophysical anomalies, which at depth were found to contain anomalous gold mineralization, and a number of other targets that have not been tested.

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The property totals 1,400 acres and is located approximately three miles southeast of Tombstone, Arizona. The land consists entirely of Arizona State Prospecting Permits.

Surface sampling over an area of almost three square miles has found gold mineralization in a number of geological environments. The most obvious mineralization has been found in the jasperoid outcrops where limestone beds have been silicified and contain anomalous gold values varying from sub ore grade to over one ounce per ton. However, other environments such as argillized limestones and shales contain anomalous mineralization, assays of contact silicification next to an intrusive have contained up to .29 ounces per ton gold, dark grey to black petroliferous limestones. Some of the drill holes have contained sub ore grade gold mineralization and calcite replacements on the surface and in drill holes also contained trace gold mineralization.

Drilling to date has been confined to only a few areas. One area of drilling has defined a small, shallow mineral body containing 104,632 tons of mineralization averaging .091 ounces per ton gold with a strip ratio of 1:4 to 1. Cyanide leach re-assays of five drill intervals indicate that approximately 70 percent of the gold was recovered. This mineralization has not been offset in several directions and there is no wider spaced reconnaissance drilling to locate the extensions of new bodies. A second area of drilling consists of four holes to test an area of anomalous gold mineralization in jasperoids. These holes intercepted weak to moderate gold mineralization at various depth from the surface to 450 feet. Two geophysical anomalies were located in a recently performed "test" program involving I.P. Resistivity and C.S.A.M.T. This test program consisted of only one line, approximately one mile long traversing the property in an East-West direction. One hole was drilled in each anomaly during 1992. The largest anomaly contained significant low grade mineralization over a wide interval. This hole has not been offset.

A number of large targets, both geophysical and geological have not been tested. The shallow mineral body containing ore grade gold mineralization has only been partially tested as has most of the property. Based on data generated to date it seems reasonable to assume that an aggressive drilling program would have a significant chance of locating a large economic gold ore body.

I need to check on  
expiration dates on  
PP's in this area -

Also call state &  
determine current  
royalty schedule on  
state lands.

Write memo on  
what I come up with  
to Doug

Very interesting prospect type  
morning

**F.Y.I.**

12/15/92

Tom

Review &  
file

JAB

CERTIFICATION

I, Leroy Halterman of Albuquerque, New Mexico, do hereby state:

1. I am a consulting Geologist. I graduated from Missouri School of Mines, Rolla, Missouri in 1968 with a B.S. in Geology.
2. My address is 820 Piedra Vista NE, Albuquerque, NM 87123.
3. I am a member in good standing of the American Institute of Professional Geologists, and I am a Certified Professional Geologist, #3444 and a Registered Geologist #540 in the State of South Carolina.
4. I am employed by MinSearch, Inc., 11930 Menaul NE, Suite 112, Albuquerque, New Mexico 87112
5. Since graduation, I have practiced geology for 23 years, mainly in the western United States.
6. My report is based on numerous visits to the Zebra property. The most recent visit was January 14 through 25, 1991
7. Consolidated Paymaster and Tempo Resources has given permission to use the data they acquired in this evaluation and report.
8. This report entitled "THE ZEBRA PROPERTY" March 30, 1991, may be used by Primo Gold Ltd. in a public financing.
9. I myself or MinSearch, Inc. have no direct or indirect interest in the Zebra property or in Primo Gold Ltd.

Dated at Albuquerque, New Mexico, the 30th day of March, 1991.



Report on

THE ZEBRA PROPERTY

A Gold Prospect,  
Cochise County, Arizona

Sections 27, 28, 29, 33 and 34  
Township 20 South, Range 23 East

Prepared for:

Primo Gold Ltd.

by

Leroy Halterman,  
Certified Professional Geologist #3444  
MinSearch, Inc.

March 30, 1991

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## APPENDICES

Appendix A - Rock and Soil Sample Descriptions and Assay Results

Appendix B - 1990 -1991 Drill Hole Assay Data

## ACCOMPANING DOCUMENTS

1. Zonge Engineering and Research Report
2. Soil Geochemistry Data Sheets and Assay Reports



## THE ZEBRA PROPERTY

### A Gold Prospect

This report was prepared at the request of Primo Gold Ltd. and was based on numerous visits to the property by the author. The most recent visit was January 14 through 25, 1991 when the author supervised a three hole drilling program and a soil sampling survey. Earlier visits to the property included supervising a drilling program, geophysical programs, geological and geochemical mapping. In addition to the field examinations, data compiled by Energy Reserves Group, Consolidated Paymaster, Wellington Financial, and Tempo Resources Ltd. was also used in the preparation of this report.

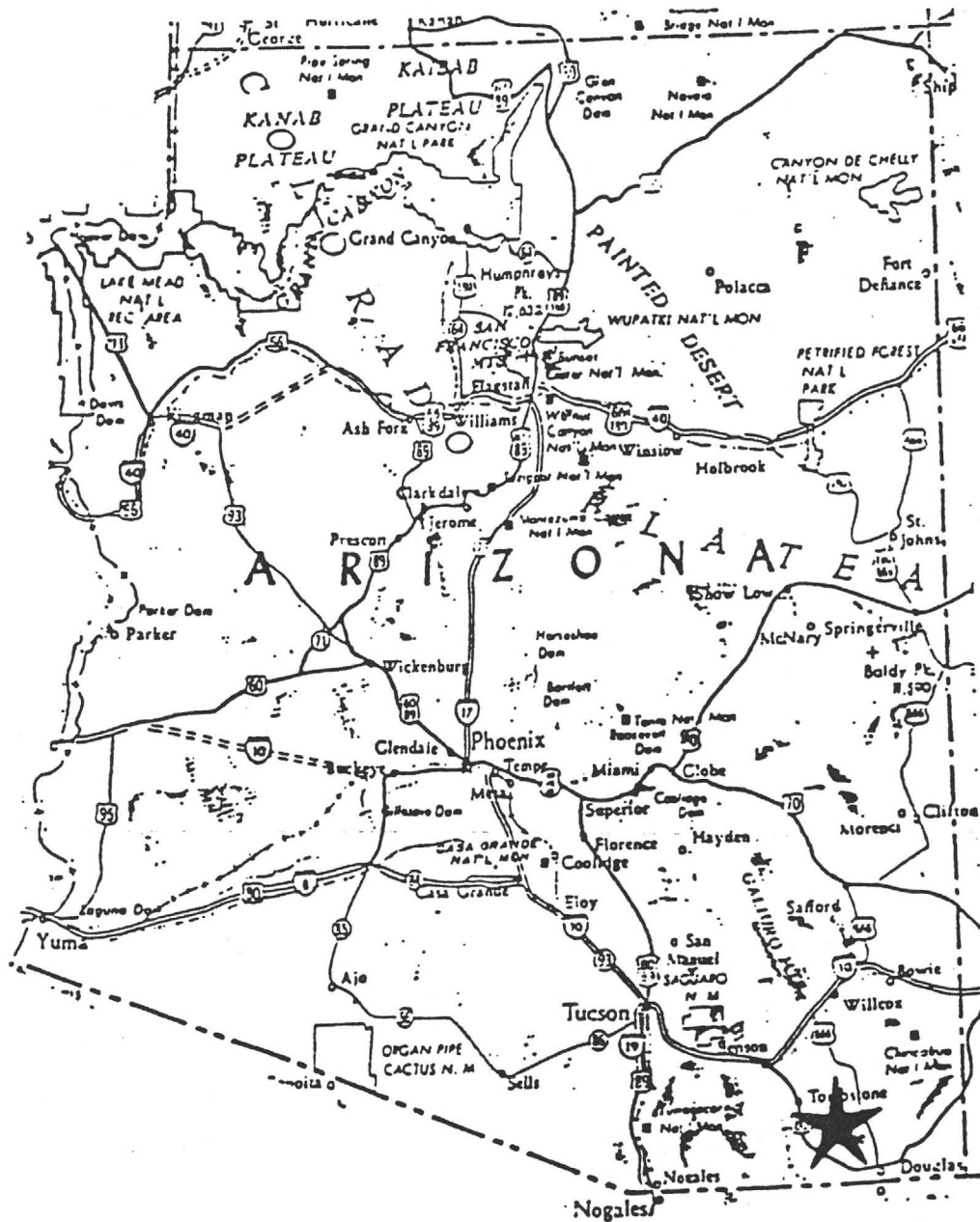
The Zebra prospect is an epithermal, disseminated gold occurrence which appears to possess potential for both a low grade heap-leach deposit and a higher grade zone which may be recoverable by conventional milling. The property as a whole was examined geologically, geophysically and geochemically.

### Location, Topography, Vegetation and Access

The Zebra prospect is located in sections 27, 28, 29, 33 and 34 of T20S, R23E, (31 39'N, 110 W) in Cochise County, Arizona. Elevations vary between 4,600 and 5,000 feet.

The closest major habitation is the historic town of Tombstone which is three miles northwest of the property. The nearest commercial air service is Tucson, Arizona approximately seventy miles northwest of the prospect (Figure 1). It should be noted that Tombstone was a major producer of silver, gold and lead from veins and replacement deposits. Production from these mines totaled over 30,000,000 ounces of silver and 200,000 ounces of gold.

The northern portion of the Zebra property is most easily accessed by traveling south on Highway 80 from Tombstone for three miles, then proceeding east on a paved road for two miles towards McNeil, and finally turning south on an unimproved dirt road for three quarters of a mile. The topography in the prospect area is moderately hilly to flat, with primitive roads crossing most of the low-lying terrain. Vegetation consists of sparse desert grasses, cacti, yucca, creosote bushes, cat claw and occasional mesquite trees. Mild arid winters make year-around operations possible, although mid-summer temperatures are somewhat distressing for both men and machines.



ZEBRA PROSPECT LOCATION MAP

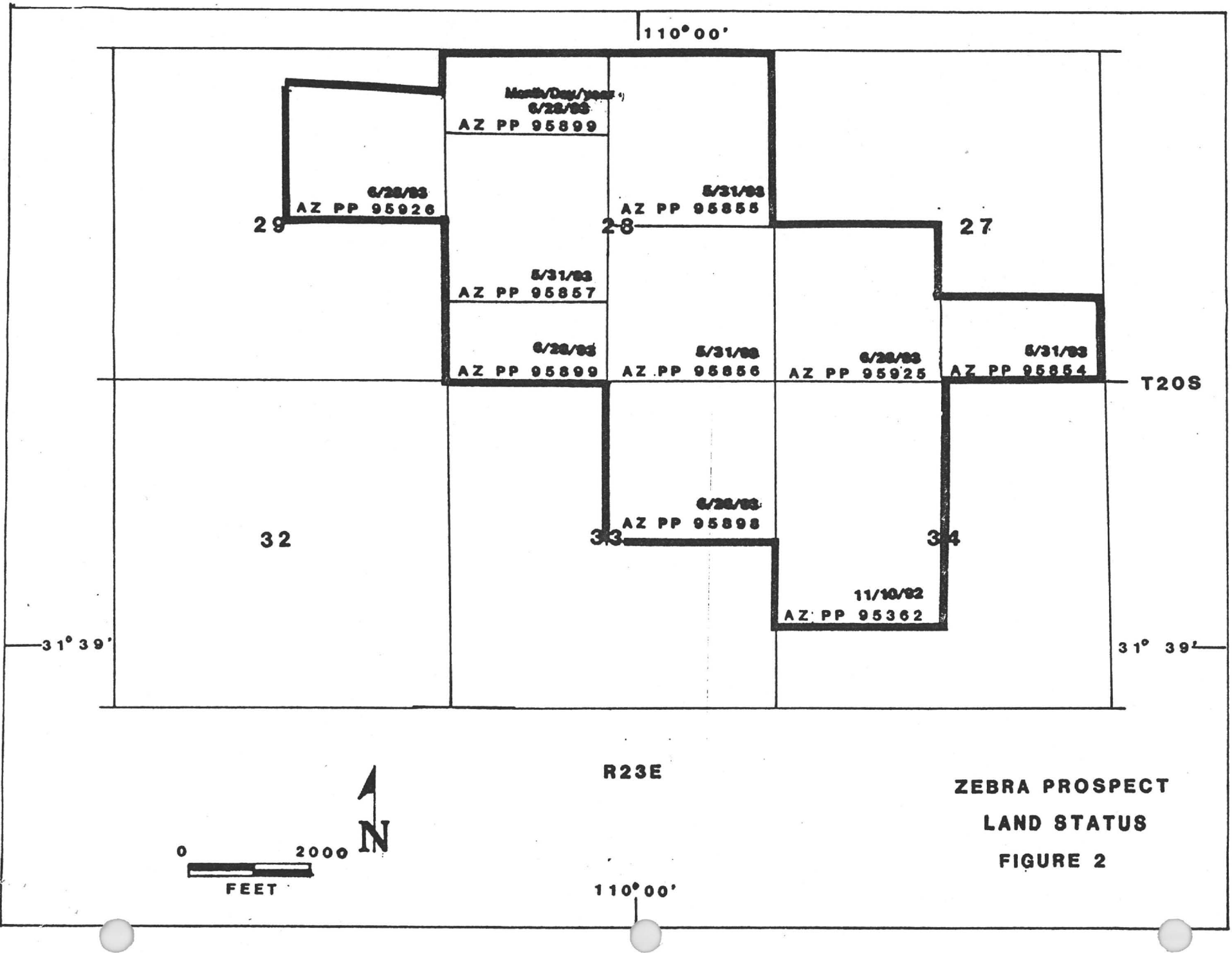
FIGURE 1

## Property Status

The property totals 1,400 acres and includes the NE/4 of section 29, all of section 28, the NE/4 of section 33, the SW/4 and S/2 of the SE/4 of section 27 and the NW/4 and N/2 of the SW/4 of section 34, T20S, R23E and consists entirely of Arizona State Prospecting Permits (Figure 2). Details of permits with numbers assigned are as follows:

1. State of Arizona Prospecting Permit No. 95854, S/2 SE/4, Section 27, Township 20 South, Range 23 East, Cochise County, Arizona.
2. State of Arizona Prospecting Permit No. 95925, SW/4 Section 27, Township 20 South, Range 23 East.
3. State of Arizona Prospecting Permit No. 95899, S2/SW, and N/2SW, Section 28, Township 20 South, Range 23 East, Cochise County, Arizona.
4. State of Arizona Prospecting Permit No. 95857, S2/NW, and N2/NW, Section 28, Township 20 South, Range 23 East, Cochise County, Arizona.
5. State of Arizona Prospecting Permit No. 95855, NE/4 Section 28, Township 20 South, Range 23 East, Cochise County, Arizona.
6. State of Arizona Prospecting Permit No. 95856, SE/4 Section 28, Township 20 South, Range 23 East, Cochise County, Arizona.
7. State of Arizona Prospecting Permit No. 95986, S/2 NE/4 and S/2 N/2 NE/4, Section 29, Township 20 South, Range 23 East, Cochise County, Arizona.
3. State of Arizona Prospecting Permit No. 95898, NE/4, Section 33, Township 20 South, Range 23 East, Cochise County, Arizona.
4. State of Arizona Prospecting Permit NO. 95362, NW/4 and N/2, SW/4, Township 20 South, Range 23 East, Cochise County, Arizona.

The property is registered in the name of Primo Gold U.S.A., a wholly owned subsidiary of Primo Gold Ltd., owns a 100% interest in these properties. The prospecting permits require an annual rental payment of \$1 per acre and an annual work requirement of \$10 per acre for the first two years and the work requirement is increased to \$20 per acre in subsequent years. When the prospecting permits are converted to state leases, they will be subject to a 5% net value production royalty.



## Regional Geology

The Zebra prospect lies along the axis and slightly west of the deepest portion of the Sonoran geosyncline in an area known as the Pedregosa Basin. It also lies within a belt of north-northwest trending mountain ranges that are separated by broad alluvial-filled valleys which extend from the Colorado Plateau in central Arizona to Sonora, Mexico. Regional tectonic compression in the area began in Late Cretaceous-Early Tertiary Laramide orogeny and was directed northeast-southwest. Release of compression was accomplished by north-northwest trending folding and by faulting along abundant northwest trending low angle thrusts which in places, steepen to become high-angle reverse faults. During the Middle Tertiary, extension produced the present Basin and Range topography with deformation dominated by movement along normal faults in several orientations. Intrusion and extrusion of igneous rocks accompanied this movement. Major faults, within the prospect area, are generally aligned with this basin and range trend, and minor faults generally strike perpendicular to this trend direction.

## Local Geology

The prospect area itself is underlain by a relatively thick blanket of Paleozoic and Mesozoic sediments with outcrops of predominately Permian Colina Limestone on the surface (Figure 3). Numerous small Tertiary rhyolitic and dacitic intrusives, which are the only other outcropping rocks, are located in and near the western and northern halves of section 28, T20S, R23E. Nearby rhyolite intrusives of similar composition have been age dated at 63 M.Y.

Stratigraphically, only two Permian formations will be discussed in this report. Considering their lithologies, they are the only two economic targets for mineralization when considering size and grade of the potential orebodies. In ascending order, these formations are the Earp Formation and the Colina Limestone.

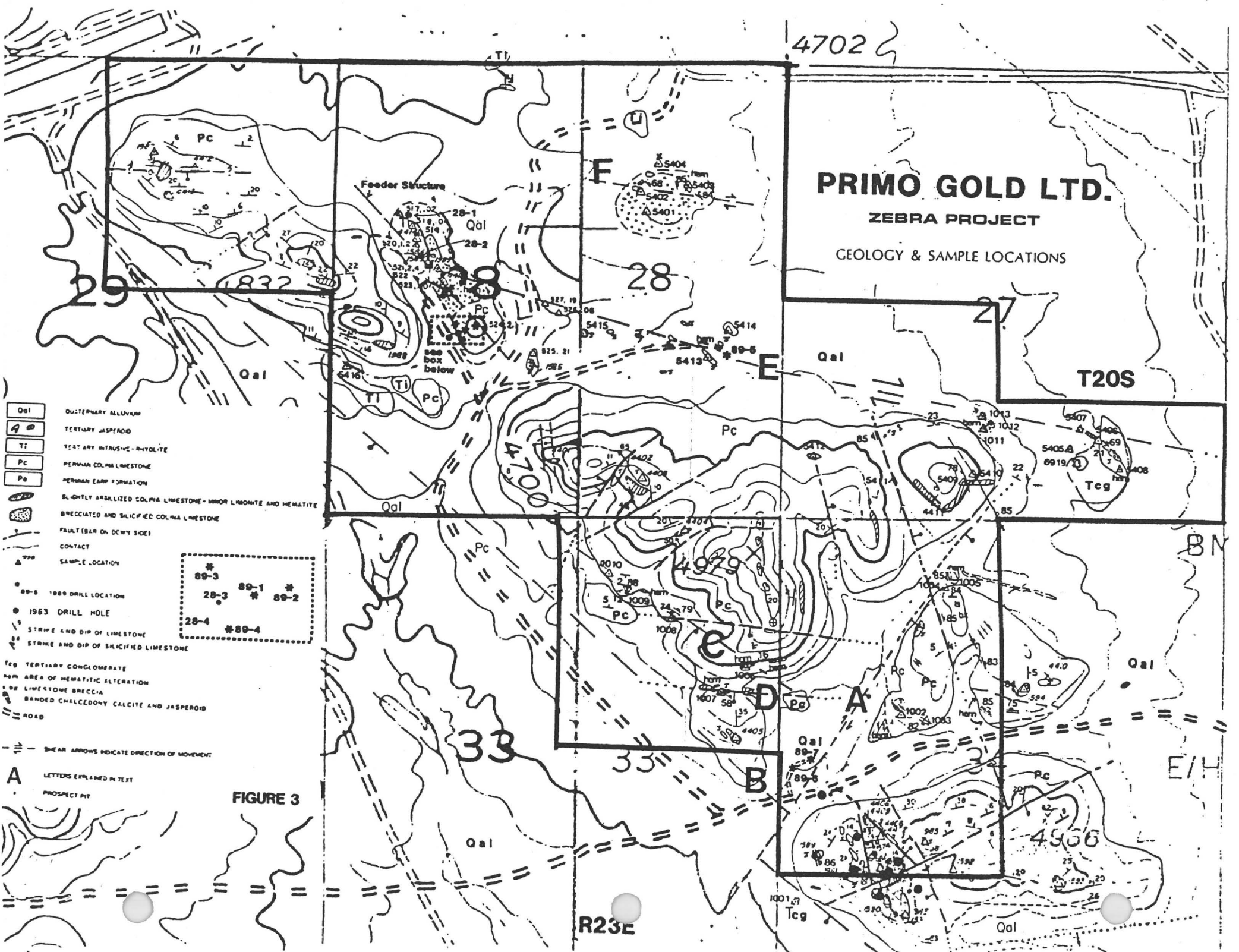
The Earp Formation is Pennsylvanian and Permian in age and does not outcrop on the property. It is composed of interbedded siltstone, sandstones and light-gray limestone and dolomite beds. To the west, the limestone content is sparse. However, to the east, in the Zebra prospect area, the limestone content increases upsection. Consequently, moving upsection, there is a transitional contact rather than a sharp contact between the Colina Limestone and the Earp Formation. In the nearby Tombstone hills, a 584 foot section of Earp Formation was measured.

4702

# PRIMO GOLD LTD.

## ZEBRA PROJECT

### GEOLOGY & SAMPLE LOCATIONS



- Qal** QUATERNARY ALLUVIUM
- Ti** TERTIARY JASPEROID
- Ti** TERTIARY INTRUSIVE-RHYOLITE
- Pc** PERMIAN COLUMN LIMESTONE
- Pc** PERMIAN CAMP FORMATION
- SLIGHTLY ALTERED COLUMN LIMESTONE-MINOR LIMONITE AND HEMATITE
- BRECCIATED AND SILICIFIED COLUMN LIMESTONE
- FAULT (BAR ON DOWNY SIDE)
- CONTACT
- SAMPLE LOCATION
- 1989 DRILL LOCATION
- 1963 DRILL HOLE
- STRIKE AND DIP OF LIMESTONE
- STRIKE AND DIP OF SILICIFIED LIMESTONE
- Tcg** TERTIARY CONGLOMERATE
- hatched** AREA OF HEMATITIC ALTERATION
- hatched** LIMESTONE BRECCIA
- hatched** BANDED CHALCEDONY CALCITE AND JASPEROID
- ROAD
- SHEAR ARROWS INDICATE DIRECTION OF MOVEMENT

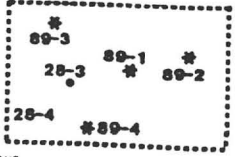


FIGURE 3

A LETTERS EXPLAINED IN TEXT  
PROSPECT PIT

R23E

The Permian Colina Limestone is composed of limestones, silty limestone, thin shale units, siltstones and dolomite beds. The sediments are generally medium tannish grey to grey and the limestone is often fossiliferous and contains light to dark grey chert nodules. Deformation of the sediments has occurred through folding and faulting. The Colina Limestone probably approaches its maximum thickness of 650 feet on the property. In the nearby Tombstone hills, a 633 foot section of Colina Formation was measured.

Numerous structures have been identified on the prospect. Six major structures, labeled A through F in figure 3 including structure B which is the range front fault have been identified through mapping and geophysics. Numerous smaller structures have also been identified and noted in figure 3. Detailed discussion of some these structures and their geophysical and mineralization relationship has been included in the latter part of the report. However, it should be noted at this time that in most cases where these structures can be observed, they have been silicified and contain anomalous concentrations of gold.

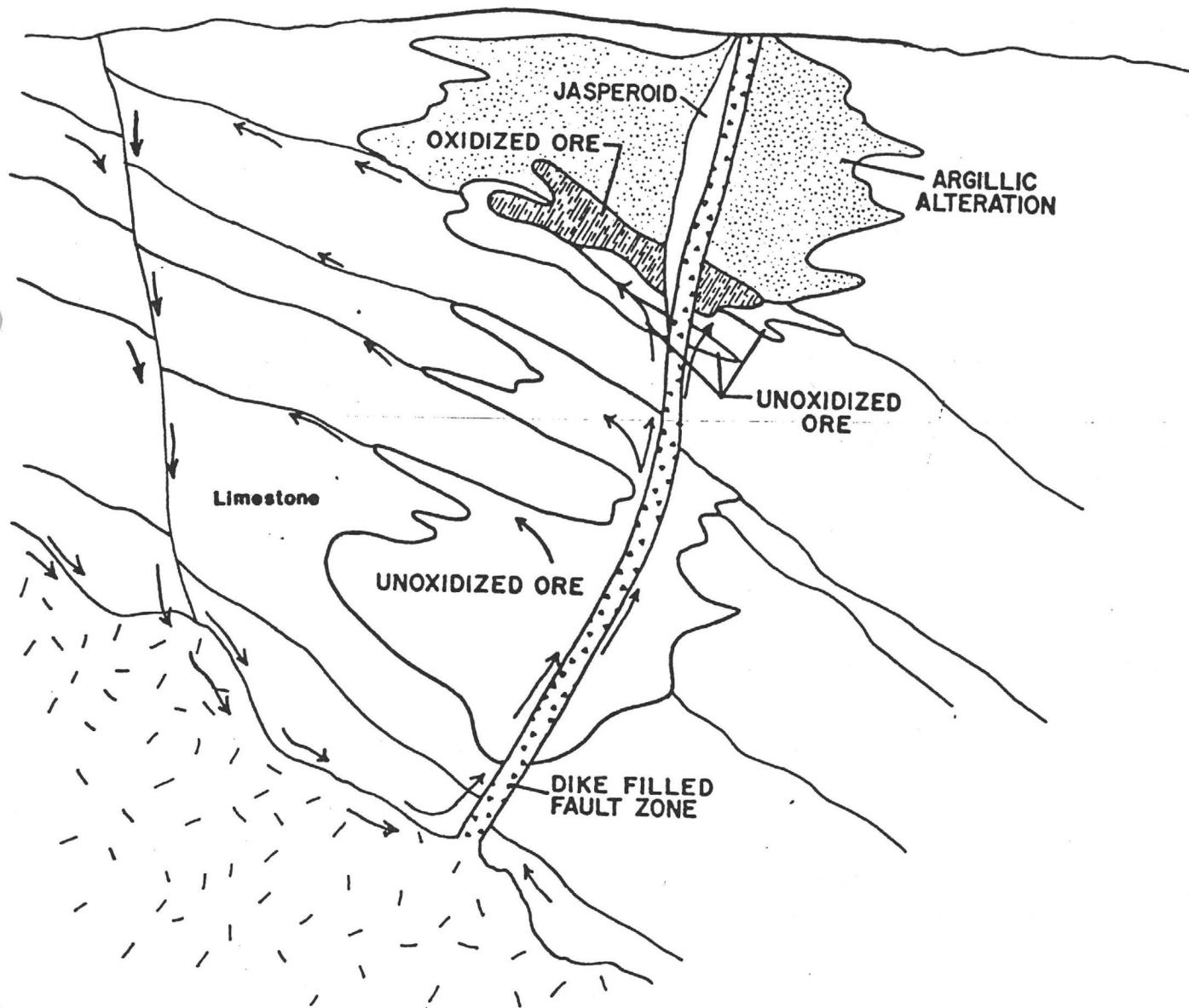
#### Geology-Epithermal Model

The epithermal model has been used to explain the origin of many low-temperature, disseminated precious-metal deposits and has been used numerous times to successfully guide exploration for these types of deposits. Although the Zebra prospect already has an identified target which conforms to this model and should be tested, this same model can be used to further explore the deeper targets and numerous other areas on the property which have the characteristics of this model.

The epithermal model implies that a buried intrusive or other heat source acts as a thermal pump to circulate meteoric waters. These fluids leach trace amounts of metals from the country rock along their circulating path. The metal enriched solutions then rise along the paths of least resistance and as the solutions cool they precipitate their dissolved metals content along with other elements. A vertical zonation of metals, gangue and alteration forms within this system. The precious metals and their associated gangues are normally the last economically important elements to precipitate. The precipitation is often associated with boiling of these ascending solutions. In addition to gold and silver, barium, arsenic, antimony and mercury are common pathfinder elements which also precipitate in association with precious metal mineralization. These elements are used to assist in the exploration for hidden epithermal deposits. (Figure 4).

# Carlin Model of Precious Metals

## Disseminated Replacement Type Deposit



Arrows Show Solution Paths

Figure 4



Wall rock alteration and its zoning are important guides in exploration for deposits within the epithermal system. In disseminated epithermal deposits, such as those which may comprise the Zebra prospect, silicification and argillic alteration of the limestones along and near structures is prevalent. Also, the introduction of iron sulfides, barite, fluorite, arsenic and antimony compounds along with trace amounts of gold are common.

It should also be noted that many of the described characteristics of the Zebra property are present in the Tombstone mineral deposits. However, the carbonate replacement deposits at Tombstone are within a different formation. Also, because of the base metal content, these deposits were evidently deposited below or at the bottom of the epithermal system as we understand it. At Zebra, only three miles away, silver values are low but gold values are high. This may indicate a district wide zonation which could have important implications in an expanded exploration program.

#### Geology-Other Models

There appears to be some evidence that a intrusive/limestone contact silicification model may also be present in the Zebra prospect. Personal communication about recent work by Phelps Dodge has been directed towards a "Skarn Model". Some evidence of this may be the silicification associated with the contact between the limestone and intrusive in section 28. Anomalous gold values up to .29 ounces of gold per ton has been taken from the limited amount of outcrop in the area. However, it is also possible that this contact between the intrusive and the limestone served as a path for ascending auriferous solutions much like a fault or fracture resulting in replacement and mineralization.

#### Previous Work

The Zebra property was held in the recent gold boom by two other companies: Energy Reserves Group from 1982 thru mid-1983 and Consolidated Paymaster from mid-1983 thru mid-1985. Energy Reserves Group work consisted of geological mapping and geochemical sampling which delineated a number of potential targets, some of which are still untested today. Consolidated Paymaster's work consisted of a 10-hole drill program which totaled 2,465 feet and was designed to test several of the surface anomalies located on the property. Seven of these holes, five of which are on Primo Gold's property, were clustered in a twelve acre area in section 34 and three were located in and near a rhyolite intrusive in section 28. Later work performed in a 1988 program revealed that the holes in section 34 probably

tested only the surface remnant of mineralization that occurs at depth to the north of the drilling. Overall, this program tested only a small percentage of the prospective mineralized area in the Zebra prospect. Most holes in the 1983 Paymaster program did encounter minor mineralization, less than .01 ounces of gold per ton, with one hole, 28-3, encountering 20 feet of .045 ounces per ton gold within sixty feet of the surface.

In mid 1985, Wellington Financial conducted a one hole drilling program to test the continuity of the mineralization located by hole 28-3. This offset drill hole, 28-4, also intercepted mineralization of similar grade but thicker than that found in Paymaster's 28-3 drill hole. In 1988, Tempo Resources Ltd. conducted magnetic and VLF geophysical surveys and drilled an additional four shallow holes in this area. Three of the four holes intercepted significant amounts of alteration and two contain mineralization similar to the earlier intercepts. During this program Tempo also attempted to drill through unconsolidated sediments over a strong VLF anomaly in section 34 but had to abandoned the hole after several attempts. Tempo also drilled a 340 foot hole in the east central portion of section 28 near some anomalous jasperoids. The hole intercepted thick zones of trace gold mineralization which never exceeded .01 ounce per ton gold.

All of the previous programs contained some geological mapping and geochemical sampling. Results of this work has allowed the delineation of a large number of auriferous occurrences in a number of environments. Many of these occurrences combined with past and present work have delineated numerous targets some of the most important ones will be discussed in this report.

#### 1990-1991 Primo Gold Ltd. Program

In mid 1990, Primo Gold Ltd. conducted additional geological mapping and sampling to further define potential targets which follow by a 9 hole 1235 foot drill program. In late 1990 and January of 1991, a combination geophysical and geochemical soil sampling as well as drill program was performed on the property. The geophysics consisted of IP, resistivity, TEM and CSAMT and the soil geochemistry program totaled 323 samples which were analyzed for gold, arsenic and mercury. This recent program, along with previous work, will be discussed in detail later in the report and will serve as a basis for some of the recommendations.

#### Expenditure for the Benefit of the Property

Expenditures by Primo Gold in the 1990-91 programs totals \$97,449(Canadian). These funds were used for drilling, assaying, geophysics (IP, Resistivity, TEM and CSAMT), geochemical sampling, soil geochemical sampling and assaying and geological mapping.

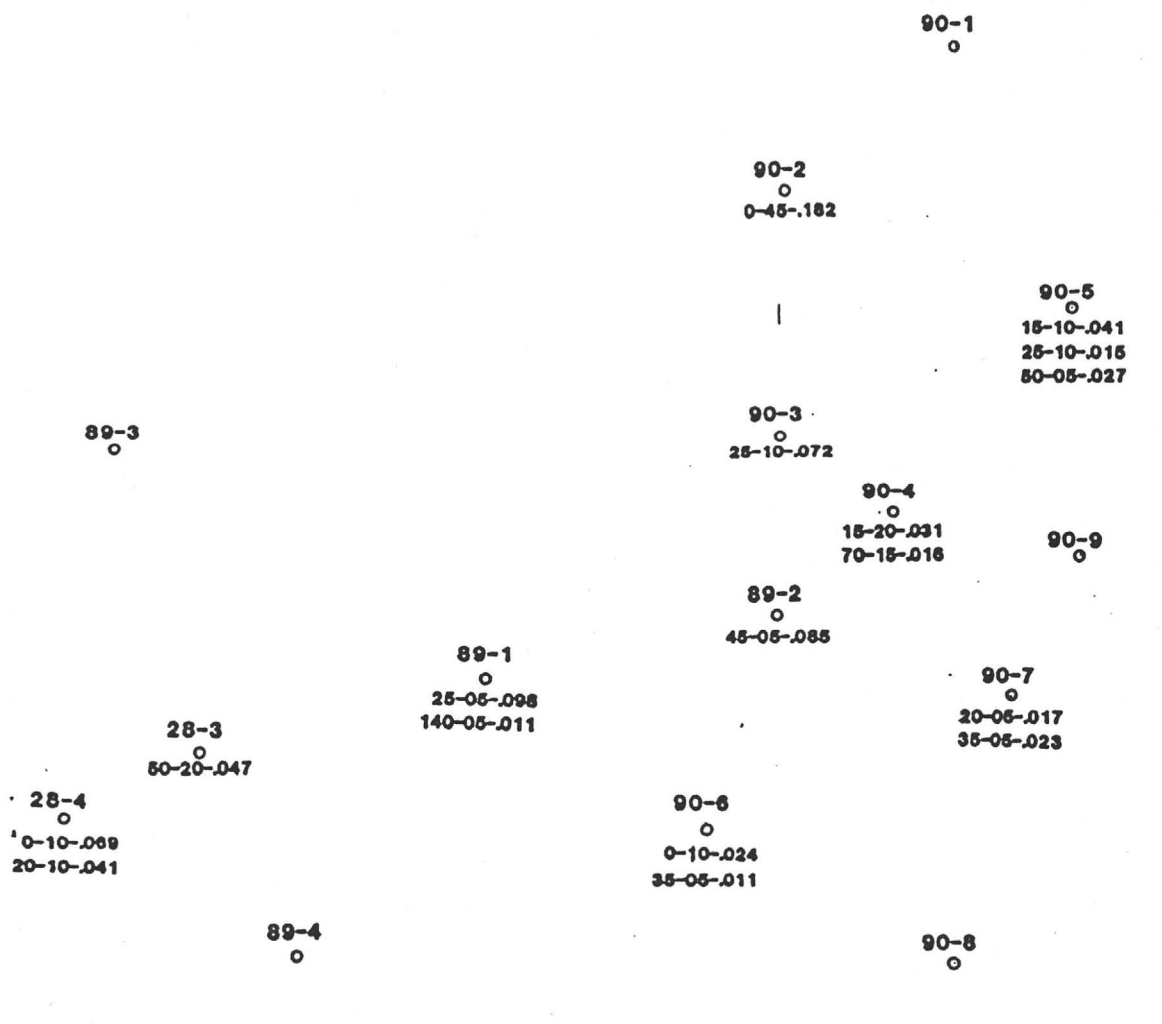
Geology, Mineralization and Potential Drill Targets  
Section 28

Section 28 is a highly mineralized area which based on geology, geochemistry, geophysics and drilling has delineated numerous targets of which the best four will be discussed in this report in the order of their merit. The first is associated with a feeder structure in the west central portion of the section which strikes approximately north 40 degrees west and has a near vertical dip. Silicification associated with this structure has been sampled and mapped. Samples have varied from trace to 1.02 ounces per ton gold. Samples in excess of .1 ounce per ton gold are common. It is believed that this structure was not only mineralized but also served as a feeder structure to supply the solutions that mineralized the host bed intercepted by the drill holes. According to the epithermal model, these mineralizing solutions would rise along the structure to the zone of boiling where they would begin to precipitate their precious metals content. However, because permeable beds within the Colina Limestone were present, these solutions also migrated laterally along bedding planes mineralizing them as well as the structure. The result of this lateral migration is the mineralization that can be seen in past and more recent drilling.

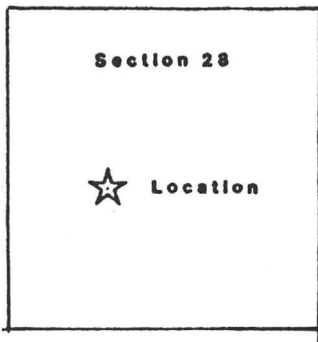
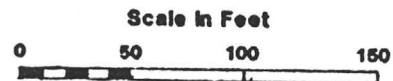
During the 1990-91, Primo Gold drilled nine holes to test and extend the mineralization. Five of these holes intercepted significant mineralization which combined with past drilling has delineated a small shallow mineral body. (Figure 5). A mineral appraisal prepared by MinSearch and dated August 31, 1990 indicates that a total of 100,632 ton of gold mineralization has been delineated with an average grade of .091 ounces per ton and a stripping ratio waste to mineral of 1.4 to 1. This mineral body is still open in both directions of an apparent northeast-southwest trend. Cyanide leach re-assays of five drill intervals indicate that approximately 70 percent of the gold was recovered by this assay method. Other nearby mineralized areas with lesser grade at the surface have not been drill tested.

It should also be noted that this mineralization is located 800 feet south of an intrusive which is in contact with the limestones. This contact has not been tested but samples taken along it sometimes contain anomalous gold with values up to .29 ounces per ton gold being recorded. In this area, as well as other areas, the contact of intrusives may represent a significant target.

The second significant target is in the center of section 28 and is associated with an a east-west structure that mineralization can be traced for over 2,000 feet along it. This length is evidenced by altered limestone outcrops and float which exhibits



**PRIMO GOLD LTD.**  
**ZEBRA PROSPECT**  
 COCHISE COUNTY, ARIZONA  
 SECTION 28, T20S R23E



0  
 25-10-072  
 Depth-Thickness-Gold in Troy Ounces

**Figure 5**

8/8/90

moderate red hematite and minor orange limonite staining. One good altered outcrop extends for almost 500 feet. However, the rest of the trend is predominately float. Numerous samples have been taken along this trend with most assaying between .005 and .028 gold ounces per ton gold.

During January 1991, Primo Gold drilled three holes at the extreme east end of the trend to test some surface rock anomalies. All three holes were angle holes, two were drilled at -55 degrees to a drillers depth of 200 feet and one was drilled at a -45 degrees to a drillers depth of 600 feet (Figure 6). All holes intercepted mineralization but mineral reserve estimates can not be assigned to them without additional drilling. It is also noteworthy that hole #90-12 indicates that good grade mineralization does occur at depths of over 300 feet. Significant intercepts over .1 ppm are listed in the table below.

Hole #90-10		Hole #90-11		Hole #90-12	
Depth	Gold in ppms	Depth	Gold in ppms	Depth	Gold in ppms
20-25	.11	0-05	.15	0-05	.10
25-30	.35	35-40	1.43	10-15	.37
120-25	2.30	40-45	.12	15-20	2.05
130-35	.19	45-50	.15	60-65	.56
140-45	.25	60-65	.17	65-70	.11
		65-70	.10	435-40	.35
		105-10	.38	440-45	1.90
				445-50	.13

This trend was also tested by Primo Gold as part of a 1990-91 Geophysical program consisting of IP, Resistivity, TEM and CSAMT. One line was run in a east-west direction across the center of section 28. Resistivity and CSAMT surveys reveal two high resistivity blocks both located under the valley at approximately 2400 (anomaly 2400) feet east of the west line at a depth of approximately  $\pm 200$  feet and another at 3600 (anomaly 3600) feet east of the west line at a depth of approximately  $\pm 400$  feet (Model #2, Figure 7). The resistivity anomalies also have a slightly higher than background IP response associated with them which may indicate the presence of pyrite which is commonly associated with gold mineralization on the property. Interpretation of these anomalies are that they are either intrusives, jasperoid replacements or a combination. Should these bodies be auriferous replacements then they could represent significant mineral reserves to be added to those already delineated.

At approximately the same time that the drilling and geophysics were performed, a soil sampling program consisting of north-south lines 500 feet apart sampled at a 100 foot interval along the line. These lines covered most of section 28 and a small portion of section 34. Samples were analyzed for gold, arsenic and mercury and contour maps using the surfer software were prepared. (Figures 8,9 and 10) Both the gold and mercury maps show good

90-12

⊙  
TD 600'-45° S30W  
2700 FNL 700 FEL

90-11

⊙  
TD 200'-55° N65W

90-10

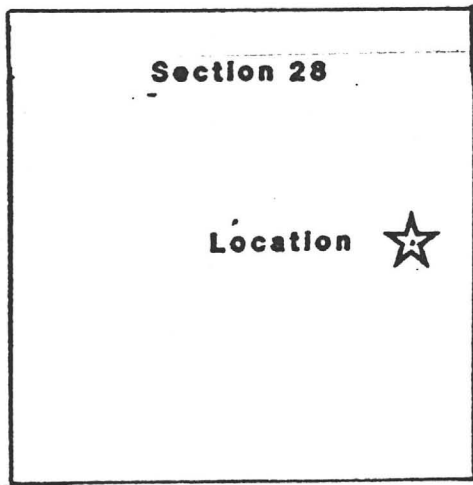
⊙  
TD 200'-55° S20E

# PRIMO GOLD LTD.

## ZEBRA PROSPECT

COCHISE COUNTY, ARIZONA

SECTION 28, T20S R23E

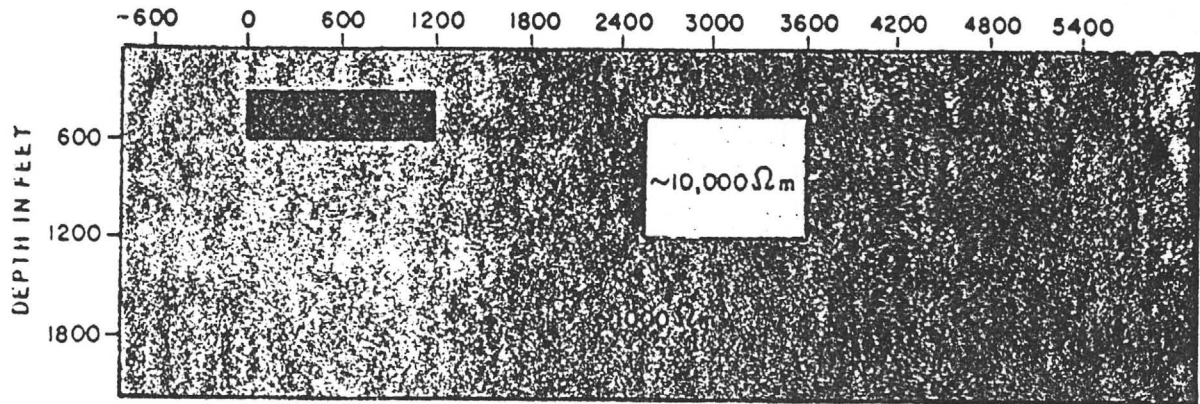


Scale in Feet



Figure 6

# Model #1



# Model #2

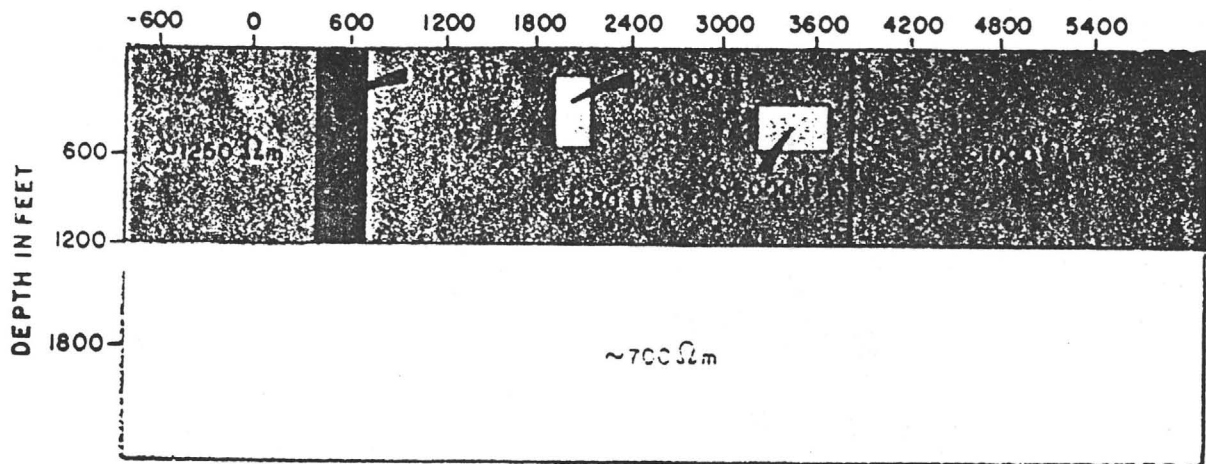


FIGURE 7

Taken from Zonge Engineering & Research Organization, Logistics Report, IP Survey

# ZEBRA PROSPECT-GOLD IN SOIL (ppb)

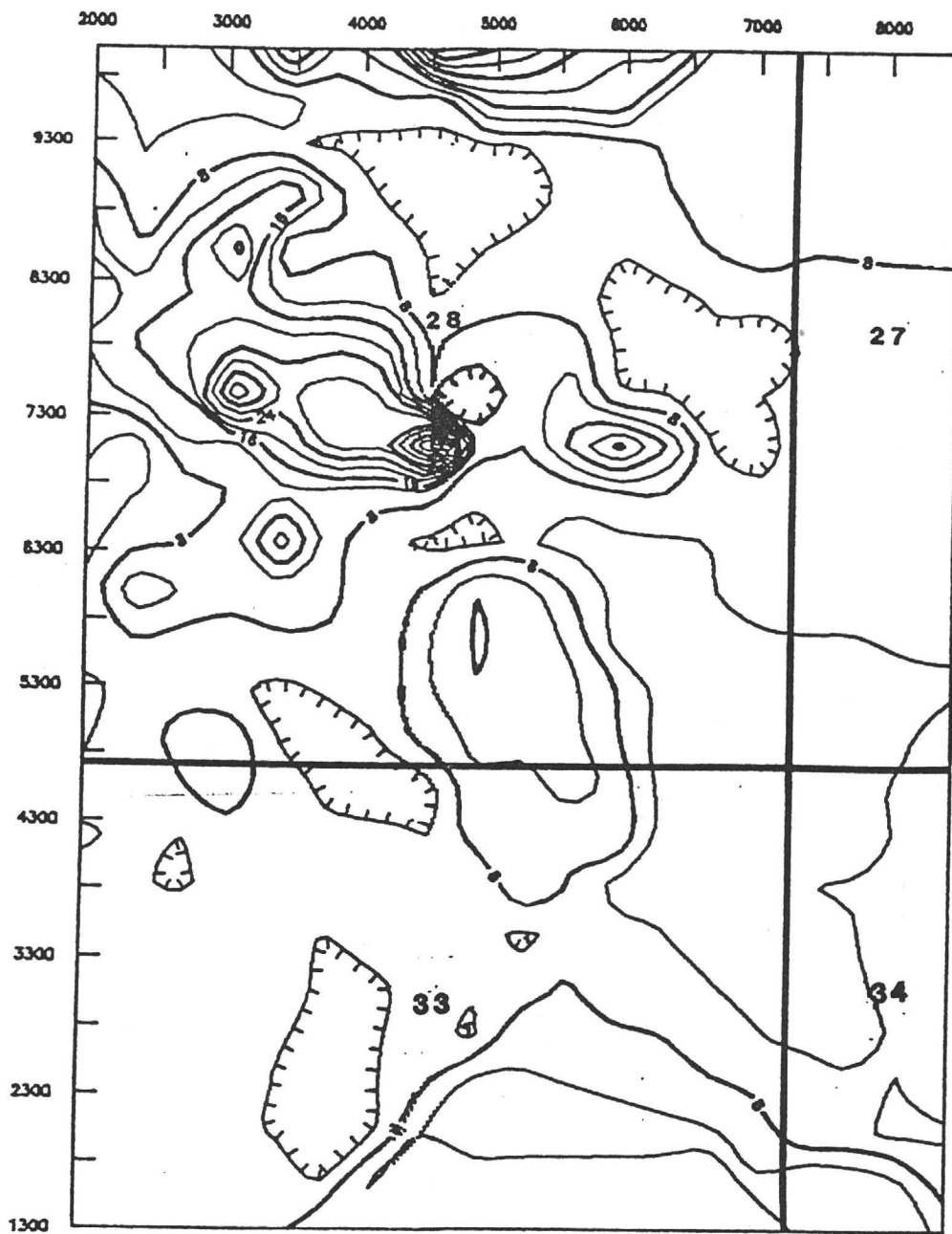
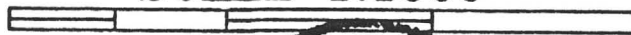


Figure 8

SCALE 1:1500





# ZEBRA PROSPECT, Soil Mercury in ppms

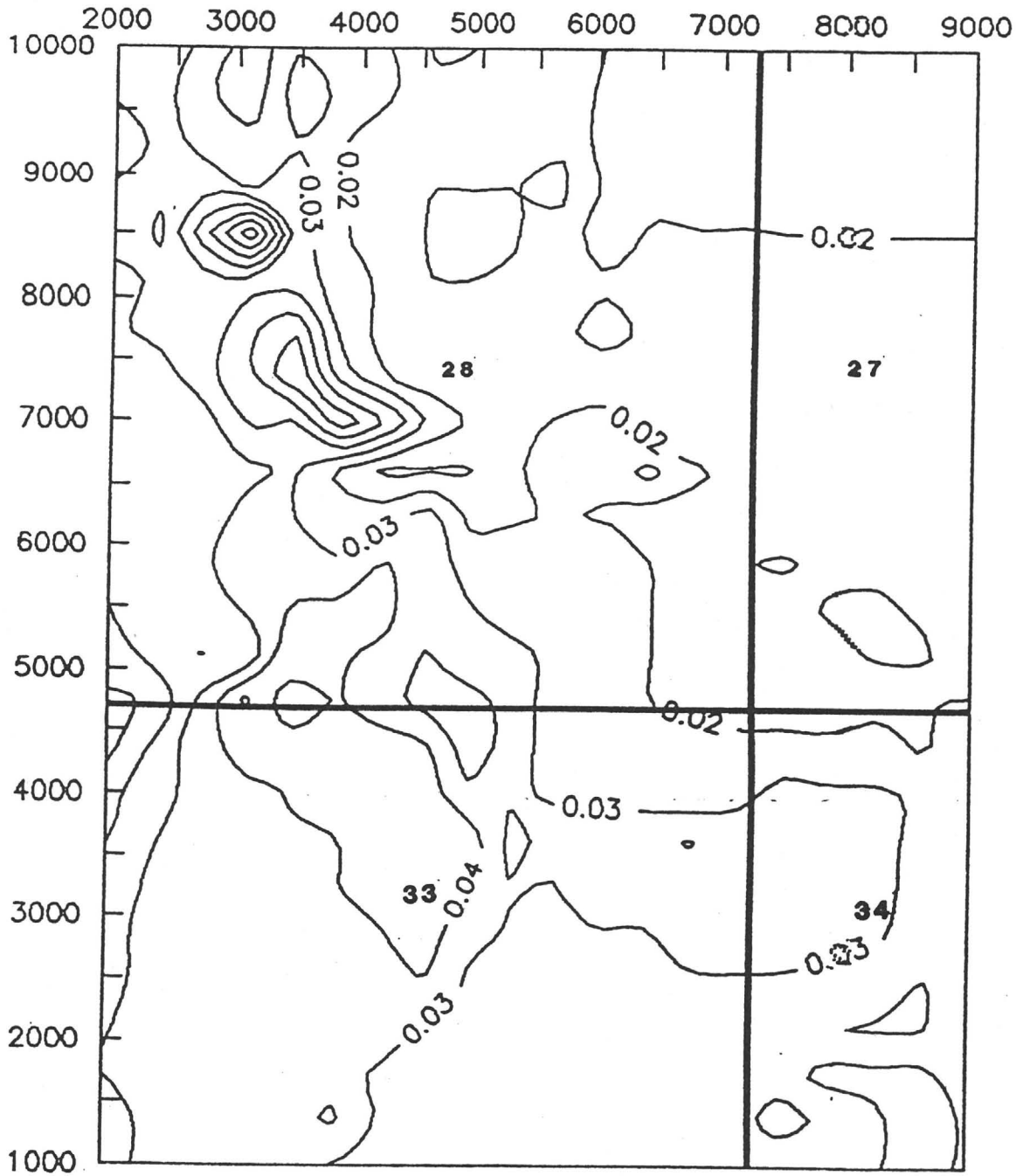
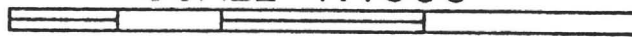


Figure 9

SCALE 1:1500



# ZEBRA PROSPECT, Soil Arsenic in ppms

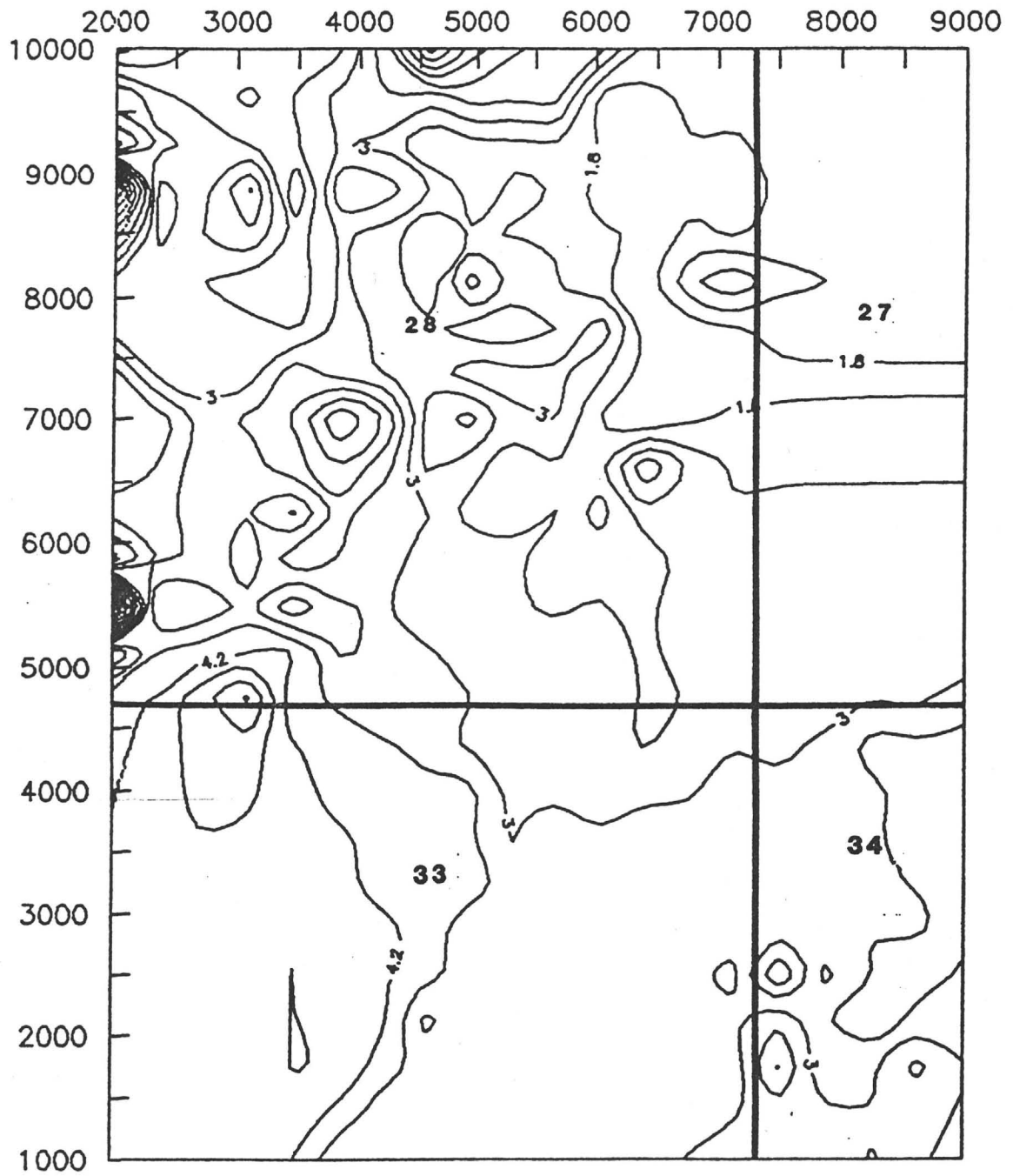
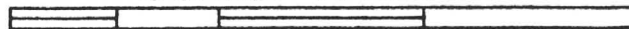


Figure 10

SCALE 1:1500



correlation with the geophysical anomalies. The geophysical highs lie in anomalous areas just off the center of the anomalies. The reason for them not being located exactly on the high may be that the mineralization was developed next to or around the feature or lateral movement of the soils or it may be that the lines which were 500 feet apart did not coincide exactly with the highs.

The third target is the large range front faults that lies under the alluvium along the western front of the hills. A smaller but parallel structure located at the foot of these hills contains anomalous gold. These structures which vary from a few inches to over ten feet commonly contain over 1 ppm (.03 ounces per ton). As an example, two of these structures just south of the geophysical line in section 28 assayed .07 ounces per ton gold. Cross structures which disappear underneath the valley fill also contain anomalous gold indicating that there is a reasonable chance that these larger structures are mineralized.

The fourth target is the Earp Formation and the transition interval between the the Colina and Earp Formations may represent an even better target than the one that has already been found and partially tested. The thin bedded nature of these formations suggests that they should be better potential hosts for gold mineralization than the horizon previously tested. This may be an especially attractive target along the larger structure such as the range front faults.

#### Geology, Mineralization and Potential Drill Targets Other Sections

Section 34 has targets similar to those in section 28 but lack those generated by the recent geophysical and soil geochemical program. Only a few soil samples were taken in the extreme southwest portion of the section and did not reveal any significant anomaly but most of the section remains to be tested. Targets three and four for section 28 have similar potential on section 34. This section also has numerous mineralized structures occurring on it with grades similar to those previously described which may represent additional targets.

One additional target does occur on section 34 which was the result of an earlier (1988) VLF survey. This target is a strong anomaly located in the southwest corner of the property. (Figure 11) It is believed that the anomaly may be the result of the intersection of two structures one parallel to the range front and the other trending northeast-southwest along the valley. This valley, where the anomaly is located, foiled the attempts to test the anomaly in the 1988 drilling program. Several attempts were made to drill through the valley fill but hole conditions never let the hole go deeper than 120 feet. The drilling rig used was a vertical rig not capable of drilling angle holes.

VLF Survey Zebra Prospect

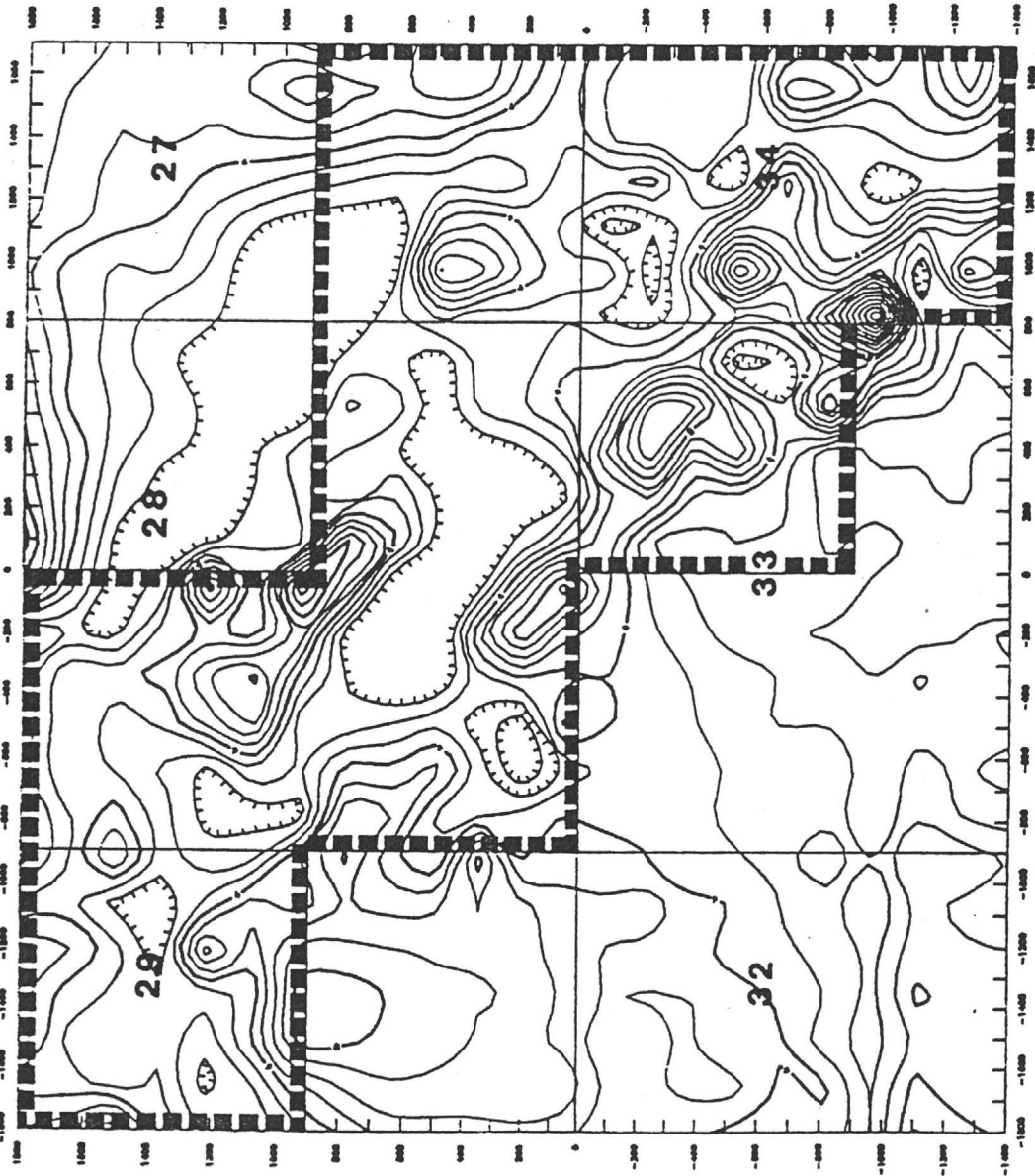


FIGURE 11



Limestone outcrop is located within 250 feet of the drill site and with an angle drilling rig a hole could be started in bedrock and angled into the anomaly, thus eliminating the problem.

Sections 27, 29 and 33 all have potential targets and with the exception of the 120 acres in 29 all have very similar structures, mineralization and anomalous gold concentrations on them. No resistivity type of geophysics or soil geochemistry has been run on them so the targets consist mainly of types three and four found in section 28. However, additional work could yield additional targets especially in areas of known strong (+1 ppm) mineralization.

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Suite #200  
20 Adelaide Street East  
Toronto, Ontario  
M5C 2T6

EXCELLON RESOURCES INC.  
Suite #200  
20 Adelaide Street East  
Toronto, Ontario  
M5C 2T6

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JOINT PRESS ANNOUNCEMENT

November 4, 1992

FOR IMMEDIATE RELEASE

Valdez Gold Inc. (ASE - VAZ) and Excellon Resources Inc. (VSE - EXN) jointly announce that, subject to regulatory approval, they have entered into agreements to acquire and fund the initial development of the Tombstone Property (the "Property"). Excellon has the right to earn a 100% leasehold interest in the Property which is a former producing gold/silver heap leach mining operation near the town of Tombstone, Arizona. The principal asset of Valdez Gold is a 25% interest in the Valdez Creek Project, a gold producer operated by Cambior Inc. in Alaska. MVP Capital Corp. owns 94% of Valdez Gold.

Valdez Gold has entered into an agreement with an investor whereby that investor will purchase a U.S. \$300,000 five year debenture of Valdez Gold and certain warrants and options. These funds will be used by Valdez Gold to acquire 470,000 shares of Excellon and, subject to the approval of the Vancouver Stock Exchange, an additional 750,000 escrow shares of Excellon, and to fund the acquisition and initial development of the Property by Excellon. This funding will earn Valdez Gold up to a 75% direct interest in Excellon's leasehold interest in the Property. The 1,220,000 shares to be acquired represent 57.6% of the presently outstanding shares of Excellon. The common shares of Excellon are listed on the Vancouver Stock Exchange, however the subject transactions will be completed off-market. The purpose of Valdez Gold in making the acquisition is to acquire control of Excellon. It may increase its ownership of, or control or direction over, shares of Excellon from time to time. Messrs. Richard W. Brissenden and A. Douglas MacKenzie, directors and officers of both Valdez Gold and Excellon, acted jointly and in concert with Valdez Gold in making the acquisition.

Herb Corriel

→ 296-1754

→ Wash

1154 104<sup>th</sup> pl<sub>h</sub> SW

VASHON WA 98070

206-567-4554

- 2 -

The investor will receive a warrant to purchase 1,080 ounces of gold from Valdez Gold at U.S. \$350 for a period of three years, a warrant to purchase 1,080,000 common shares of Valdez Gold at 15¢ per share for a period of twelve months escalating to 20¢ per share for the next twelve months, and an option to purchase 50% of any shares of Excellon which might be earned by Valdez Gold as a result of its earn-in agreement with Excellon.

The Excellon shares to be acquired by Valdez Gold are presently subject to an agreement between Messrs. Brissenden and MacKenzie and Messrs. Paul Shatzko and Jess R. Martinez, Jr. Messrs. Shatzko and Martinez were directors of Excellon prior to October 29, 1992. That agreement provides for the acquisition by Messrs. Brissenden and MacKenzie of 750,000 escrow shares from Messrs. Shatzko and Martinez and 470,000 free-trading shares from certain other shareholders for a total purchase price of \$203,000, of which \$55,000 has been paid. Valdez Gold has assumed the rights and obligations of Messrs. Brissenden and MacKenzie under the terms of this agreement, and will repay to them the \$25,000 which they have paid to date. The balance of the purchase price of \$148,000 will be paid in three quarterly instalments to June 30th, 1993.

The lease of the Property was held by Cowichan Resources, Inc., an Arizona corporation which filed a plan under Chapter 11 of the Bankruptcy Code of the United States. This plan was approved by the Bankruptcy Court with an effective date of August 24th, 1992. Under this plan, Excellon has the right to acquire a 100% interest in the lease of the Property and related mining assets by, among other things:

- (a) entering into a new lease with the lessor of the Property on substantially the same terms as the previous lease. This new lease has been executed.
- (b) paying a total of U.S. \$660,000 to a creditor of Cowichan Resources who has a lien on the Property and \$150,000 to the lessor of the Property, both over 31 months.
- (c) spending at least U.S. \$767,500 on the Property within 30 months of the effective date of the approved plan with a view to bringing the Property back into commercial production.
- (d) issuing 400,000 common shares in the capital of Excellon to Cowichan Mines Ltd., the parent of Cowichan Resources.




- 3 -

If Excellon does not fulfill the above requirements, the plan will terminate. If commercial production is achieved, the lessor of the Property will receive 30% of net cash flow until it has received U.S. \$200,000. During this period, Excellon will receive 70% of net cash flow and then 100% until it has received an amount equal to 200% of all preproduction expenditures including the U.S. \$200,000 to the lessor. At that point, 40% of net cash flow will go to the unsecured creditors of Cowichan Resources until they are paid in full, an amount of approximately U.S. \$3,400,000. Thereafter, Excellon will receive 90% of net cash flow and Cowichan Resources will receive 10%, subject to the right of Excellon to purchase 90% of the 10% interest of Cowichan Resources for U.S. \$1,500,000 in cash or shares of Excellon at their market value at that time, at its option.

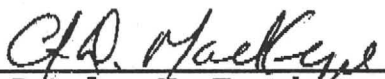
Valdez Gold and Excellon have entered into an earn-in agreement whereby Valdez Gold can earn up to 75% of the interest Excellon has in the Property by spending U.S. \$1,500,000 on the acquisition and development of the Property within 30 months of the effective date of the approved plan. Under the earn-in agreement, Excellon will issue 500,000 warrants to Valdez Gold having a term of 30 months, with an exercise price of 25¢ per share for the first 12 months, 30¢ for the second 12 months and 35¢ for the final 6 months. The warrants will be exercisable on a pro rata basis as Valdez Gold spends the U.S. \$1,500,000. Assuming that the warrants are all exercised (none are yet exercisable as sufficient expenditures have not yet been funded), Valdez Gold would then own 1,720,000 Excellon shares, representing approximately 65.72% of Excellon's then issued shares. The Valdez Gold debenture holder will be entitled to purchase 50% of any Excellon shares received as a result of the exercise of such warrants at a price of 25¢ per share.

Effective October 29, 1992, Mr. Jess R. Martinez, Jr. resigned as a director and Secretary and Mr. Paul Shatzko resigned as a director of Excellon.

On behalf of  
VALDEZ GOLD INC.

  
Richard W. Brissenden  
President  
(416) - 867-1100

On behalf of  
EXCELLON RESOURCES INC.

  
A. Douglas MacKenzie  
President  
(416) - 867-1100

Neither the Vancouver Stock Exchange nor the Alberta Stock Exchange has reviewed nor accepts responsibility for the adequacy or accuracy of the content of this Press Release which has been prepared by management.

Recorded

OCT 07 1992 11AM  
5 E-2

NOTICE OF NON-LIABILITY FOR LABOR AND MATERIALS FURNISHED

NOTICE IS HEREBY GIVEN that the undersigned is the Owner of the following described mine, patented and unpatented mining claims situated in Cochise County, State of Arizona, the names of which and the books and pages of recording of the deeds and location notices in the Office of the Recorder of said county and with reference to unpatented mining claim(s) the Bureau of Land Management (B.L.M.) serial numbers of which are as follows:

Mine/Claim Name	Mineral Survey No.	County Records		BLM Serial No.
	(Patented Claims only)	Book	Page	(Unpatented Mining Claims)

See Attachment 1 following, which by this reference is made a part hereof.

Pursuant to the terms of a Lease Agreement entered into between the Owner and Excellon Resources USA, Inc. (Lessee), which is dated August 24th, 1992 and is for a term commencing on August 24, 1992, and continuing for so long thereafter as Lessee continues to make certain payments to Owner, the property will be in the possession of and operated by Excellon Resources USA, Inc. (Lessee).

The Owner is not and will not be working or operating the claims or mine or any part of the claims or mine and does not intend to purchase supplies or materials for the claims or mine or to employ any persons to labor thereon during the term of the above-described Agreement.

The Owner will not be liable for labor performed or materials or merchandise furnished in the operation or development of the claims or mine during the term of the above-described Agreement, and the claims or mine will not be subject to a lien or any debts incurred for labor performed or materials or merchandise furnished for the operation or development of the claims or mine during the term of the Agreement.

DATED AND POSTED on the ground this 20<sup>th</sup> day of September, 1992.

OWNER - Tombstone Development Company

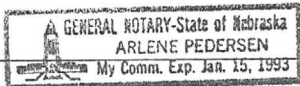
Jerome Niedfelt (President)

STATE OF Nebraska )  
 )ss.  
COUNTY OF Hall )

On this 25th day of September, in the year 1992, before me, Arlene Pedersen, a Notary Public, personally appeared Jerome Niedfelt, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person who executed the within instrument as the President of Tombstone Development Company, an Arizona Corporation, and on behalf of the Corporation therein named and acknowledged to me that said Corporation executed it.

My Commission Expires: 1/15/93

Arlene Pedersen  
Notary Public



FEE # 921024008  
OFFICIAL RECORDS  
COCHISE COUNTY  
DATE 10/07/92  
HOUR 11

REQUEST OF  
JABA INC  
CHRISTINE RHODES-RECORDER  
FEE : 9.00 PAGES : 2

921024008  
JABA INC  
2100 N WILMONT RD #218  
TUCSON, AZ. 85712

921024008

ATTACHMENT 1

MINING PROPERTIES INCLUDED IN  
NOTICE OF NON-LIABILITY FOR LABOR AND MATERIALS FURNISHED

Between  
Tombstone Development Company (Owner)  
and  
Excellon Resources U.S.A., Inc. (Lessee)

Mine/Claim Name	Mineral Survey No.		BLM Serial No.	
	<i>(Patented Claims only)</i>	<u>County Records*</u>	<i>(Unpatented Mining Claims)</i>	
		Book	Page	

Patented Mining Claims: (1\*) (3\*)

Houghton	3228	29	335	(Less surface ownership of record)
Cincinatti	Gen.254	(Deed recorded	DK115	Page 09)
New Year	Gen.213	9	260	
Cornell	3228	29	335	
Michigan	3228	29	335	
Illinois	3228	29	335	
Grand Central	Gen.143	5	24	
Contention	Gen.120	3	334	
Naumkeg	Gen.148	5	17	
Flora Morrison	Gen.258	8	177	
South Ext. of the				
Grand Central	Gen.144	7	100	
Contentment	Gen.252	15	300	
Buffalo	3228	29	335	
Southern Belle	3228	29	335	
Tranquility	Gen.155	3	565	
Cocopah	Gen.266	6	440	
Silver Thread	790	11	564	
Content	Gen.253	15	297	
North Point Fraction	808	12	568	
Empire	Gen.152	11	76	(Less surface ownership of record)
Head Center-Yellow				
Jacket	3213	29	296	
Silver Belt	793-AM	15	382	
Protection	3230	29	409	
Moonlight	751	11	548	
Fortuna	3214	29	304	
Sydney	475	27	293	
Sulphuret	Gen.156	5	8	
Mayflower	1012-AM	18	360	
Ninety-Nine	3225	30	166	
Last Chance #2	809	11	553	
Boss	800	14	594	
Grand Dipper	540	8	606	
Telephone	927	15	103	

Unpatented Mining Claims: (2\*)

T.D.C. #26	1489	49-50	A-MC-125079
T.D.C. #27	1489	51-52	A-MC-125080
T.D.C. #28	1489	53-54	A-MC-125081
T.D.C. #29	1489	55-56	A-MC-125082
T.D.C. #30	1489	57-58	A-MC-125083

- \*Notes:
- \*1. For patented mining claims - U.S. Patent Recording (Deed of Mines Book)
  2. For unpatented mining claims location notice recording
  3. For title to all of Tombstone Development Company's patented claims listed above with the exception of the Cincinatti Gen. Survey No. 254 may be found in Deed of Mines Book 34 pages 368 et seq.

RANGE 22 E  
RANGE 23 E

SECTION CORNER  
10" X 12" X 14" STONE  
MARKED 2 NOTCHES ON NORTH  
4 NOTCHES ON SOUTH

12+7  
13+18

*FOUND*  
*NOT MARKED*

**TOMBSTONE DEVELOPMENT CO  
TOMBSTONE, ARIZONA**

Map of: 18 Unpatented claims

Drawn by: Tom Pitcher 10/1/73

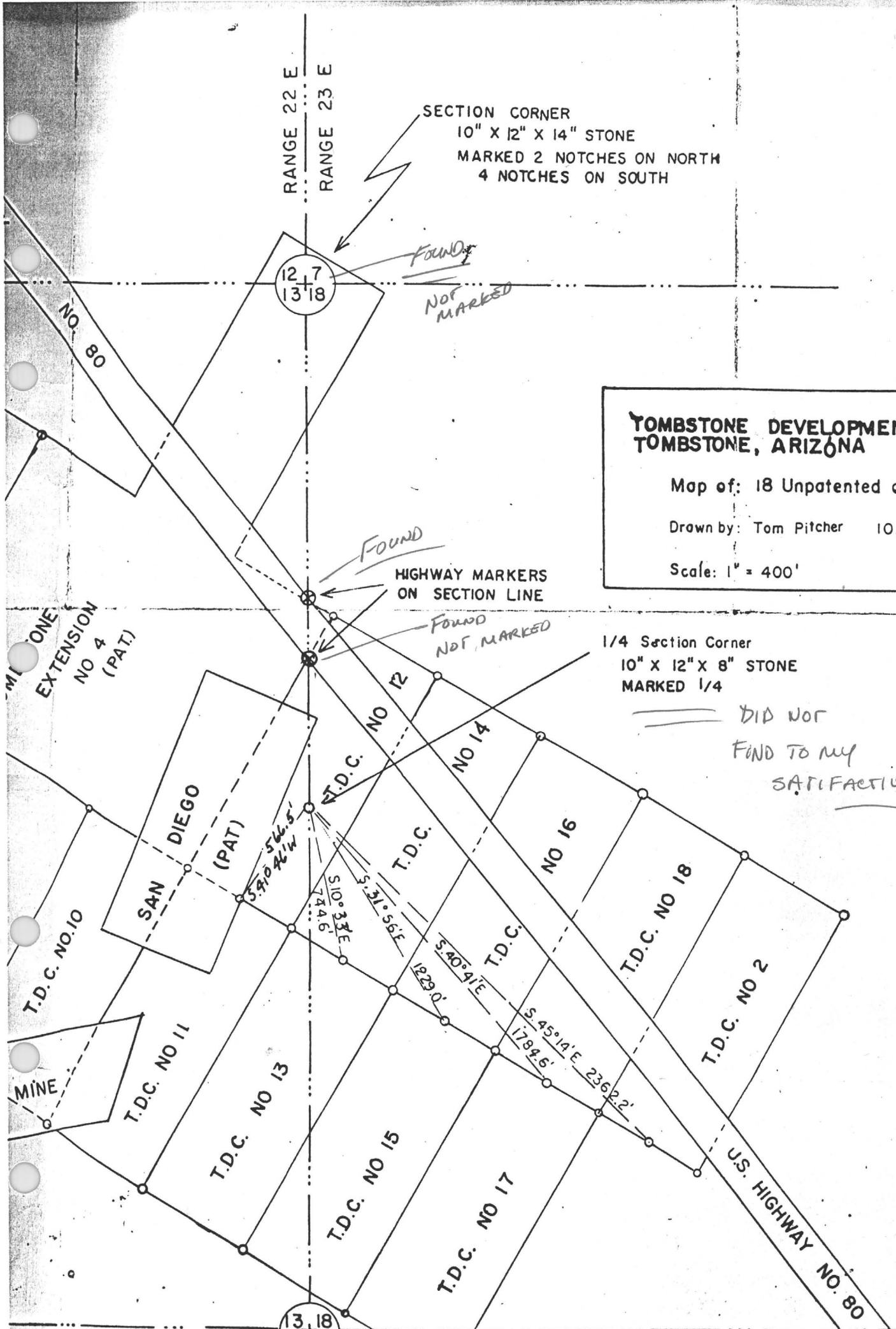
Scale: 1" = 400'

HIGHWAY MARKERS  
ON SECTION LINE

*FOUND*  
*NOT MARKED*

1/4 Section Corner  
10" X 12" X 8" STONE  
MARKED 1/4

*DID NOT  
FIND TO MY  
SATISFACTION*



13+18

MINE  
EXTENSION  
NO 4  
(PAT.)

SAN DIEGO  
(PAT.)

T.D.C. NO 10

MINE

T.D.C. NO 11

T.D.C. NO 13

T.D.C. NO 15

T.D.C. NO 17

T.D.C. NO 12

T.D.C. NO 14

T.D.C. NO 16

T.D.C. NO 18

T.D.C. NO 2

U.S. HIGHWAY NO. 80

TBW



JABA INC.  
2100 N. Wilmot Rd. #218  
Tucson, AZ 85712  
(602) 885-9141  
(FAX) 721-2768

October 6, 1992

Mr. Jerome Neidfelt, President  
Tombstone Development Company  
1028 South Adams  
Grand Island, NE 68801

RE: Santa Fe data/reports, Tombstone Mining District, Cochise County, Arizona, JABA project #159-01

Dear Mr. Neidfelt:

Pursuant to my continuing evaluation of Santa Fe's work and resulting data on your company's mining claims at Tombstone, I believe that a number of items should have been turned over to TDC at the conclusion of Santa Fe's efforts at Tombstone that were not. I am at a disadvantage in not knowing exactly what the terms of your lease agreement with Santa Fe were regarding transfer by them to TDC of generated data. However, it is normal operating procedure by most companies to only transfer as much data as necessary to satisfy the lessor. Generally speaking, though, the lessor should be entitled to all factual data generated, and most times, interpretative results, unless those results are based on proprietary processes known only to the lessee. Believing this not to be the case in this particular instance, I feel Santa Fe should be approached to see if they would be conducive to turning over copies of this additional information to TDC. It is worth a try. All of this additional information has been gleaned from Santa Fe's reports, and thus it can be assumed that it was done by them, and available.

The following is a listing of such information. I have also indicated in each case the importance of each item. Some information or formats of that information is inherently more important than other information, and would be desired over raw field data, if possible.

Item 1: Reference August, 1988 report

Computerized drafting and data bases. In several instances, Santa Fe referenced use or formation of these data bases and files. It is unclear as to just how much information was computerized, but references were made which would indicate a substantial amount. It is very important that TDC get any and all computer disc/tapes of such information for drafting and assay data. Additionally, it is important to know what programs were used to generate such file data, so those may be obtained, if necessary, to review file data. It is also important to know how complete the file data is for each of the project areas, so as

Mr. Jerome Neidfelt, President  
Tombstone Development Co.  
RE: Santa Fe work  
October 6, 1992  
Page 1 of 4

make a determination of what other information may be necessary to acquire, which was not computerized. Should Santa Fe wish not to provide disks of electronically stored data, hard copy file dumps (print outs) should be adequate.

Item #2: Reference August, 1988 report

GEOREF - computerized literature data base search - this listed all bibliographic geologic references for the Tombstone area. This is not a very important item, but a good reference for TDC.

Item #3: Reference August, 1988 report

Santa Fe gained access to and copied reports and maps pertaining to the Tombstone area from the American Heritage Center's Anaconda collection of maps and reports. I have been informed that these maps, data wise, are the most complete, accurate and informational for the area. It is my understanding that these maps contain the best information available on the mines northeast of the Contention mine area (Tranquility-Empire-Silver Thread workings), including level maps showing detailed underground geology, mineralization, and details of assay data. I do not believe TDC has copies of these maps and reports in their files, and I would strongly suggest that TDC try to gain access to Santa Fe's copies of these reports and maps and make their own copies. This information is very important to acquire. If we were to approach the American Heritage Center to acquire this same data it would be extremely costly. There is both a membership access fee and a stiff reproduction fee, with limitations on the amount of material which can be copied under each of the membership categories. At a minimum I would expect that it would amount to \$3,000 to \$4,000, and possibly more, just to get what Santa Fe already has. First, I would request Santa Fe make copies of this information for TDC. Lacking success here, I would request Santa Fe to release the maps and reports to TDC to copy the information and then to return the originals to Santa Fe. An ultimate fall back position would be for Santa Fe to contract out the reproduction of this information, TDC paying for the copying, ultimately to be reimbursed by MVP, upon prior approval.

Item #4: Reference August, 1988 report

McLain Harbers Co., Inc. of Tucson was contracted to fly aerial photography over the project area. It is very important that TDC or its assigns have a release by Santa Fe to both review and/or copy these photos for their own use. Generally, the contracted company (McLain Harbers) retains ownership of the photo negatives, and the contractee (Santa Fe or its assigns) can get access at a later date to get additional copies made. Via a release granted by Santa Fe to McLain Harbers for TDC, TDC would have access to these negatives for future use. It is my belief that Santa Fe should have, at the very least, turned over one copy to TDC of any prints made from these negatives on terminating their work in the district. I think it is very important to ask Santa Fe for a complete set of such prints now, and/or at the very least, allow a release to TDC for access to the negatives.

Mr. Jerome Neidfelt, President  
Tombstone Development Co.  
RE: Santa Fe work  
October 6, 1992  
Page 2 of 4



JABA, INC.  
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Tucson, AZ 85712  
(602) 885-9141

Item #5: Reference August, 1988 report

A series of structural overlay maps based on 1:24,000 and above 1:12,000 aerial photography were constructed early in the project, as well as follow-up ground mapping. This data was then computer transferred (see Item #1) to topographic and geological base maps of the area. I think it is very important that you obtain copies of all aerial photo overlays and subsequent base topographical and geological maps showing any structural data. If confidence is established that this type of information is all located in computer files and/or geological maps, these later items would be acceptable in lieu of all the working maps and overlays.

Item #6: Reference August, 1988 report

Reportedly, 355 surface and underground geochemical samples were collected in the district. Of these, 103 were reported to TDC (above report) by Santa Fe, the remainder of samples, a majority of which were reported from other claims controlled by TDC (I assume this means the PBR lease area), have never been reported, from what I can see from reports, to TDC by Santa Fe. A rather laissez-faire attitude toward reporting all the facts related to these samples is apparent. Of the 103 sample results reported to TDC, no mention was made as to the sample being taken above ground or underground in workings, at whatever elevation. Additionally, sample #'s 1019 through #1039 do not indicate the lithology of the sample. What happened to the results from the other 252 points and why were they not reported to TDC as indicated they would be? Accordingly, as indicated in Santa Fe's report of this period:

"at each sample location, various geologic data were also collected. These include the following: type and dimensions of mineralization; sample mineralogy, paragenesis, and dilution; alteration type, mineralogy, width and intensity, host rock lithology; strike and dip of mineralized structure and cross structures; and estimated extent of mine workings. It is intended that all of this information will be encoded and entered into the computer data base (refer to Item #1) along with all assay data, for subsequent analysis".

To date, TDC has only received the sample numbers, horizontal coordinates, lithology (with noted exception above), alteration, alteration intensity, and assay data on 103 samples. The remaining data that was to be encoded for each of these sample sites and remainder of the unreported sample sites to be given at a later date have not been received by TDC. Given the critical nature of information contained in these samples, it is very important to acquire this information. The following would be a prioritized listing of acquisition as to the format of materials to be turned over:

Mr. Jerome Neidfelt, President  
Tombstone Development Co.  
RE: Santa Fe work  
October 6, 1992  
Page 3 of 4



JABA, INC.  
2100 N. Wilcox Rd. #218  
Tucson, AZ 85712  
(602) 885-9141

- \*1. Computer data base on disc, plus hard copy printout - if all the samples and related sample site characteristics have been encoded (best of all worlds!).
2. Computer data base on disc - if data encoding is complete.
3. Hard copy print out of computer data base - if data encoding is complete.
- \*4. Computer data base on disc with hard copy print out with what information is available with hard copy ~~of~~ field note sample forms containing remainder of site characteristics.
5. Copy of field note sample forms or sample collection logs.

\*Note: I feel it is important for security purposes to always request a hard copy of any information contained on a computer disc or tape as you ultimately backup just in case something should happen to the electronic media storage backup.

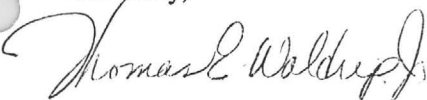
Item #7: Reference August, 1988 report.

Actually, this is a continuation of Item #6 next above. Santa Fe indicated they were going to construct various 3-dimensional computer models of this information and "generate maps showing the distribution of raw assay data, contoured maps of various groups of metal ratios, and maps showing the various types of mineralization and alteration in the project area... assay data being factor analyzed and sample scores plotted... etc." This information in computer disc form or at the least in hard copy maps should have been turned over to TDC at the conclusion of Santa Fe's tenure of the property. There is some importance in acquiring this data, but it is not critical as it can be re-constructed from information in Item #6, next above.

It is important to point out that at this juncture, an additional two Santa Fe reports have not been reviewed (February, 1990 and August, 1991). Additional requests may need to be annotated to this list, after review of those reports.

I do not wish to belabor the point, but I strongly recommend that a concerted attempt be made by TDC to obtain copies of all the above information.

Sincerely,



Thomas E. Waldrip, Jr.

c:tewsftdc

Mr. Jerome Neidfelt, President  
Tombstone Development Co.  
RE: Santa Fe work  
October 6, 1992  
Page 4 of 4



Tam

send to Jerry -  
Hand delivered to Jerry  
& Doug 10/6.



JABA INC.  
2100 N. Wilmot Rd. #218  
Tucson, AZ 85712  
(602) 885-9141  
(FAX) 721-2768

October 2, 1992

Mr. Jerome Neidfelt, President  
Tombstone Development Company  
1028 South Adams  
Grand Island, NE 68801

RE: Santa Fe data/reports, Tombstone Mining District, Cochise County, Arizona, JABA project #159-01 missing material

Dear Mr. Neidfelt:

Per my letter of September 29, 1992, when we returned your company's Santa Fe data and reports to you, the following is a list of items referenced in that data, that was found to be "missing".

Reports: No reports were found for the following reporting periods:

1. Semi-Annual report for February, 1990, and attachments (reporting period of August, 1989 to February, 1990)
2. Semi-Annual report for August, 1991 and attachments (reporting period February to August, 1991)

Exhibits, Attachments, Addendums and Plates: We have the written reports but no exhibits for:

1. Report of February, 1989 (reporting period August, 1988 to February, 1989) - no attachments/exhibits were found for this reporting period, which were referenced by the written report. An extensive volume of data should exist, including, but not limited to:
  - a. Drill logs and assays for diamond drill holes T-1 through T-5
  - b. Geologic map of Tombstone Basin area (Plate I)
  - c. Graphic drill hole logs T-1 through T-5 (Plate II)
2. Report of August, 1989 (for reporting period February, 1989 through August, 1989) - this report is complete except for a geologic map of the Tombstone Basin area that was reportedly attached.

Mr. Jerome Neidfelt, President  
Tombstone Development Co.  
RE: Santa Fe data - "missing"  
October 2, 1992  
Page 1 of 3

3. Report of August, 1990 (for reporting period February, 1990 to August, 1990) - the text portion of the report is complete, however, no attachments were found, which should include:
  - a. Geologic map of the Wedge area (south of P.B.R. pit)
  - b. Geochem sample location map for same area.
4. Report of February, 1991 (for reporting period August, 1990 through February, 1991) - the text of report is complete, however, all plates and appendices are missing, including:
  - a. Plate I - Geologic map of Wedge area
  - b. Plate II and Plate III - 200+ geochem sample location sites on TDC claims
  - c. Appendix I - reports of analysis for geochem samples located on Plates II and III, next above.
  - d. Appendix II assay results of diamond drill hole TW-01 and rotary drill holes TW-02 through TW-05
  - e. Appendix III - detailed drill logs of drill holes enumerated next above
5. Report of February, 1991 (for reporting period August, 1991 through February, 1992) - report complete except for:
  - a. It appears that what would be Page No. 5 (pages are unnumbered) of the report is missing (immediately following Table 1), and what is now page 5 should be Page 6 (text does not follow from page to page)
  - b. Rotary drill holes No.'s TW-7 and TW-8 have no included assay logs and it is unclear from the report if drill hole TW-8 was assayed. It is clearly stated that TW-7 was not assayed.

I would appreciate it if you could review the TDC company files to see if you can come up with any of the missing information. Of note is the fact that several people (I assume TDC concerns) have made comments and notes in the margins of the reports. Is it possible that these individuals may have retained some of the missing information? I cannot stress enough the importance of this information to TDC, and its availability to potential lessees. If the information is not found to reconstruct your entire data file on Santa Fe's work, what information you have now is critically deficient in content and interpretive value, with some of it being totally worthless. This missing data amounts to many thousands of dollars of exploration effort. Much of the factual data in the reports is tied back to the various maps and logs, and it is critical to combine the data. Should you be unable to access this data, I would strongly suggest you approach Santa Fe to see if they have retained the information that would complete your files, and if so, acquire it. What has already been received and the above items, if found, should form the bulk, if not all, of the information provided by Santa Fe to TDC over their lease period.

Mr. Jerome Neidfelt, President  
Tombstone Development Co.  
RE: Santa Fe data - "missing"  
October 2, 1992  
Page 2 of 3



JABA INC.  
2100 N. Wilmot Rd. #218  
Tucson, AZ 85712  
(602) 885-9141

I sincerely appreciate your efforts in locating this data and forwarding it to me.

Very truly yours,

*Thomas E. Waldrip, Jr.*

Thomas E. Waldrip, Jr.

TEW/ms

Mr. Jerome Neidfelt, President  
Tombstone Development Co.  
RE: Santa Fe data - "missing"  
October 2, 1992  
Page 3 of 3



JABA INC.  
2100 N. Wilmot Rd. #218  
Tucson, AZ 85712  
(602) 885-9141

TEW



JABA INC.  
2100 N. Wilmot Rd. #218  
Tucson, AZ 85712  
(602) 885-9141  
(FAX) 721-2768

CERTIFIED MAIL # P900381106

October 2, 1992

Cochise County Recorder's Office  
P. O. Box 184  
Bisbee, AZ 85603

RE: Filing of and request for recording of a Notice of Non-Liability for  
Labor and Materials Furnished

Dear County Official:

Please find enclosed a two (2) page Notice of Non-Liability to be recorded  
in your county on behalf of Tombstone Development Company, lessor of  
certain mining claims in the Tombstone Mining District of your County.

A check in the amount of \$9.00 has been included to cover recording fees,  
along with a self-addressed, stamped envelope for return of the recorded  
document.

Thank you for your time and attention to this matter.

Sincerely,

*Thomas E. Waldrip, Jr.*  
Thomas E. Waldrip, Jr., Agent (msb)

TEW/msb

Enclosure: Notice of Non-Liability  
SASE

**NOTICE OF NON-LIABILITY FOR LABOR AND MATERIALS FURNISHED**

NOTICE IS HEREBY GIVEN that the undersigned is the Owner of the following described mine, patented and unpatented mining claims situated in Cochise County, State of Arizona, the names of which and the books and pages of recording of the deeds and location notices in the Office of the Recorder of said county and with reference to unpatented mining claim(s) the Bureau of Land Management (B.L.M.) serial numbers of which are as follows:

Mine/Claim Name	Mineral Survey No.	County Records		BLM Serial No.
	(Patented Claims only)	Book	Page	(Unpatented Mining Claims)

See Attachment 1 following, which by this reference is made a part hereof.

Pursuant to the terms of a Lease Agreement entered into between the Owner and Excellon Resources USA, Inc. (Lessee), which is dated August 24th, 1992 and is for a term commencing on August 24, 1992, and continuing for so long thereafter as Lessee continues to make certain payments to Owner, the property will be in the possession of and operated by Excellon Resources USA, Inc. (Lessee).

The Owner is not and will not be working or operating the claims or mine or any part of the claims or mine and does not intend to purchase supplies or materials for the claims or mine or to employ any persons to labor thereon during the term of the above-described Agreement.

The Owner will not be liable for labor performed or materials or merchandise furnished in the operation or development of the claims or mine during the term of the above-described Agreement, and the claims or mine will not be subject to a lien or any debts incurred for labor performed or materials or merchandise furnished for the operation or development of the claims or mine during the term of the Agreement.

DATED AND POSTED on the ground this 30<sup>th</sup> day of September, 1992.

OWNER - Tombstone Development Company

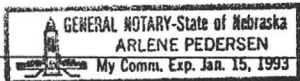
Jerome Niedfelt (President)

STATE OF Nebraska )  
 )ss.  
 COUNTY OF Hall )

On this 25th day of September, in the year 1992, before me, Arlene Pedersen, a Notary Public, personally appeared Jerome Niedfelt, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person who executed the within instrument as the President of Tombstone Development Company, an Arizona Corporation, and on behalf of the Corporation therein named and acknowledged to me that said Corporation executed it.

My Commission Expires: 1/15/93

Arlene Pedersen  
 Notary Public



ATTACHMENT 1

MINING PROPERTIES INCLUDED IN  
 NOTICE OF NON-LIABILITY FOR LABOR AND MATERIALS FURNISHED  
 Between  
 Tombstone Development Company (Owner)  
 and  
 Excellon Resources U.S.A., Inc. (Lessee)

Mine/Claim Name	Mineral Survey No.	County Records*		BLM Serial No.
	(Patented Claims only)	Book	Page	(Unpatented Mining Claims)

Patented Mining Claims: (1\*) (3\*)

✓ Houghton	3228	29	335	(Less surface ownership of record)
Cincinatti	Gen.254	(Deed recorded DK115 Page 09)		
New Year	Gen.213	9	260	
Cornell	3228	29	335	
Michigan	3228	29	335	
Illinois	3228	29	335	
Grand Central	Gen.143	5	24	
Contention	Gen.120	3	334	
Naumkeg	Gen.148	5	17	
Flora Morrison	Gen.258	8	177	
South Ext. of the				
Grand Central	Gen.144	7	100	
Contentment	Gen.252	15	300	
Buffalo	3228	29	335	
Southern Belle	3228	29	335	
Tranquility	Gen.155	3	565	
Cocopah	Gen.266	6	440	
Silver Thread	790	11	564	
Content	Gen.253	15	297	
North Point Fraction	808	12	568	
Empire	Gen.152	11	76	(Less surface ownership of record)
Head Center-Yellow				
Jacket	3213	29	296	
Silver Belt	793-AM	15	382	
Protection	3230	29	409	
Moonlight	751	11	548	
Fortuna	3214	29	304	
Sydney	475	27	293	
Sulphuret	Gen.156	5	8	
Mayflower	1012-AM	18	360	
Ninety-Nine	3225	30	166	
Last Chance #2	809	11	553	
Boss	800	14	594	
Grand Dipper	540	8	606	
Telephone	927	15	103	

Unpatented Mining Claims: (2\*)

T.D.C. #26	1489	49-50	A-MC-125079
T.D.C. #27	1489	51-52	A-MC-125080
T.D.C. #28	1489	53-54	A-MC-125081
T.D.C. #29	1489	55-56	A-MC-125082
T.D.C. #30	1489	57-58	A-MC-125083

- \*Notes:
1. For patented mining claims - U.S. Patent Recording (Deed of Mines Book)
  2. For unpatented mining claims location notice recording
  3. For title to all of Tombstone Development Company's patented claims listed above with the exception of the Cincinatti Gen. Survey No. 254 may be found in Deed of Mines Book 34 pages 368 et seq.

# Tombstone layers

## Highways

1. Primary paved highways - (CENTER LINE HIGHWAY) US 80
2. Secondary paved roads & streets
3. Gravel roads. major (MAINTAINED)
4. Trails - ungraveled roads (UNMAINTAINED)
5. Old rail road grades & beds

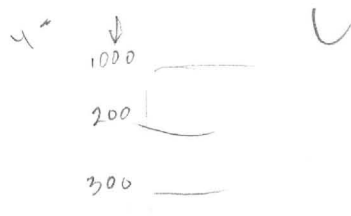
## Residential - Business ?

1. Single unit homes - residents
2. Business - ~~schools~~ - etc.
3. Misc buildings - tanks, sheds, HEADFRAMES
4. Public Buildings - schools, courthouse, P.O. CITY HALL, HOSPITALS, church SWIMMING POOLS -
5. Trailer Park
6. Parks - Athletic field - playground - RECREATION AREA
7. Grave yards - SemeTARY
10. LAND fill - Dumps

## Public Works - improvements

1. WATER TANKS - WATER STORAGE - COVERED WATER RESERVOIR
  2. WATER LINES (IF KNOWN) or Aqueduct.
  3. WELLS - WINDMILLS
  4. Power lines (poles) telephone
  5. FENCES
  6. Sewage DISPOSAL AREA ?
  7. Airport
- Survey pts - Cord. pts

1. Flagged points (x y spots) BM's MIN sur. pts etc.
2. Flagged elevations control (numeric) (2)
3. X-Y values on control
4. X-Y cord. grid. (lines)
5. X-Y cord grid (numbers)



were every present, have been eroded on, uncapping only those volcanic units which predate the detachment event.

5. Alteration - In general, the volcanic section outcropping in the claim area has undergone widespread hydrothermal propylitic and argillic alteration. In mineralized areas on the claims, argillic-grade alteration is generally noted. This association being limited in intensity and extent, though. Silicification via countless seams, veins and veinlets of quartz plus or minus calcite is noted in certain mineralized areas of the district. Wide-spread and extensive zones of potassium enriched volcanic rocks (potassium metasomatism) is noted and generally believed coeval with development of the detachment/listric faulting and hydrothermal solutions traversing these zones of weakness or conduits. The hanging wall rock of the detachment zone have been enriched, but as yet, a clear picture of potassium metasomatism along listric faults is unclear and awaits further study.

6. Mineralization - In general, surface indications of mineralization are associated with faulting, hydrothermal alteration, silicification and low sulfide content. Ore grade mineralization is reflected by high gold to silver ratios, a noticeable lack of base metals and anomalous mobile minerals and elements of fluorine, mercury, arsenic and uranium. These characteristics indicate the ore deposition was near or at the top of the zone of epithermal mineralization. All ore thus far mined has been oxidized. In the area of the claim group, mineralization can be assigned to three main modes of occurrence:

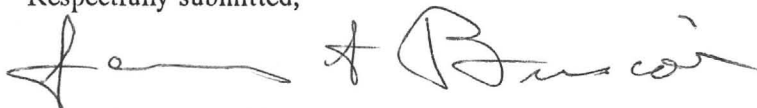
- a). Fissure veins - veins emplaced along structurally prepared areas, fault contacts or margins of intrusion(?) in which shatter sheeting or brecciation of brittle volcanics resulted in open space filling by vein matter. Contact between the vein and country rock is often gradational at best. Gold mineralization predominates in these veins and is probably of late-Tertiary age.
- b). Tabular bodies - nearly flat lying tabular bodies of gold mineralization are encountered at times associated with flat-lying detachment fault zones. Mineralization is late-Tertiary in age, generally found above the sole of the fault in which the hanging wall rocks are shattered by several periods of movement and deposition of mineralization, generally in whole, replaced by quartz or strongly silicified, altered, fracturing and silicification decreasing away from the mineralized zone.
- c). Uranium mineralization found admixed with or separately zoned(?) around fissure veins.

7. Geochemical Results - Within the claim area, widely spaced geochem samples point to the presence of at least one and possibly more extensive zones of anomalous gold mineralization. Satellite and possibly overlapping the gold anomalies are zones of uranium mineralization. Future studies remain to fill in and interpret these studies.

These results have hastened efforts to delineate, extend and develop, by scientific principles, known and suspected areas of valuable lode mineral content, within the boundaries of the subject mining claims.

An exploration-development program consisting of drilling, sampling, geological, geochemical, and geophysical studies, is presently under consideration for this property. All technical work and results are in the possession of and are considered to be the exclusive property of JABA, Inc., co-owner of the subject mining claims, with offices at 2100 N. Wilmot Road, Suite #218, Tucson, Arizona 85712, Attention: Mr. James A. Briscoe, President.

Respectfully submitted,



James A. Briscoe (Agent)  
Registered Professional Geologist  
Arizona #9424  
California #518





## Contour - topo.

1. INDEX CONTOUR LINE - (25')
2. INDEX CONTOUR ELEVATION (25' interval)
3. a 100' CONTOUR INDEX LINE
4. b 500' " " "
- ~~INDEX CONTOUR ELEVATION~~
5. INTERMEDIATE CONTOUR LINES (5')

## MINES - PROSPECTS

1. Mine shafts & openings
2. prospects pits
3. Open pits (rim)
4. Open pit (Floor)
5. Waste dumps
6. Trenches
7. Mill tailings
8. ~~FATER~~ Leaching ponds ~~& pads~~
9. PADS LEACHING
10. Drill holes
11. Claim lines
12. LOCATION MONUMENTS

## WATERWAYS

1. Streams (major watershed)
2. Secondary streams

## PUBLIC LANDS

1. Township Lines (Townships, Ranges & Sections)
2. Townsite boundary
3. City limits

2. Analysis and computer logging of old geological maps from previous mining activities.
3. Annotation to geological base map of geological data acquired during previous underground mining eras with more recent information acquired by other companies and governmental agencies.

This work was performed over the entire claim group to evaluate the discovery of valuable lode mineral deposits located thereon, and to assist in planning further exploration and development work. The work was performed throughout the period from September 1, 1991 to August 31, 1992, by or for JABA, Inc., 2100 N. Wilmot Rd., Suite #218, Tucson, Arizona 85712, telephone (602) 885-9141, under the direct supervision of James A. Briscoe, a Registered Professional Geologist for 22 years in the State of California (No. 518) and Arizona (No. 9424), with degrees from the University of Arizona (B.S. Geology, M.S. Geology, 1967). Other persons performing work upon said claim group were:

Thomas E. Waldrip, Jr., Geologist/Landman, B.S. Geology, University of Arizona, 4426 E. Patricia Street, Tucson, AZ 85712  
Mardee S. Briscoe, Business Manager, A.S. Secretarial, Lasell Junior College, 5610 E. Sutler Lane, Tucson, AZ 85712  
Other JABA, Inc. professional staff, field/office technicians and consultants.

The cost of non-scientific assessment activities and/or geological, geochemical and geophysical studies exceeded \$3,700, and was paid for by JABA, Inc., an undivided co-owner of the subject mining claims.

The basic findings to date from past and continuing technical studies performed on this contiguous claim group are:

1. **Geologic Section** - The terrain in the immediate claim area is composed of a Cenozoic (mid-Tertiary, probable Miocene and younger) alternating complex of pyroclastic, in part hypabyssal, sequence of acidic to basic volcanic rock locally called the Bullfrog Hills Volcanic Sequence. The rocks have a composition ranging from basanite and basalt to latite, rhyodacite and rhyolite. They occur as flows, predominately near the top of the sequence, ash flows (welded tuffs), tuffs throughout, and locally as intrusives. The basal units of the sequence are fluvio-terrestrial(?) in origin composed of tuffaceous sedimentary rocks and locally, at least a 30 foot section of limestone. Rhyolitic rocks predominate quantitatively over all other types of volcanic rocks and compose a majority to all of the ash flows, tuffs, flows and intrusives on a volume basis. The volcanic rocks are possibly derived from a magma chamber associated with a caldera complex proposed to encompass the Bullfrog Hills area. Theoretically, this is possible, but unlikely. Current thought leans toward the idea that Bullfrog Hills Volcanic Sequences is on a detached surface, with the rock sequence being derived from a proximal caldera complex located to the northeast by several tens of kilometers.
2. **Regional Geology** - Locally, but distal, 4 to 8 kilometers from the claim boundary, are a sequence of Precambrian gneiss and schists intruded by pegmatitic granites, unconformably overlain by a fragmentary sequence of Paleozoic rocks ranging from limestones, quartzites and sandstones in the lower section, to predominately dolomites in the upper portion of the sequence. The complete section is nowhere locally complete, with only fragmentary protuberances outcropping from the overlying mantle of Tertiary volcanics and Quaternary alluvial cover.
3. **General Structural Setting** - In general, the Bullfrog Mining District is structurally located along the projection of the Las Vegas Shear/Walker Lane zones where deep-seated structures have apparently localized and tapped deep magma sources, as evidenced by the repeated, episodic volcanism of mid- to late-Tertiary time, in the area. An early period of tectonic deformation (orogeny) in the late-Cretaceous or early-Tertiary resulted in the Paleozoic rocks being intensely folded and faulted, and, also producing major thrust faults. A post mid-Tertiary (Miocene) extensional tectonic terrain has resulted in low-angle normal fault development (detachment faulting) at or near the base of the volcanic section, with the Bullfrog Hills Volcanic Sequence being the hanging wall and the Paleozoic section being the footwall, generally speaking. The directional movement of the hanging wall is currently not clearly understood. The sole of the detachment fault may possibly be a reactivation and follow an older thrust fault surface.
4. **Localized Structure** - Focusing on the immediate claim area, deformation can be categorized as sympathetic in nature to the post-Miocene detachment fault surface (which lies proximal at an unknown depth), projecting under the claim area from its sinuous exposure several kilometers to the south of the claim area. Present and past mapping work has demonstrated a rather regular interval of repeating, moderate-to-high angle, north-to-northeasterly trending westerly-dipping faults cutting the area. The periodicity between faults on east to west cross section would be approximately one mile, demonstrated by the topography of the area. It is believed that the high angle (listric) faults coalesce at depth into a single low-angle, normal (detachment) fault. These listric surfaces bound internal blocks of rotated volcanics, dipping moderately to the east. Therefore, if one were to traverse the area from west to east, he would encounter repeating, rather periodic sequence of high-angle faults, sets of which bound internal eastward dipping, rotated blocks of the volcanic section.

~~CONFIDENTIAL~~ FILE



JABA INC.  
2100 N. Wilmot Rd. #218  
Tucson, AZ 85712  
(602) 885-9141  
(FAX) 721-2768

September 29, 1992

Mr. Jerome Neidfelt, President  
Tombstone Development Company  
1028 South Adams  
Grand Island, NE 68801

RE: Santa Fe data/reports, Tombstone Mining District, Cochise County, Arizona; JABA project #159-01

Dear Mr. Neidfelt:

Enclosed please find the Santa Fe data package you provided us, which I am returning in its entirety. On behalf of MVP and JABA, Inc., I thank you for your timely response to our request to have access to and sending us the Santa Fe data and reports on your Tombstone property. Geologically, their results are interesting, and will be added to our Tombstone geological computer data base. It would be premature to comment any further than to say that Santa Fe's data is another important piece of the puzzle at Tombstone.

After a quick review, it appears that there is additional Santa Fe information that was not included in the data package that you sent to us. Certain information is referred to by Santa Fe in their reports which may not have been included in semi-annual data packages to TDC, but should have been. We have copied the enclosed information in its entirety, and I will carefully go through the information over the next few days and reference these "missing" items which we may still be able to get from Santa Fe. However, I do not want to delay return of your files while reviewing the data and formulating the list of additional information. This list will be included in separate cover in the near future.

Thank you again for your timely response to our request and the information provided.

Sincerely,

Thomas E. Waldrip, Jr.  
Executive Vice President

Enclosure: TDC 9/21/92 correspondence

cc: Douglass MacKenzie  
James A. Briscoe

# Tombstone Development Company

P.O. BOX 1445

TELEPHONE 308/382-7480

GRAND ISLAND, NEBRASKA 68802

September 21st, 1992

Jim Briscoe  
2100 North Wilmot No. 218  
Tucson, Arizona 85712

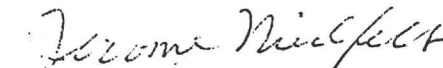
Dear Sir:

Enclosed find the following Santa Fe reports:

February 11th, 1988 - August 11th, 1988  
July 21st, 1988 - December 20th, 1988  
May 1st, 1989 - August 7th, 1989  
February 11th, 1990 - August 11th, 1990  
August 11th, 1990 - February 11th, 1991  
August 11th, 1991 - February 11th, 1992

Also enclosed please find copy of assessment of  
unpatented claims.

Very truly yours,



Tombstone Development Company  
By: Jerome Niedfelt, President

JN/ap

Encs.

# Tombstone Development Company

P.O. BOX 1445

TELEPHONE 308/382-7480

GRAND ISLAND, NEBRASKA 68802

September 25th, 1992

Jaba Inc.  
2100 N. Wilmot Rd. #218  
Tucson, Arizona 85712

Attention: Thomas E. Waldrip, jr.

Gentlemen:

Enclosed herewith please find signed and notarized notice of non-liability for labor and materials furnished for our lease with Excellon Resources USA, Inc..

Please make sure that these documents are properly filed and posted as per your letter of September 21st, 1992.

Very truly yours,



Tombstone Development Company  
By: Jerome Niedfelt, President

JN/ap

Enc.

\$9.00 recording  
fee



JABA INC.  
2100 N. Wilmot Rd. #218  
Tucson, AZ 85712  
(602) 885-9141  
(FAX) 721-2768

September 21, 1992

Mr. Jerome Niedfelt, President  
Tombstone Development Company  
Box 1445  
Grand Island, NE 68802

RE: Notice of Non-Liability for Labor and Materials Furnished for Lease between TDC and  
Excellon Resources, Tombstone Property, Tombstone Mining District, Cochise County,  
Arizona

Dear Mr. Niedfelt:

Pursuant to your requests to Doug MacKenzie and Jim Briscoe regarding the above referenced  
Notice, I have prepared the necessary Notice for your signature and notarization. Several blank  
spaces remain to be filled in by yourself. I would appreciate it if you could do that for me, as I  
have not received a copy of the final Lease Agreement yet.

The signed and notarized document should then be returned to me in the enclosed envelope. I  
will then see to it that copies of the document are posted on the grounds and that the original is  
properly filed with the County Recorder's office in Bisbee. Upon return of the original, recorded  
document, I will forward it to you for your files in an estimated time frame of approximately three  
weeks.

Sincerely,

A handwritten signature in cursive script that reads "Thomas E. Waldrip, Jr." The signature is written in dark ink and is positioned above the typed name.

Thomas E. Waldrip, Jr.

TEW/msb

Enclosure: SASE  
Notice of Non-Liability

cc: James A. Briscoe  
Douglass MacKenzie

# Tombstone Development Company

P.O. BOX 1445

TELEPHONE 308/382-7480

GRAND ISLAND, NEBRASKA 68802

September 21st, 1992

Jim Briscoe  
2100 North Wilmot No. 218  
Tucson, Arizona 85712

Dear Sir:

Enclosed find the following Santa Fe reports:

February 11th, 1988 - August 11th, 1988  
July 21st, 1988 - December 20th, 1988  
May 1st, 1989 - August 7th, 1989  
February 11th, 1990 - August 11th, 1990  
August 11th, 1990 - February 11th, 1991  
August 11th, 1991 - February 11th, 1992

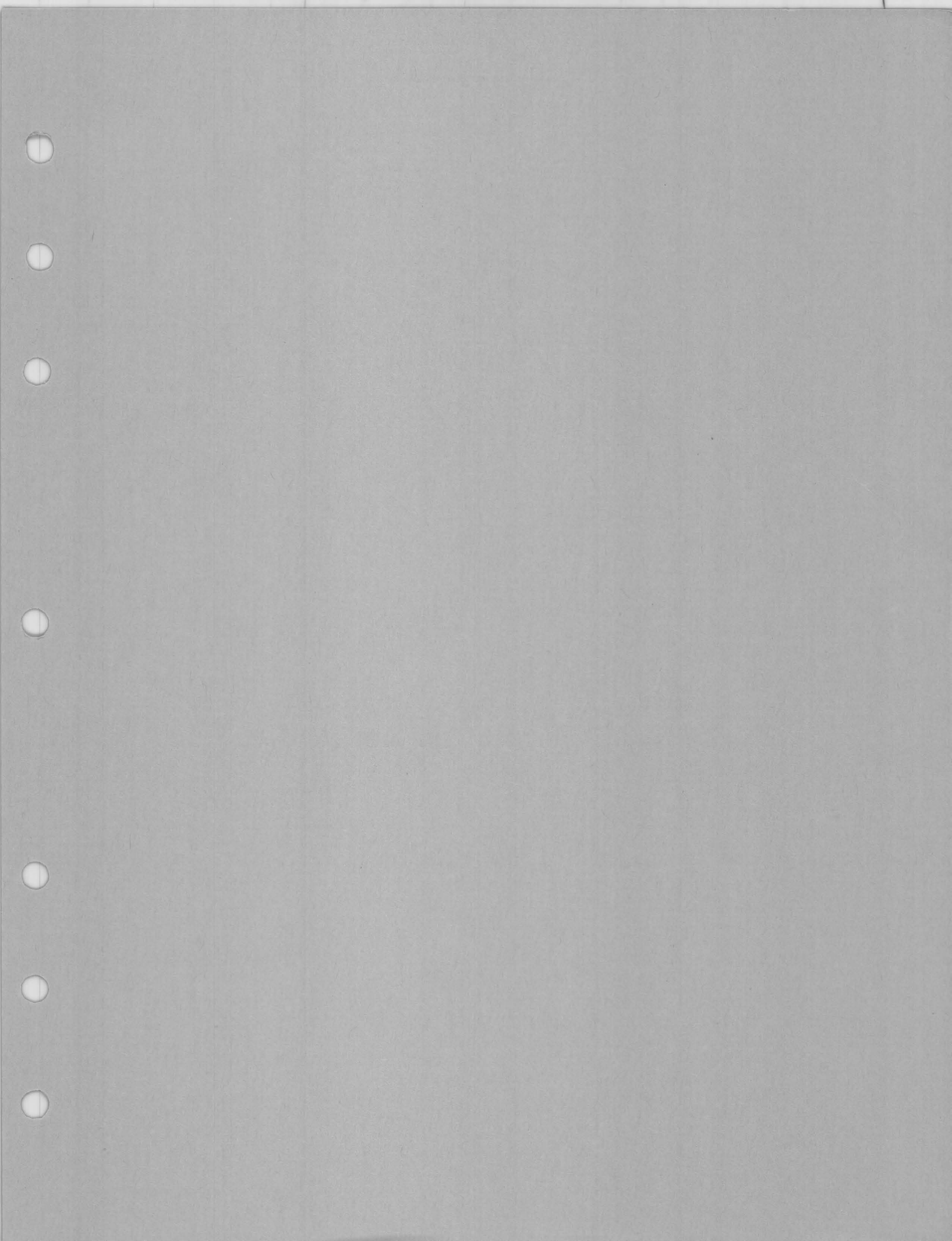
Also enclosed please find copy of assessment of  
unpatented claims.

Very truly yours,

*Jerome Niedfelt*  
Tombstone Development Company  
By: Jerome Niedfelt, President

JN/ap

Encs.





File Memo

To: James A. Bureau

From: T. E. Waldrip

Date September 21, 1992

Re: Conversation Saturday, September 19, 1992 at Bookmans Used Books with Peter Maguire concerning Santa Fe Mining's Tombstone Project, Tombstone Mining District, Cochise County Arizona.

Jmw:

Following please find a summary of my conversation with Peter on above referenced subject, as previously discussed <sup>with you</sup> by telephone on Sunday afternoon September 20, 1992, and pursuant to your request that I document it in a file memo.

First a little background information might be in order. Peter was working as a consultant with Santa Fe. This apparently came about approximately ~~five~~ plus year ago when Santa Fe was conducting a regional gold exploration program in SE Arizona (a pet project of the exploration manager whose name escapes me at this point). After finding a number "sniffs" as Peter called it and continually running to him for explanations, Peter indicated that they possibly should expand out of the

the Commonwealth Mine)  
being  
(one of these

Sulphure Springs valley region to ~~the~~ including the Tombstone District, where significantly more was known about the mineralization and the geology was less (?) obscure. As we know this <sup>proposal</sup> was followed up on ~~with~~ <sup>by</sup> Santa Fe acquiring the remainder of the TOC property not then held by PBR/Cowichan.

It is my understanding from Peter that the reason Santa Fe pulled up stakes in SE Arizona, <sup>including Tombstone</sup> was not so much caused by a lack of identifiable <sup>gold</sup> resources as apparently they've had their entire exploration budget for the area slashed after a company directive came down <sup>from the head office</sup> redirecting all exploration activities back to their patented property positions in Nevada. As it was phrased to me Santa Fe's "why should we be paying absorbent property payments <sup>and royalties</sup> in Arizona when have all this land in Nevada with no payment or royalties most of which has been little explored and additionally which we have leased out some for hardly any royalties. It seems clear we should explore our grounds there first."

management was saying

It would thus appear that the reasoning for Santa Fe terminating their lease was not so much cause by discouraging results

in the Tombstone area, but to contrary, <sup>as will be indicated</sup> but later <sup>in this memo</sup> more involved with company politics, priorities and goals. It is my understanding that Santa Fe's work <sup>at Tombstone</sup> indicated potential reserves but apparently these reserves are neither of the size or grade to convince management to retain their position there as they "didn't meet <sup>the</sup> company's criteria ~~to~~ nor objectives. Likewise, this <sup>was</sup> apparently ~~is~~ the case in the Tourguesi District, however, there they've continued to hold the ground, based on the extensive area of mineralization, some defined ore reserves, and ~~a~~ potentially developable or saleable product. Peter said a lot of mineralization has been found there, the problem being structural (low angle faulting) making it difficult to impossible to correlate rock types, mineralization trends, etc often between closely spaced drill holes. None-the-less given a successful operation at Tombstone one might be <sup>would</sup> advised to take a close look at consolidation of this area <sup>into</sup> ~~it~~ to an operational unit.



# Tombstone Development Company

P.O. BOX 1445

TELEPHONE 308/382-7480

GRAND ISLAND, NEBRASKA 68802

September 18th, 1992

Bureau of Land Management  
Arizona State Office  
Branch of Mining  
Law Administration  
P. O. Box 16563  
Phoenix, Arizona 85011

Gentlemen:

Enclosed find check in the amount of \$155.00  
along with copy of affidavit of annual  
assessment work for 31 claims.

Very truly yours,

Tombstone Development Company  
By: Jerome Niedfelt, President

JN/ap

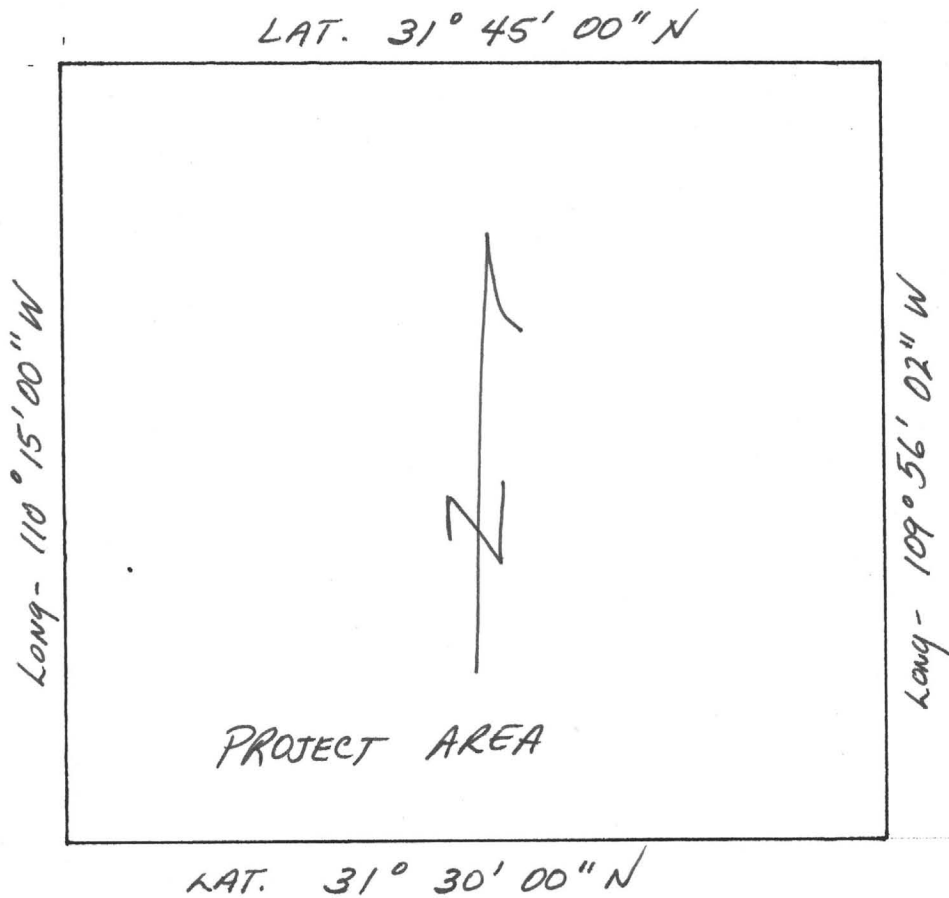
Enc/ck



TO: Douglas Mackenzie - MVP 1 (416) 867-1109 (FAX)

Hope this is what you wanted. IF NOT LET  
ME KNOW. Tom

RETURN FAX # 1 (602) 721-2768



**BRACEWELL & PATTERSON**

2900 SOUTH TOWER PENNZOIL PLACE  
HOUSTON, TEXAS 77002-2781  
713 223 2900  
FAX 713 221 1212  
TELEX 76 2141

*COPY for TEL*

100 CONGRESS AVENUE  
AUSTIN, TEXAS 78701-4042  
512 472 7800

4000 LINCOLN PLAZA  
500 N AKARD  
DALLAS, TEXAS 75201-3320  
214 740 4000

2000 K STREET N.W.  
WASHINGTON, D.C. 20006-1809  
202 828 5800

43 BROOK STREET  
LONDON W1Y 2BL  
071 355 3330

*Final  
Signature  
COPY*

**FACSIMILE COVER LETTER**

Please deliver the following pages to

*James Brusoe*

This facsimile is from *Lynn Daniel*

and is being transmitted on SEP 04 1992, 19

at \_\_\_\_\_ a.m./p.m.

**GENERAL INFORMATION**

1. The length of this facsimile (including cover letter) is 18 pages.
2. Facsimile machine number (713) 221-1212
3. If you do not receive all pages, please call Paula Ellis/Pat Fontenette at (713) 221-1233

**MESSAGE**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**CONFIDENTIALITY NOTICE**

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214 740 4000

2000 K STREET N.W.  
WASHINGTON, D.C. 20006-1809  
202 828 5800

43 BROOK STREET  
LONDON W1Y 2BL  
071 355 3330

September 4, 1992

By Telecopier

Mr. Jerome Niedfelt  
President  
Tombstone Development Company  
Box 1445  
Grand Island, Nebraska 68802

Re: Proposed Lease Agreement between Tombstone  
Development Company and Excellon Resources Inc.

Dear Mr. Niedfelt:

Attached hereto is the final draft of the Lease Agreement,  
marked to reflect changes made to the prior draft.

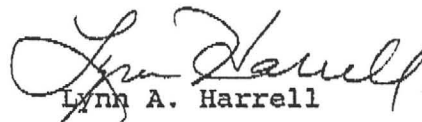
It is my understanding that Cowichan Resources, Inc. will  
execute a separate Lease Termination Agreement that Patricia  
Wendel is drafting.

I will Federal Express clean copies of the Lease Agreement to  
you and to Doug MacKenzie for delivery on Tuesday morning.

Please call me with any questions or comments.

Very truly yours,

Bracewell & Patterson

  
Lynn A. Harrell

cc: Mr. A. Douglas MacKenzie  
Excellon Resources Inc.  
20 Adelaide Street East  
Suite 200, Box 55  
Toronto, Ontario M5C 2T6  
Canada  
(By Telecopier)

## BRACEWELL &amp; PATTERSON

Mr. Jerome Niedfelt  
September 4, 1992  
Page 2

Ms. Patricia H. Wendel  
Snell & Wilmer  
1500 Citibank Tower  
One South Church Avenue  
Tucson, Arizona 85701-1612  
(By Telecopier)

Mr. Scott H. Gan  
Mesch, Clark & Rothschild, P.C.  
259 North Meyer Avenue  
Tucson, Arizona 85701  
(By Telecopier)

Mr. Michael Urman  
DeConcini, McDonald,  
Brammer, Yetwin & Lacy, P.C.  
2525 East Broadway Boulevard  
Suite 200  
Tucson, Arizona 85716  
(By Telecopier)

Mr. James Briscoe ✓  
Excellon Resources Inc.  
Tucson, Arizona  
(By Telecopier)

Mr. Lawrence Talbot  
Smith, Lyons, Torrence,  
Stevenson & Mayor  
550-999 Canada Place  
Vancouver V6C 3C8  
(By Telecopier)

Mr. G. Alan Rafte  
Bracewell & Patterson

*Lease seems to include everything to the center of the earth - as before only to water table*

## LEASE AGREEMENT

THIS LEASE AGREEMENT (the "Agreement") is made and entered into as of August 24, 1992, by and between Tombstone Development Company, an Arizona corporation ("Lessor") and Excellon Resources USA, Inc., an Arizona corporation ("Lessee").

## WITNESSETH:

WHEREAS, Lessor is the owner of the patented and unpatented mining claims described on Exhibit A annexed hereto;

WHEREAS, Lessor has been, until the ~~effective~~ date of this Agreement, leasing the Mineral Property (hereinafter defined) to Cowichan Resources, Inc., the successor-in-interest to PBR Minerals, Inc., pursuant to a Lease Agreement (the "Prior Lease") dated as of January 1, 1988 by and between Lessor, Harbor Financial, Inc., and PBR Minerals, Inc.;

WHEREAS, subsequent to the Prior Lease, Cowichan Resources, Inc. filed for protection under Chapter 11 of the United States Bankruptcy Code;

WHEREAS, pursuant to the Modified Second Amended Debtor's Plan of Reorganization dated March 20, 1992 (the "Plan"), Cowichan Resources, Inc. has agreed to allow Lessee to lease the Mineral Property from Lessor in exchange for certain payments set forth in this Agreement; and

WHEREAS, Lessor and Cowichan Resources, Inc. desire to terminate the Prior Lease upon the ~~effective~~ date of this Agreement.

NOW, THEREFORE, IT IS HEREBY AGREED:

1. DESCRIPTION OF PROPERTY. Lessor represents that it is the owner of certain patented and unpatented mining claims located in Cochise County, Arizona, described in Exhibit A annexed hereto, together with all water rights appurtenant to said mining claims or held, owned or used in connection therewith and the right to use the same on said mining claims. Said mining claims, including the said appurtenant rights, will be hereinafter referred to as the "Mineral Property."

2. GRANT OF LEASE. In consideration of the covenants to be performed by the Lessee and other valuable consideration, Lessor does hereby grant unto Lessee, during the term and pursuant to the provisions of this Agreement, exclusive possession and control of the Mineral Property (i) to drill, mine, and otherwise extract minerals from any location on the Mineral Property, (ii) to treat, mill and leach the tailings located on the Mineral Property, (iii) to sell minerals derived

from the Mineral Property to an industry-recognized smelter or refinery in the United States of America selected by Lessee with the consent of Lessor, which consent shall not be unreasonably withheld, and (iv) to conduct any other activity on the Mineral Property related to the foregoing. The nature of such mining, milling, and leaching operations shall be in accordance with the provisions of Section 10 hereof. All oil, gas, and water rights are retained by Lessor; provided, however, that Lessee shall have the right to drill for and use all water on the Mineral Property for purposes of processing ore.

3. ROCK WASTE. Lessee shall be allowed to sell and remove the crushed waste rock of the tailings wash operation, provided said crushed waste rock has, in fact, been properly processed and has been certified by an independent registered assayer to contain no saleable metals or cyanide contamination. Gross proceeds from the sale of crushed waste rock will be divided fifty percent (50%) to Lessor and fifty percent (50%) to Lessee.

4. REPORTS. Lessee shall make a written report to Lessor at least once each month. Any such report shall provide complete information concerning Lessee's operations and performance hereunder, including but not limited to (i) exploration results, (ii) the number of tons of material treated, (iii) quantity, grades and dates of materials shipped, and (iv) the amount of proceeds derived from sales. Should the Mineral Property achieve commercial production during the term of this Agreement, the Lessor shall receive a copy of all reports to Lessee from any refinery Lessee sells minerals to pursuant to Section 2 hereof regarding the receipt of gold or silver shipments as well as reports from any such refinery regarding refined gold or silver produced from the Mineral Property.

5. ANNUAL LABOR OR ASSESSMENT WORK. Lessee shall do and perform, within the time required by law, the annual labor or assessment work on or for the benefit of all the unpatented mining claims constituting a part of the Mineral Property for the mining year ending September 1, 1993, and for each mining year thereafter so long as this Agreement or any extension is in force and effect. Said labor or assessment work shall comply with all applicable laws of the United States of America and the State of Arizona; provided, however that if this Agreement is terminated, forfeited, or cancelled at any time prior to six (6) months before the expiration of any mining year after September 1, 1993, Lessee shall be relieved from doing the annual labor or assessment work for the year in which termination takes place, but shall be responsible for clean-up requirements of the EPA and the ADEQ relating solely to Lessee's operations on the Mineral Property during the term of this Agreement. Upon completion of said annual labor or assessment work for any particular year, Lessee shall execute an affidavit evidencing the performance of said work, which affidavit will be distributed by Lessee to the appropriate

governmental agencies. Notwithstanding the foregoing, if the federal mining laws are amended regarding assessment work obligations, this Section shall be superceded by the requirements of any such new law.

6. RENTAL: ROYALTY.

6.1 Rental. Subject to Lessee's right to terminate pursuant to Section 9, beginning on March 1, 1993 and for the remainder of the term of this Agreement and for the remainder of the term until the minimum royalty payment specified in Section 6.4 shall become effective, Lessee shall pay to Lessor a rental payment of \$5,000.00 per month on the first day of each calendar month. Such \$5,000.00 rental payments are not deductible against royalties.

*Rentals  
to Start  
March 1, 1993*

6.2 Royalty. Royalties on silver and gold produced and sold from the Mineral Property shall be paid in kind on a graduated scale calculated as follows:

5% of refined silver while silver is selling at not more than \$10.00 per ounce and 5% of refined gold while gold is selling at not more than \$400.00 per ounce.

6% of refined silver while silver is selling at more than \$10.00 but not more than \$12.50 per ounce and 6% of refined gold while gold is selling at more than \$400.00 but not more than \$500.00 per ounce.

7% of refined silver while silver is selling at more than \$12.50 but not more than \$15.00 per ounce and 7% of refined gold while gold is selling at more than \$500.00 but not more than \$600.00 per ounce.

8% of refined silver while silver is selling at more than \$15.00 but not more than \$17.50 per ounce and 8% of refined gold while gold is selling at more than \$600.00 but not more than \$700.00 per ounce.

9% of refined silver while silver is selling at more than \$17.50 but not more than \$20.00 per ounce and 9% of refined gold while gold is selling at more than \$700.00 but not more than \$800.00 per ounce.

10% of refined silver while silver is selling at more than \$20.00 but not more than \$30.00 per ounce and 10% of refined gold while gold is selling at more than \$800.00 but not more than \$1,200.00 per ounce.

Lessor shall take delivery of in-kind royalties of gold or silver at the refinery, with all costs of refining such gold and silver to be paid for by Lessee. All price quotations referred to above for silver shall be based on the monthly average Handy and Harman silver price as quoted in the US publication "Metals Week" for the calendar month in which such silver is refined. All price quotations referred to above for gold shall be based on the monthly average ~~Hardy~~ Handy and Harman gold price as quoted in the US publication "Metals Week" for the calendar month in which such gold is refined.

*refining to be paid by Lessee?  
 - some room to play here? with futures*

6.3 Royalty - Other Minerals. A 5% net smelter return as defined in Exhibit B ("NSR") will be paid on any minerals or metals produced and sold from the Mineral Property other than silver or gold, the royalty for which is addressed in Section 6.2, and crushed rock waste, the royalty for which is addressed in Section 3. With respect to such 5% NSR on other minerals or metals, Lessee shall have the right to purchase from Lessor at any time a 2% NSR for ~~\$750,000.00~~ \$1,000,000.00.

6.4 Minimum Royalty Payment. Subject to Lessee's right to terminate pursuant to Section 9, at such time that Lessee shall start taking minerals from an open pit or underground operation on the Mineral Property, the \$5,000.00 per month rental payment specified in Section 6.1 shall convert to a \$7,500.00 per month minimum royalty payment due and payable on the first day of each calendar month. The \$7,500.00 minimum royalty payment shall be reduced by (i) the value of any in-kind royalties set aside by any refinery for Lessor's account for such calendar month, and (ii) the percentage of NSR paid to Lessor, pursuant to Section 6.3, for any calendar month for any other minerals or metals produced and sold from the Mineral Property.

*advance minimum royalty?  
 - based on mining  
 not production  
 no description of minerals  
 does this include waste rock?*

6.5 Cessation of Production. If at any time the mining operations should cease, the \$7,500.00 minimum royalty payment shall revert back to a \$5,000.00 monthly rental payment in accordance with Section 6.1. If at any such later time Lessee shall again start taking minerals from an open pit or underground operation, the \$5,000.00 monthly rental payment shall again convert to a \$7,500.00 per month minimum royalty payment pursuant to Section 6.4.

*These don't say the same thing ↓*

7. TAXES AND RELATED PAYMENTS. During the term of this Agreement, Lessor shall pay all taxes or other governmental assessments on the Mineral Property before they become delinquent, and Lessee shall reimburse Lessor for taxes and other governmental assessments Lessor is required to pay on the Mineral Property. Such reimbursements shall be made within thirty (30) days after Lessor notifies Lessee of the amount of such taxes or governmental assessments. Notwithstanding the above, Lessee shall have the right in good faith to contest any tax or governmental assessment and withhold payment of such tax or assessment if permitted under the applicable appeals procedures.

8. TERM. This Agreement shall continue so long as Lessee complies with the terms of this Agreement, subject however, to the rights of termination in Section 9 below.

9. TERMINATION BY LESSEE. During the initial thirty-month term of this Agreement, Lessee has the right to terminate and surrender this Agreement only on each of February 28, 1993, August 31, 1993, August 31, 1994 and February 28, 1995 and at any time thereafter during the term hereof by giving Lessor written notice of its intention to do so at least thirty (30) days prior to the February 28, 1993 termination date and thereafter at least sixty (60) days prior to the termination date to be specified in said notice. Upon such termination, all obligations of Lessee to make rental or minimum royalty payments or any other payment not theretofore accrued or to perform any other further obligation hereunder (except as specified in Section 19 below) shall forthwith cease.

10. MANNER OF WORK. The Lessee agrees to cause all work to be done in a careful and miner-like manner and to conform in all respects with the mining laws of the State of Arizona and with the rules and requirements of the EPA and the ADEQ. Lessee shall conduct its operations hereunder so as to meet EPA and ADEQ requirements at all times, including any and all new legislation that would apply to said Mineral Property. Lessee shall maintain fences around shafts and inclines. Notwithstanding the foregoing, nothing in this Section shall obligate Lessee to meet EPA or ADEQ requirements relating to operations on the Mineral Property prior to Lessee's operations on the Mineral Property. If Lessee shall fail to meet its obligations under this Section 10, Lessor shall have the option, after 30 days prior written notice to Lessee specifying the necessary work, to conduct such necessary work. Lessor shall invoice Lessee for any work conducted by Lessor pursuant to this Section 10 and Lessee agrees to reimburse Lessor within 30 days of receipt of such invoice.

11. PROTECTION FROM LIENS. During the term of this Agreement, the Lessee shall keep the Mineral Property and the whole and every part thereof free and clear of liens for labor done or work performed upon the Mineral Property relating to Lessee's operations on the Mineral Property, for materials furnished to Lessee on or for the Mineral Property, or for the development or operation of the Mineral Property under this Agreement; provided, however, that Lessee shall not be required to remove any such lien as long as Lessee is contesting in good faith the validity or amount thereof. Lessee will provide Lessor with a signed acknowledgment of property posting and a hold-harmless agreement to Lessor signed by any and all parties providing goods or services to Lessee prior to providing such goods and services.

12. INDEMNITY. Lessee shall defend, indemnify, and hold Lessor harmless from and against any and all cost, loss, damage, expense,

} ??

what does this entail do we need a form or something

This doesn't make sense.

obligation, claim or liability, including reasonable attorneys' fees, suffered by Lessor as a result of the work or operations of the Lessee, its agents or employees, on the Mineral Property.

13. INSPECTION; INDEMNITY. Lessor, or its duly authorized agents or representatives, shall be permitted to enter into or upon the Mineral Property at all reasonable times for the purpose of inspection, but shall enter upon the Mineral Property at Lessor's and its agents' and representatives' own risk and so as not to unreasonably hinder the operations of Lessee. Lessor shall defend, indemnify and hold Lessee harmless from and against any and all cost, loss, damage, expense, obligation, claim or liability, including reasonable attorneys' fees, suffered by Lessee as a result of the presence of Lessor or its agents or representatives or any of them on the Mineral Property.

14. INSURANCE. Lessee shall, during the term hereof, provide and maintain general liability insurance in the aggregate of not less than \$2,000,000.00. Such insurance shall name Lessor as an additional insured. A certified copy of such policy of insurance shall be furnished to Lessor within 20 days of the commencement of the term of this Agreement.

15. EVENTS OF DEFAULT. Each of the following shall constitute a "Default" by Lessee under this Agreement:

15.1 The failure of Lessee to make any rental or royalty payment due Lessor under the terms of this Agreement; or

15.2 The failure of Lessee to make any payment of any other amount owed by Lessee to Lessor hereunder; or

15.3 The failure of Lessee to make any payment that Lessee is obligated to make pursuant to the Plan.

15.4 The failure of Lessee to fulfill or perform any other covenant or obligation of Lessee contained in this Agreement and the Plan.

16. REMEDY ON DEFAULT. In the event of a Default by Lessee hereunder and a failure of Lessee to remedy such Default within thirty (30) days after written notice of such Default, Lessor shall have the right to terminate this Agreement immediately and retake the Mineral Property; provided, however, that if Lessee commences to correct any Default, other than the payment of money, within such thirty (30) day period and thereafter diligently continues to endeavor to correct the same but the same cannot be fully corrected within such thirty (30) day period for reasons other than the inability of Lessee to pay money, then Lessor may not terminate this Agreement so long as Lessee is diligently continuing the work of correcting the same.



17. PRIOR LEASE. Lessor agrees that the Prior Lease shall be terminated as of the date of this Agreement.

18. ASSIGNMENT. The knowledge and ability of Lessee are relied upon by Lessor in entering into this Agreement. Lessee's rights hereunder are not assignable without the express written consent of Lessor, which consent shall not be unreasonably withheld. Notwithstanding the above, Lessor agrees that Lessor's consent shall not be required if Lessee assigns its rights hereunder to MVP Capital Corp., Valdez Gold Inc., or Valdez Gold USA, Inc.

19. SURRENDER OF PROPERTY. In the event of a valid forfeiture, cancellation or other termination or expiration of this Agreement, the Lessee shall do whatever is necessary to meet EPA and ADEQ requirements, relating solely to Lessee's operations on the Mineral Property during the term of this Agreement, and peaceably surrender possession of the Mineral Property to the Lessor immediately. Upon surrender of the Mineral Property, all obligations whatsoever of the Lessee hereunder which have not accrued shall cease as of said termination date, except that Lessee's obligation to comply with EPA and ADEQ requirements, relating solely to Lessee's operations on the Mineral Property during the term of this Agreement, shall not terminate until such EPA and ADEQ requirements are satisfied.

20. REMOVAL OF EQUIPMENT BY LESSEE. The Lessee shall have ninety (90) days after a valid forfeiture, surrender or other termination of this Agreement, to remove from the Mineral Property all warehouse stocks, merchandise, materials, tools, hoists, compressors, engines, motors, pumps, transformers, electrical accessories, metal or wooden tanks, pipes and connections, mine cars and any and all other machinery, trade fixtures and equipment, erected or placed in or upon the Mineral Property by Lessee or owned by Lessee, except rails and mine timbers in place at the commencement of this Agreement. If this Agreement is terminated by Lessee on or before February 28, 1995, then all improvements and equipment located on the Mineral Property on the commencement date of this Agreement shall remain on the Mineral Property upon a valid forfeiture, surrender or other termination of this Agreement. All improvements and equipment owned by Lessee and placed on the Mineral Property by Lessee may not be removed by Lessee upon a valid forfeiture, surrender or other termination of this Agreement until Lessee's obligation to comply with, including payments and performance, EPA and ADEQ requirements relating solely to Lessee's operations on the Mineral Property during the term of this Agreement has been satisfied.

21. NOTICES. All notices required or permitted under this Agreement shall be in writing and, (a) if by air courier, shall be deemed to have been given one Business Day after the date deposited with a recognized carrier of overnight mail, with all freight or other charges

prepaid, (b) if by telegram, shall be deemed to have been given one Business Day after delivered to the wire service, (c) if by telex, provided an answerback is received, shall be deemed to have been given when sent, (d) if mailed, shall be deemed to have been given three Business Days after the date when sent by registered or certified mail, postage prepaid, and (e) if sent by telecopier, shall be deemed to have been given when sent, addressed as follows:

To Lessor:           Tombstone Development Company  
                          P.O. Box 1445  
                          Grand Island, Nebraska 68802  
                          Telecopier: (308) 382-7482

To Lessee:            Excallon Resources USA, Inc.  
                          20 Adelaide Street East  
                          Suite 200, Box 55  
                          Toronto, Ontario M5C 2T6  
                          Telecopier: (416) 867-1109

"Business Day" shall mean a day other than the days that banking institutions are required or permitted to be closed under the laws of the State of Arizona.

22. GOVERNING LAW. This Agreement shall be governed and construed in accordance with the laws of the State of Arizona without giving effect to any principles of conflicts of laws.

23. INUREMENT. The terms, provisions, covenants and agreements herein contained shall extend to and be binding upon and inure to the benefit of the heirs, personal representatives, successors and assigns of the parties hereto.

24. INTEGRATION. This Agreement and the Exhibits hereto set forth the entire agreement and understanding of the parties in respect of the transactions contemplated hereby and supersede all prior agreements, prior arrangements and prior understandings relating to the subject matter hereof.

25. WAIVER OR MODIFICATION. This Agreement may be amended, modified, superseded or cancelled, and any of the terms, covenants, representations, warranties or conditions hereof may be waived or modified, only by a written instrument executed by a duly authorized officer of Lessor and Lessee, or, in the case of a waiver or consent, by or on behalf of the party or parties waiving compliance or giving such consent. The failure of any party at any time or times to require performance of any provision hereof shall in no manner affect its right at a later time to enforce the same. No waiver by any party of any condition,

or of any breach of any covenant, agreement, representation or warranty contained in this Agreement, in any one or more instances, shall be deemed to be or construed as a further or continuing waiver of any such condition or breach or waiver of any other condition or of any breach of any other covenant, agreement, representation or warranty.

26. HEADINGS. The Section headings contained in this Agreement are for convenient reference only and shall not in any way affect the meaning or interpretation of this Agreement.

27. INVALID PROVISIONS. If any provision of this Agreement is held to be illegal, invalid or unenforceable under present or future laws effective during the term hereof, such provision shall be fully severable; this Agreement shall be construed and enforced as if such illegal, invalid or unenforceable provision had never comprised a part hereof; and the remaining provisions of this Agreement shall remain in full force and effect and shall not be affected by the illegal, invalid or unenforceable provision or by its severance from this Agreement.

28. MULTIPLE COUNTERPARTS. This Agreement may be executed in a number of identical counterparts, each of which for all purposes is to be deemed as original, and all of which constitute, collectively, one agreement; but in making proof of this Agreement, it shall not be necessary to produce or account for more than one such counterpart.

29. ENVIRONMENTAL COMPLIANCE. Nothing in this Agreement shall be construed to obligate Lessee to comply with or be liable for EPA, ADEQ, or other governmental regulations relating to the Mineral Property, other than EPA, ADEQ or other governmental regulations relating solely to Lessee's operations on the Mineral Property during the term of this Agreement. If the EPA, ADEQ or other regulatory agency should interfere with Lessee's operations on the Mineral Property due to pre-existing conditions not caused by Lessee, Lessee shall have the right, but not the obligation, at Lessee's expense, to mitigate such pre-existing environmental or other condition.

30. Attorneys Fees. Notwithstanding any other provision of this Agreement, in any action or proceeding arising out of or in connection with any of the terms or covenants in this Agreement, the prevailing party shall be awarded, in addition to equitable relief and/or damages or other relief, all reasonable costs of attorneys' fees incurred. This paragraph shall be severable from all other provisions of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement, in person or by duly authorized officers, as of the day and year first written above.

LESSOR:

TOMBSTONE DEVELOPMENT COMPANY

By: \_\_\_\_\_  
President

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

SS.

SS.

The foregoing instrument was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 1992, by \_\_\_\_\_ for Tombstone Development Company.

\_\_\_\_\_  
NOTARY PUBLIC

(seal)

My Commission Expires: \_\_\_\_\_

LESSEE:

EXCELLON RESOURCES USA, INC.

By: \_\_\_\_\_  
President

STATE OF \_\_\_\_\_ §  
  §     ss.  
COUNTY OF \_\_\_\_\_ §

The foregoing instrument was acknowledged before me this \_\_\_ day of \_\_\_\_\_, 1992, by \_\_\_\_\_, \_\_\_\_\_ for Excellon Resources USA, Inc.

\_\_\_\_\_  
NOTARY PUBLIC

(seal)

My Commission Expires: \_\_\_\_\_  
~~CONSENT OF COWICHAN RESOURCES, INC.~~

~~Cowichan Resources, Inc. represents that it is the successor in interest to PBR Minerals, Inc., hereby consents to the terms of the attached Lease Agreement and agrees that the Lease Agreement dated January 1, 1988 by and among Tombstone Development Company, Harbor Financial, Inc., and PBR Minerals, Inc. shall be terminated as of the effective date of the attached Lease Agreement.~~

~~COWICHAN RESOURCES, INC.~~

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

~~CONSENT OF HARBOR FINANCE AND HARBOR FINANCIAL, INC.~~

~~Harbor Finance and Harbor Financial, Inc. hereby consent to the terms of the attached Lease Agreement and agree that the Lease Agreement dated January 1, 1988 by and among Tombstone Development Company, Harbor Financial, Inc., and PBR Minerals, Inc. shall be terminated as of the effective date of the attached Lease Agreement.~~

~~HARBOR FINANCE HARBOR FINANCIAL, INC.~~

By: \_\_\_\_\_ By: \_\_\_\_\_  
Name: \_\_\_\_\_ Name: \_\_\_\_\_  
Title: \_\_\_\_\_ Title: \_\_\_\_\_

## EXHIBIT A

Patented claims located in Sections 11, 12, 13, and 14, Township 20 South, Range 22 East, Gila and Salt River Base and Meridian, Cochise County, Arizona.

<u>Claim Name</u>	<u>Patent No.</u>	
Houghton	3228	
Cincinatti	254	
New Year	213	
Cornell	3228	
Michigan	3228	
Illinois	3228	
Grand Central	143	
Contention	120	
Naumkeg	148	
Flora Morrison	258	
S. Ext. Grand Central	144	
Contentment	252	
Buffalo	3228	
Southern Belle	3228	
Tanquility	L# 49	> wrong Gen 155
Cocopah	L# 82	> wrong Gen 260
Silver Thread	L# 790	
Content	L# 69	- wrong Gen 253
North Point	808	
Empire	L# 46	- wrong Gen 152
Head Center	3213	> one claim
Yellow Jacket	3213	
Silver Belt	793	- AM
Protection	3230	
Moonlight	751	
Fortuna	3214	
Sydney	475	
Sulphuret	L# 48	- wrong Gen 156
Mayflower	798	wrong 1012-AM
Ninety-Nine	3225	
Last Chance #2	809	
Boss	800	
Grand Dipper	540	
Telephone	927	

Resurveyed under  
1012-AM

L# = Lot No.

## Unpatented claims located in Cochise County, Arizona

	<u>Claim Name</u>	<u>Docket</u>	<u>Page</u>	<u>AMC#</u>	<u>Section</u>	<u>Tnship</u>	<u>Range</u>
E	TDC #26	1489	49 & 50	125079	12 & 13	20 S	2 0
E	TDC #27	1489	51 & 52	125080	13	20 S	2 0
E	TDC #28	1489	53 & 54	125081	13	20 S	2 0
E	TDC #29	1489	55 & 56	125082	13	20 S	2 0
E	TDC #30	1489	57 & 58	125083	13 & 14	20 S	2 0

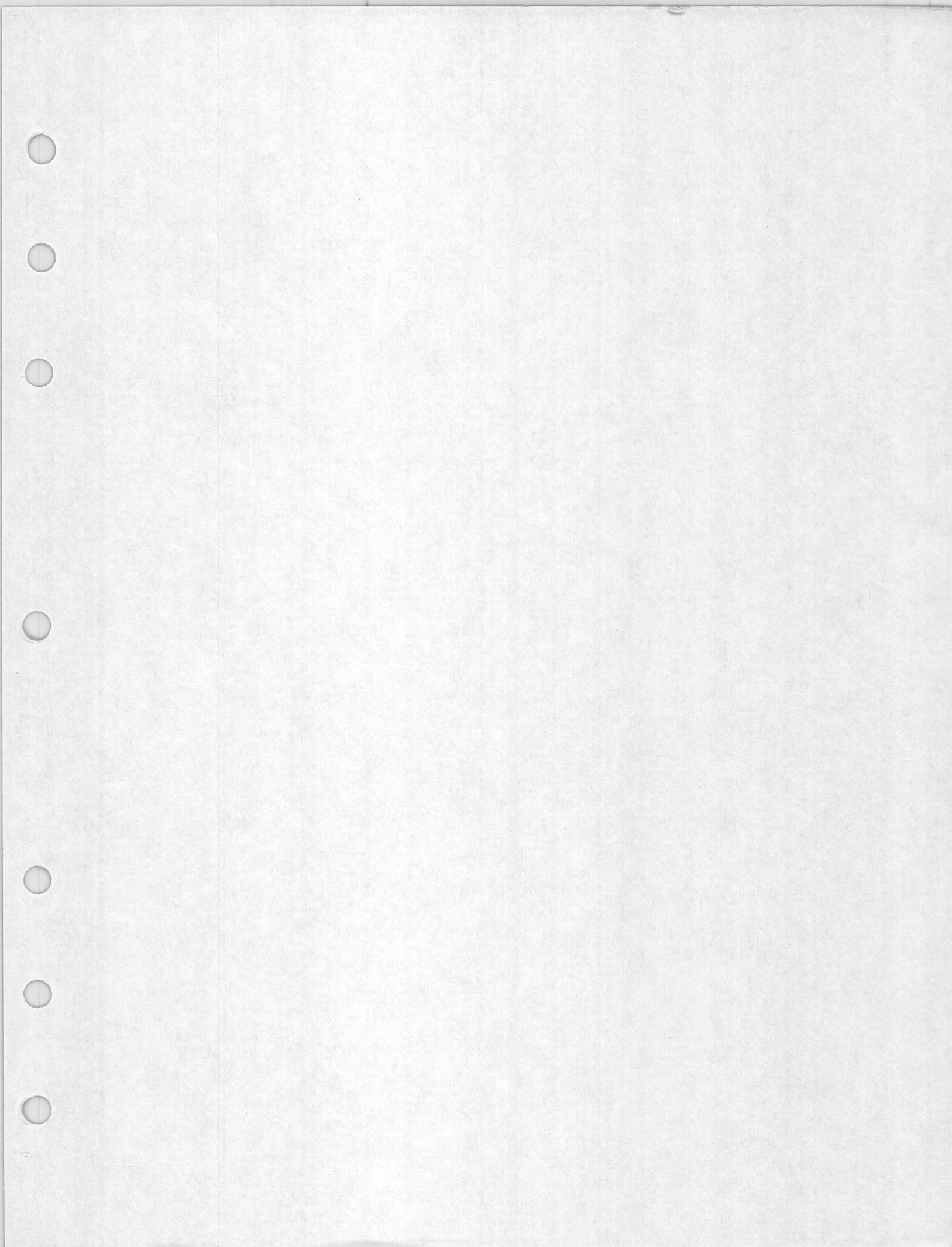


## EXHIBIT B

NET SMELTER RETURN

Net Smelter Return shall mean actual proceeds received from any mint, smelter or other purchaser for the sales of ores, metals or concentrates produced from the mining claims and sold after deducting from such proceeds the following charges to the extent that they were not deducted by the purchaser in computing payment: smelting and refining charges; penalties; cost of transportation of ores, metals or concentrates from the mining claims to any mint, smelter or other purchaser; marketing costs; insurance of such ores, metals or concentrates; and any export or import tax on said ores, metals or concentrates levied in the United States or by the country into which such ores, metals or concentrates are imported, if such charges or costs are not deducted from the proceeds received.

GAR\28401\1001  
02221229\_E 02221229\_F





# ARIZONA STATE PARKS

800 W. WASHINGTON  
SUITE 415  
PHOENIX, ARIZONA 85007  
TELEPHONE 602-542-4174

FIFE SYMINGTON  
GOVERNOR

## STATE PARKS BOARD MEMBERS

RONALD PIES  
CHAIR  
TEMPE

DEAN M. FLAKE  
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STATE LAND COMMISSIONER

KENNETH E. TRAVOUS  
EXECUTIVE DIRECTOR

COURTLAND NELSON  
DEPUTY DIRECTOR

Tombstone Courthouse  
State Historic Park  
P.O. Box 216  
Tombstone, Arizona 85638

Mr. Thomas E. Waldrip, Jr.  
Executive Vice President  
JABA Inc.  
2100 N. Wilmot Rd. #218  
Tucson, Arizona 85712

August 10, 1992

Dear Mr. Waldrip;

I hope the slides we provided for your copy work proved adequate. I spoke to my supervisor, Mr. Hollis Cook, about your proposal of giving us copy maps that we do not presently have in our collection. We are very interested in this prospect, however we will need to examine the maps first before deciding on inclusion. The computer program of the Tombstone mining district is also of interest to us. We would really like to see the finished work. It is likely that such a program, if obtainable, would greatly enhance our mining exhibit.

Sincerely,

Art Austin  
Ass't Park Manager

AA/dle



M E M O

TO: James A. Briscoe  
FROM: Thomas E. Waldrip, Jr.  
DATE: July 27, 1992

RE: Tombstone Mining District data copying, Arizona Department of Mineral Resources,  
Phoenix Arizona, analysis of acquiring maps and making copies

Jim,

Pursuant to my trip to Phoenix to review the Arizona Department of Mineral Resources data files on the Tombstone area, on July 14, please find following my appraisal of what I found, my proposed and desired method of reproducing maps, and an estimated time frame to accomplish the work.

Some general observations are in order first. We have generally exhausted most of our in-house sources of maps from which reliable data can be generated. The ADMR has a map collection dating to the turn of the century of approximately 150 maps, most of which are oversized linens (>36" wide) and colored, covering most, if not all, the major mines in the Tombstone District. Many of the ADMR maps are not duplicated in our collection, and vice versa, nor are the maps at the Tombstone Courthouse duplicated in either collection (a visit being made there on July 17, 1992). However, the maps in the Tombstone Courthouse are very general, poor shape, not flat, and probably not worth the effort in acquiring copies when compared to the ADMR collection. Additionally, the Arizona State Park people in charge at Tombstone are on a big preservation kick and I seriously doubt we could get access to the original maps, anyway, even if we wanted. I have, therefore, made a decision to get copies of slides which have been made of many of the maps (approximately 50) for reference purposes.

The ADMR collection is by far the most valuable, as far as I am concerned, and I would like to direct my efforts in trying to acquire copies of their file maps. These maps go a long way in completing our current drafting project on underground workings, stoped areas, and geology in the Tombstone District. However, there are problems. First and foremost is an organization problem, both at the ADMR (many maps are unlabeled and separated), and secondly, of me just trying to keep straight information contained on various maps. Many of the maps are unique and quite easy to separate out. But, on the other hand, a number of maps contain repetitive information, but have unique data associated with each map. In order to glean the existence of such data, it is important to carefully examine each map in detail and compare it with similar maps we currently have in-house to winnow out repetitive information. This would mean a complete set of maps would need to be taken to Phoenix and reviewed in the office at the ADMR, an overwhelming task at best, should we not be able to bring them here to Tucson.

For reference purposes, many of the maps at the ADMR are colored. If we get reproductions made in Phoenix, we will have to wait for the reproduction process and then make color annotation at the ADMR, upon return of the maps to their office from the blueprint firms. Both processes are time consuming and expensive for our client, in light of additional food and lodging expenses for a prolonged stay in Phoenix.

The quality of a number of maps is highly questionable. Some maps probably will not survive a

pass through any type of reproduction process, without first either major repair or laminating.

In general, three types of information is present in the ADMR files: (i) information and maps 11" x 17" or less in size; (ii) maps of less than 36" in width; and (iii) oversized maps greater than 36" in width. The information in (i) above, generally cannot be removed from the ADMR office, but copies can be made there for a nominal charge. The other maps can possibly be removed for outside reproduction.

My proposal is, if acceptable by Leroy Kissinger and Ken Philips, that we be allowed to:

1. Remove oversized maps (approximately 20-30 maps at a time from the ADMR Phoenix office to be returned to Tucson and JABA's offices by company personnel and vehicle.
  - a) An inventory list of maps will be handwritten and checked by ADMR personnel on removal and return of the maps by JABA.
  - b) Maps will be removed for approximately one week from the Phoenix office - if additional time is needed, ADMR staff will be contacted by JABA.
  - c) Labels and explanations will be made for each map requiring such and affixed to the maps in whatever area desired by ADMR staff for filing purposes.
  - d) Paper copies of maps 24" or less in size will be laminated if desired by ADMR staff to both protect and preserve the maps in as much a natural state as possible. Repairs will be made as necessary and possible. Larger maps may be laminated depending on desires of ADMR staff and JABA's capabilities vs. possible problems associated with the maps.
  - e) Maps of 36" or less in width will be xeroxed in-house on an engineering Xerox copier.
  - f) Maps of 36" or more in width will be reproduced by appropriate means by Tucson Blueprint, Tucson, Arizona, a bonded reproduction house.
  - g) Maps will remain in rolls pursuant to the way they were removed from ADMR files in Phoenix.
  - h) Maps will be returned to Phoenix, and additional groups picked up.
2. In-house work
  - a) Label maps
  - b) Laminate maps
  - c) Reproduce maps
  - d) Color maps (reproduced copies)
  - e) Re-roll maps
  - f) Return maps to Phoenix with inventory list

Assuming we are successful in acquiring the use of the maps as proposed, we should be able to cut down on expenses for overnight food and lodging stays in Phoenix. Additionally, I feel we have

the ability to cut down on copying fees by use of our equipment and cutting down on copies of duplicate information which is not always possible because of time restraints in Phoenix. Likewise, hopefully we can cut down on labor costs by using a lessor paid person to color necessary maps that have been reproduced, instead of by myself in Phoenix. Although it will require several trips to Phoenix by myself, I can use that time to review and copy maps and reports in letter-sized files, as well as picking up/returning another batch of maps. I estimate the total cost for this process, including transportation, 5 to 6 trips, labor, reproduction, coloring, etc. to be in the \$5,000 range. Although this appears rather high, it calculates out to approximately \$50/map acquired. I feel this is very economical compared with the cost of reacquiring the data contained on the maps. As previously pointed out on my last trip, for which all costs came to less than \$500, I made copies of 11 maps, which had in excess of 4,800 elemental assays and sample points for gold and silver, which amounts to approximately \$.10 per assay. Should we proceed with my envisioned project and costs, each elemental assay would cost only approximately \$1.00 just for information contained on these maps alone. The rest of the information on other maps would be free on a costing out basis. I would say that that was relatively cost-effective information. Of even more importance is the fact that should this type of data be recollected and re-assayed, I doubt that you could repeat the results for anything less than \$15/sample or  $\$15 \times 2,400 = \$36,000$ ; \$20/sample is probably realistic, or \$48,000. Therefore, we would be acquiring all the information on the maps for something like 1/10th the cost of just repeating what information is contained on these 11 maps.

Timing is a dependent variable in relationship to available funds in which to perform the project. Knowing that funding is curtailed presently until early fall, possibly earlier, this schedule conflicts with other business activities needed to be accomplished at that time by myself. Needless to say, it would be best to start work on this ADMR copying work now, which I would like to do as my schedule now permits this. Otherwise, because of timing and deadlines in the fall, it will necessitate making this work 2nd in priority. Therefore, a smooth transition of copy work to drafting might not occur if we should wait to start copying the ADMR data at that time. I believe it will take between 3 and 4 man weeks of my time to complete this task, which could easily be performed during the month of August, fitting into my schedule well, now. I am, therefore, in favor of continuing this work immediately, but will defer to your decision as to when it is started.

Tom

TEW/ms 

702-635-50001 EX 144

Scotch Photo —  
Sunset Photo.

E.

327-6009 - 8-5

1502 W. Washington

162

171 - convention

929

F - File

P - publication.

M = MAT

5:00.

Tony Russell Benson  
Arizona



Sales of Ag & Au 1983

1980 942. k

1981 2.220K

1982 4.472 k

1983 9 months 7,289 k

6 mm ton.

1.5 mm ton ore

pit 2000 x 1,200

FILES TOMBSTONE

Mountain View Sect. 4

\* Goodenough Mine 11  
Contention 11

FLORA MORRISON

GRANITE

Head Center

Pump Shaft

Tranquility

Yellow Jacket

Herschel Mine 11

Ingersol Mine 11

Intervener Mine 11

Old Guard 11

Virginia Mine 11

West Side Mine 11

212 Tombstone Ext Mines 103

190 Lucky Cuss Mine

198 Prompter

166 Bunker Hill

210 Sunset

165 Bonanza Mine

208

State of Maine Mine

167

Chance

CARD MICROFORM - OF mines  
Bunkerhill Mines  
CONTENTION

EMPIRE

GRAND CENTRAL

INGER SOL

Lucky Cuss

NORTHWEST

old Guard.

Oregon - Prompter.

Pump shaft.

St. Anthony Mining & Dev. Co.

Silver Thread & Empire

Sulfuret & Pump Shafts

TDC. EMERALD PROPERTY

TOMBSTONE DIST.

Tomestone Ext. Mine

Tranquility - Silver Thread.

VIZENA

West side

U.S. Bureau of Mines  
Intermountain Field Operations  
Center

Building 20, Federal Center  
Denver Colorado 80225

above maps microfilmed  
to send to above



WORK ORDER TO

Bill NEWCOMB

FAX # 256-0620

Received

2545 North 7th Street  
Phoenix, Arizona 85006  
(602) 257-0686

209 West Main  
Mesa, Arizona 85201  
844-9031

A.M.  P.M.

Date \_\_\_\_\_

Ordered by \_\_\_\_\_

Job#/PO# \_\_\_\_\_

Written by \_\_\_\_\_

WAIT  WILL CALL

DELIVER

SPLIT DELIVERY

CALL WHEN READY

**BILL TO:**

Name \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_

C.O.D.  CHG.



**DUE:**

: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
TIME DATE

No. of Originals	Description Sheet Name/#/or Job Description	Kind of Prints	Qty. Prints Ea.	Reference Type of Prints
				<b>DIAZO</b> Blueline Blackline Brownline Pres Bikline Paper Sepia Sepia Mylar Slick Redline Blue on Pink Technisheen Colored Acetate  <b>XEROX</b> Bond Vellum
				<b>PHOTO</b> PMT Negative Clear Film Photo Mylar Wash Off Velox—KP5 Half Tones
				Overlay *Composite (See Other Side)

**SPECIAL INSTRUCTIONS:**

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**QUALITY OF PRINTS**

- No Background
- Light Background
- Medium Background (Normal)
- Right Reading
- Reverse Reading

**BINDING**

- Loose
- Staple
- Edge Binding
- Full Bind

PRINTS TO:

ORIGINALS TO:

COMPOSITE





WORK ORDER TO

FAX # 256-0620

Received

2545 North 7th Street  
Phoenix, Arizona 85006  
**(602) 257-0686**

209 West Main  
Mesa, Arizona 85201  
**844-9031**

A.M.  P.M.

Date \_\_\_\_\_

Ordered by \_\_\_\_\_

Job#/PO# \_\_\_\_\_

Written by \_\_\_\_\_

WAIT  WILL CALL

DELIVER

SPLIT DELIVERY

CALL WHEN READY

**BILL TO:**

Name \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_

C.O.D.  CHG.



**DUE:**

: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
TIME DATE

No. of Originals	Description Sheet Name/#/or Job Description	Kind of Prints	Qty. Prints Ea.	Reference Type of Prints
				<b>DIAZO</b> Blueline Blackline Brownline Pres Bikline Paper Sepia Sepia Mylar Slick Redline Blue on Pink Technisheen Colored Acetate  <b>XEROX</b> Bond Vellum
				<b>PHOTO</b> PMT Negative Clear Film Photo Mylar Wash Off Velox—KP5 Half Tones  Overlay *Composite (See Other Side)

**SPECIAL INSTRUCTIONS:**

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**QUALITY OF PRINTS**

- No Background
- Light Background
- Medium Background (Normal)
- Right Reading
- Reverse Reading

**BINDING**

- Loose
- Staple
- Edge Binding
- Full Bind

PRINTS TO:

ORIGINALS TO:

COMPOSITE





# Mineral Resource

## BUDGET NEWS

The Arizona State Legislature finally passed, and the Governor signed, a State budget for the fiscal year 1992-1993. The Arizona Department of Mines and Mineral Resources is included in that budget and will continue to operate, aiding the development of the State's mineral resources.

As a result of budget constraints the Legislature has directed the ADMMR to eliminate the mining engineer position that was vacated May 1, 1992 with the retirement of Dick Beard.

## TUCSON OFFICE CLOSSES

After deliberation, the Department's Board of Governors made the difficult decision to close the ADMMR office in Tucson. This does not mean the end of service for those people in southern Arizona engaged in the development of mineral resources. The following alternatives are suggested when it is inconvenient to visit the Department's Phoenix office.

1. Call ADMMR at 1-800-446-4259 from anywhere in Arizona.
2. Review file data and library references by phone. A limited number of pages can be sent by facsimile or express mail service. Obtaining complete file data is available through contract copy services. Ask for details. This is a service often used by our constituency throughout North America.
3. Use other libraries. Most published reference material is available in Tucson at the Arizona Geological Survey, the University of Arizona Library, the U.S. Bureau of Mines, and the U.S. Geological Survey.
4. Schedule a field visit. Within the limits of our small travel budget it may be possible to meet with a staff member for major projects.

We encourage you, when possible, to visit our offices at 1502 West Washington in Phoenix. You will find reference material, mine and prospect files, and other mining related information readily available.

## IN MEMORIAM

Arthur William Bloyd, Curator Emeritus of the Arizona Mining and Mineral Museum passed away on June 24, 1992. Art was instrumental in reorganizing the museum after it was reacquired by the Department in 1974. Art, known for his consummate knowledge of minerals and enthusiasm for the Museum, was curator from 1974 to 1989 when he retired with a medical disability. He will be missed by all whose lives he touched, especially Arizona's rockhounds and mineral collectors, his friends, and those who worked with him.

### *Mine Trivia:*

Can you name Arizona's newest open-pit copper mine?

## FEDERAL MINING LAW REPEAL

Enclosed with this newsletter is a memorandum from the American Mining Congress entitled House Interior Committee Approves Mining Law Repeal Legislation.

## DONATIONS REQUESTED

After operating in our new facility for a year, a number of needs have become evident. In view of the fiscal restraints on the State we are asking for surplus items from our friends in industry.

### **Equipment needs:**

Binding machine  
Map storage cabinets - flat  
Book shelves (12" X 36" X 84" preferred)  
PC computer equipment  
Letter-size file cabinets

### **Library needs:**

*Economic Geology*, January 1986 through the present  
*Geologic Society of America Bulletins, Memoirs*, etc on Arizona  
*Industrial Minerals Magazine*, Issue #1 - #255  
*Mining and Scientific Press*  
Post-1975 mining, mineral processing, geologic, and geophysics reference and textbooks

REMEMBER, WE ALWAYS WANT REPORTS AND DATA ON ARIZONA MINING AND MINERAL EXPLORATION. Please keep the Department in mind when planning the dispersal or disposal of such information.

## RECENT PUBLICATIONS

### **OFR92-10** *Copper Oxide Resources*

Listing of a thousand mines and prospects in Arizona that contain copper oxide mineralization. Location maps accompany the data. In press.

### **OFR92-9** *Status of Industrial Mineral Consumed in Arizona and California*

The current status of industrial minerals consumption data in various industries in Arizona and Southern California is detailed in this open-file report. This open file report is frequently updated during the year. In press.

### **SR17** *The Primary Copper Industry of Arizona, 1990.*

The report covers production, stripping ratios, ore grades, mill recoveries, reserves, employment and wages, and other statistics pertaining to Arizona's copper industry. A brief review of each producer's facilities and activities provides information on industry acquisitions and restructuring.

### **D39** *Active Mines in Arizona, 1992.*

Fifty-seven companies, operating 100 mines, are listed in this year's directory. In addition, 114 sand and gravel operations are listed. The directory lists operating company name, corporate address and phone numbers, key personnel, mine, mill, or smelter location, and a description of the operation. The directory includes a 1:1,000,000 scale map.

### **MR7** *Gold Panning in Arizona*

This mineral report addresses recreational gold panning and placer gold locations in Arizona. It is both a useful reference work and a handy gift for friends.

## MINE TRIVIA ANSWER:

*Magma Copper Company's San Manuel Mine. Development of the open-pit, located within the subsidence zone of the underground mine, began in 1985.*

## ASPED

Included with this newsletter is a general policy statement for the Mining and Minerals Cluster of the Arizona Strategic Plan for Economic Development (ASPED). ASPED has been recently renamed the Governor's Strategic Partnership for Economic Development, to be known as GSPED.

## MINING ACTIVITY

- Georgia Marble Company has acquired Andrada Marble Company and is constructing a new plant at the quarry site to produce crushed and ground calcium carbonate.
- Cambior USA Inc. plans to develop Carlota, a new open-pit copper oxide mine and SX-EW facility. The mine will consist of 4 deposits; Carlota, Eder North and South, and Cactus. Reserves totaling about 76 million tons of .5% copper were announced, with drilling nearing completion.
- Southwest Color Supply is nearing completion of a natural red iron oxide mining and milling project to produce red paint pigment. The mine is located in Yavapai County and the mill is located in an industrial park in Phoenix.
- Mining scams, always detrimental to the mineral resources industries, seem to come in waves. Current subjects involve unassayable ores together with secretive extraction processes and "gold loans" wherein an unsophisticated investor is encouraged to hold bullion as collateral for a loan. The "gold loans" are being promoted and arranged by telemarketing methods.
- Cyprus Copper Company has new corporate offices in Arizona at 1501 W. Fountainhead Parkway, Tempe, AZ 85282, phone (602) 929-4400.
- Clay is one of the very few mineral commodities to experience a large annual growth rate in consumption. Uses that prompts this growth include leachate containment for ponds, waste dumps, and landfills.

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Our small staff and limited budget do not allow us to release newsletters on a regular basis, but we hope to be able to use this media as one more method to disseminate information on Arizona mining and minerals. In these times of expanding demands for mineral resources, communication becomes increasingly important for the industry and for the general public. If you know someone who would like to be added to our mailing list, please let us know.



# Department of Mines and Mineral Resources

1502 West Washington  
Phoenix, Arizona 85007  
(602) 255-3791 Toll Free in Arizona - 1-800-446-4259

*Pick-up marked item  
5th page*

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## LIST OF AVAILABLE PUBLICATIONS

April, 1992

### ORDERING INSTRUCTIONS

Payment is required on all orders. Make checks payable to the Dept. of Mines & Mineral Resources.

### POSTAGE and HANDLING

Orders are shipped "Special Fourth Class - Book Rate." Postage and handling charges are listed below.

If your total order is:

\$0.50 - \$5.00, add \$1.50

\$5.01 - \$10.00, add \$2.00

\$10.01 - \$20.00, add \$2.50

\$20.02 - \$30.00, add \$3.00

30.01 - 40.00, add 3.50

40.01 - 50.00, add 4.00

(If order is above \$50.01 please contact the Department.)

Photocopies of out-of-print publications are available for \$.15 per page.

NOTE: When ordering 3 or more free circulars, please enclose \$1.00 to help defray costs.

### DIRECTORIES

**D32 ARIZONA MINING CONSULTANTS**, by N.J. Niemuth, 1988. A listing of registered consultants for the following mining related disciplines: assayers, geologists, geological engineers, geophysical engineers, metallurgical engineers and mining engineers. Approved U.S. Mineral Surveyors are also included. 30 p. \$1.50

**D35 EXPLORATION OFFICES - 1988**, by N.J. Niemuth. A listing of 67 companies that either have exploration offices in Arizona or have exploration interest/activity in Arizona but with regional offices elsewhere. The commodity interest for each company is included. 18 p. \$2.00

**D39 DIRECTORY OF ACTIVE MINES IN ARIZONA - 1992**, The listings are alphabetical, giving company name, address, key personnel, mine name and location. A separate listing of sand and gravel operations is provided. Includes 1:1,000,000 map showing the locations of the active mines and mine offices. 20 p. \$4.00

### SPECIAL REPORTS

**SR1 URANIUM PROSPECTOR'S GUIDE**, by K.A. Phillips & M.N. Greeley, 1979. A guide for the independent prospector searching for occurrences of uranium. Chapters on mineralogy and geology of uranium and prospecting methods. 34 p. \$2.00

**SR11 MANUAL FOR DETERMINATION OF STATUS AND OWNERSHIP, ARIZONA MINERAL AND WATER RIGHTS**, by J.C. Lacy, 1986. A detailed explanation of land, mineral rights and water rights ownership status. Includes annotated samples of status maps and indexes. 50 p. \$3.00

**SR12 LAWS AND REGULATIONS GOVERNING MINERAL RIGHTS IN ARIZONA**, by V.H. Verity and L.D. Clark. 9th Edition, reprinted 1988. A lay language interpretation of federal and state laws applicable to mineral rights within Arizona. Includes discussions and forms for locating (staking) and maintaining claims on both public domain and State owned lands. 91 p. \$5.00

**SR17 THE PRIMARY COPPER INDUSTRY OF ARIZONA, 1990**, by R.R. Beard. Summarizes activity in Arizona's copper industry during 1990. Contains detailed statistics on the copper industry, including production by mine, and a reserve table providing grade and tonnage for over 60 deposits. 69 p. \$8.00

## MINERAL REPORTS

**MR3 MOLYBDENUM OCCURRENCES IN ARIZONA**, by C.J. Hicks, 1979. Occurrences are listed by county with a brief description of each. The mineralogy, geology, uses and history of molybdenum are provided. 37 p. \$6.00

**MR4 ARIZONA INDUSTRIAL MINERALS**, by K.A. Phillips. 1987, Covers 1400 known Arizona industrial mineral occurrences. The commodities included are mica, silica-quartz, specialty sand, pumice, limestone, salt, dolomite, clay, zeolites, fluor spar, feldspar, wollastonite, strontium, and others. Includes location tables and maps. 185 p. \$12.00

**MR5 GEMSTONE PRODUCTION IN ARIZONA**, by K.A. Phillips, 1988. Text of a presentation for the American Institute of Mining, Metallurgical & Petroleum Engineers. 6 p. \$2.00

**MR6 BERYL - A UNIQUE OPPORTUNITY FOR THE PROSPECTOR AND SMALL MINE OPERATOR**, by K.A. Phillips, 1986. Describes the mineral beryl, prospecting techniques, and its amenability to production by small mine operators. 7 p. \$2.00

**MR7 GOLD PANNING IN ARIZONA**, by D. Bain, 1990. Includes the origin of placer gold in Arizona, prospecting tips, panning instructions, and maps to panning locations. 30 p. \$3.00

## MINE OCCURRENCE SERIES

The data in the Mine Occurrence Series was compiled from a study done in cooperation with the U S Bureau of Mines. The data is updated on a continuous basis by the Department in a series of county databases known as Arizona Mineral Industry Location System (AzMILS). All items may be ordered in paper or PC compatible disk form. Computer data is in Dbase file format, but can be requested in ASCII. Please indicate disk size and density when ordering.

**County AzMILS Indices** contain 3 parts: an alphabetic listing of primary and alternate names, a geographic listing by legal description, and an AzMILS numerical sort. Each listing includes the following information; mine name, alternate mine name(s), AzMILS number, and location by legal description (township, range, section, quarter section).

**County AzMILS Databases** include primary mine name, alternate name(s), commodity(s), topographic quadrangle name, latitude, longitude, township, range, section, quarter section, and references.

Number	County	Index Paper	Index Disc	Database Paper	Database Disc
MO-1	Apache	\$25.00	\$12.00	\$40.00	\$20.00
MO-2	Cochise	29.00	15.00	60.00	30.00
MO-3	Coconino	28.00	14.00	55.00	27.50
MO-4	Gila	30.00	25.00	65.00	32.50
MO-5	Graham	25.00	12.00	45.00	22.50
MO-6	Greenlee	25.00	12.00	35.00	15.00
MO-7	La Paz	25.00	15.00	45.00	22.50
MO-8	Maricopa	30.00	15.00	75.00	37.50
MO-9	Mohave	40.00	30.00	105.00	52.50
MO-10	Navajo	25.00	12.00	35.00	15.00
MO-11	Pima	35.00	25.00	80.00	40.00
MO-12	Pinal	35.00	25.00	80.00	40.00
MO-13	Santa Cruz	30.00	12.00	50.00	25.00
MO-14	Yavapai	50.00	30.00	125.00	75.00
MO-15	Yuma	25.00	12.00	30.00	15.00

**Commodity Databases** include the same information as the County Databases, but are for specific commodities and cover the entire State.

Commodity	Database Paper	Database Disc
MO-16 Gold	\$300.00	\$155.00
MO-17 Silver	250.00	135.00
MO-18 Copper	250.00	135.00

**Special Sorts** are available, sorted on any field or combination of fields. Price: \$25.00 plus 15 cents per occurrence.

### Program System

A menu driven collection of 19 programs simplifies searching, sorting, viewing and printing information from the databases. The programs are compiled run time versions that do not require Dbase or any other software to use. \$100.00

**County AzMils Maps.** Arizona mine occurrences plotted on Arizona Department of Transportation base maps (scale 1" = 2 miles) by AzMils number. Order by county and map number from the index map.

Blackline copy, \$2.00 per sheet.



## **OPEN-FILE REPORTS**

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**OFR89-1 INDUSTRIAL MINERALS IN ARIZONA'S PAINT INDUSTRY**, by K.A. Phillips, 1989. Addresses a potential market for development of industrial mineral deposits in Arizona. The State's paint manufacturing industry is described emphasizing the wide variety of industrial minerals consumed, their specifications and the quantities used. 13 p. \$2.50

**OFR89-2 INDUSTRIAL MINERALS IN ARIZONA'S WALLBOARD JOINT CEMENT INDUSTRY**, by K. A. Phillips, 1989. Addresses a potential market for development of industrial mineral deposits in Arizona. The State's wallboard joint cement manufacturing industry is described emphasizing the specifications and quantities of industrial minerals consumed. 9 p. \$2.50

**OFR89-3 INDUSTRIAL MINERALS IN SOUTHERN CALIFORNIA'S WALLBOARD JOINT CEMENT INDUSTRY (A Potential for Mineral Development in Arizona)** by K.A. Phillips, 1989. Addresses a potential market for development of industrial mineral deposits in Arizona. The region's wallboard joint cement manufacturing industry is described emphasizing the specifications and quantities of industrial minerals consumed. 12 p. \$2.50

**OFR90-5 PUBLICATIONS OF THE DEPARTMENT OF MINES AND MINERAL RESOURCES FROM 1939 TO 1990**, by D. Bain, 1990. 15 p. \$2.50

**OFR91-6 INDUSTRIAL MINERALS IN ARIZONA'S CULTURED MARBLE INDUSTRY**, by K.A. Phillips, 1991. Addresses a potential market for development of industrial mineral deposits in Arizona. The State's cultured marble industry is described emphasizing the specifications and quantities of industrial minerals consumed. 11 p. \$2.50

**OFR91-8 PUMICE AND PUMICITE IN ARIZONA**, by J.M. Hoffer, 1991. Describes over 50 pumice occurrences in Arizona. 67 p. \$10.00

## **CIRCULARS**

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Circulars are free. When ordering over two, however, please include \$1.00 to help defray costs.

**C2 ARIZONA LAND OWNERSHIP STATUS**, by K.A. Phillips, 1988. Brief instructions on determination of land status.

**C3 PLATINUM IN ARIZONA**, by K.A. Phillips, 1980. Answers commonly asked questions about platinum group metals, minerals, and potential in Arizona. .

**C4 PROSPECTING FOR BARITE**, by C.J. Hicks & K.A. Phillips, 1981. Brief discussion of barite and its deposits. Provides prospecting guidelines applicable to most minerals.

**C7 SERVICES OF THE DEPARTMENT TO POTENTIAL PURCHASERS OF ARIZONA MINERAL COMMODITIES**, by K.A. Phillips, 1988.

**C8 COBALT**, by C.J. Hicks, 1982. Describes cobalt, its minerals, geology and Arizona's potential for the prospector.

**C9 TITANIUM**, by M.N. Greeley, 1982. Describes titanium, its minerals, geology, and Arizona's potential for the prospector.

**C10 SERVICES AND HELP FROM THE ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES**. by K. A. Phillips, 1985.

**C11 MINING SCAMS**, by M.N. Greeley, 1986. Discusses common features of mining scams and ways to avoid being a victim of one.

**C12 PATENTING A MINING CLAIM**. Revised January, 1980. Explains requirements and procedures.

**C14 REFERENCE MATERIAL LIST - PHOENIX OFFICE**, by D. Bain, 1987. Listing of ADMMR library holdings on mines, mining, and recovery technology.

**C16 ARIZONA ROCKHOUND INFORMATION**, by D. Bain, 1987. Includes information on mine tours, mineral collecting fee areas, gold panning, and a short bibliography.

**C18 ASSAYERS AND ASSAY OFFICES IN ARIZONA**, by N.J. Niemuth, 1989. Lists addresses of commercial assay offices in Arizona with registered assayers .

**C19 BOOK LIST**, A selection of elementary through advanced texts pertinent to geology, mining, and minerals.

**C20 MAPS AND BOOKS FOR ARIZONA GOLD AND GOLD PROSPECTING.** Authors, titles, and publishers' names and addresses are provided.

**C21 SEVERED MINERAL RIGHTS.** Bureau of Land Management., 1979. Answers questions that arise concerning mineral exploration on lands where the surface rights are privately owned, but the mineral rights are owned by the Federal government.

**C27 TREATING GOLD ORES BY AMALGAMATION,** by R. R. Beard, 1987. Text of a presentation at a mining seminar.

✓ **C30 ARIZONA MINING LAW CHANGE - 1989, 1990.** Explains the changes in lease and claim procedures for State Trust Lands.

**C32 ARIZONA GEM SHOW LIST- 1991-92,** Includes date, location, sponsoring group, contact person.

✓ **C33 COUNTY AGENCIES CONCERNED WITH MINING & MINERAL RESOURCES IN ARIZONA,** 1991. Includes a listing of all County Recorders' addresses.

✓ **C34 STATE AGENCIES CONCERNED WITH MINING & MINERAL RESOURCES IN ARIZONA,** 1991. Contains names, addresses, and pertinent people at state agencies concerned with mines and mineral resources.

✓ **C36 ARIZONA RECORDATION LAW CHANGE, 1991.**

**C37 ARIZONA MINING UPDATE - 1991.** A review of current mining activity in Arizona. Includes gold, copper, uranium, gemstone, industrial mineral, and coal activity.

✓ **C38 FEDERAL AGENCIES CONCERNED WITH MINING IN ARIZONA,** 1992. Contains addresses of Bureau of Land Management, Forest Service offices, and other Federal agencies.

✓ **C39 PERTINENT DATA FOR NEW OR PROSPECTIVE MINING OPERATIONS IN ARIZONA,** by N.J. Niemuth, 1992. Briefly discusses permits and regulatory requirements of state, federal, and county agencies for mining operations.

**C41 EARTH SCIENCE CLUBS, 1992.**

## **MAPS**

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All maps are shipped folded. Contact the Department to special order rolled maps or a different scale or media.

**M84-1 ARIZONA MINERAL POTENTIAL MAP,** by K. A. Phillips and others, 1984. Scale 1:1,000,000. Map showing areas favorable for future discovery and development of mineral deposits for land use planning considerations. Blackline \$2.50.

**MM-17 METALLOGENIC PROVINCES OF ARIZONA** by P.F. O'Hara, N. J. Niemuth, and G. Ryberg, 1989. Preliminary edition showing 49 metallogenic provinces in Arizona. Compiled from USBM Mineral Occurrence Location System for Basin and Range and Transition zones. Scale 1:1,000,000. Blackline \$2.50.

**MINE OCCURRENCE MAPS - See page 2**

## **REPRINTS OF OUT-OF-PRINT MAPS**

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**GOLD PLACER MAP,** by M. Johnson, 1970. Scale 1:1,000,000. Map showing location of placer gold deposits in Arizona. Reprint of USGS Bulletin 1355, Plate 1. Blackline print. \$2.00.

**GEOLOGIC MAP OF MARICOPA COUNTY, ARIZONA,** by E. Wilson, R. Moore, and H. W. Peirce, 1957. Scale 1:375,000. Originally published by Arizona Bureau of Geology and Mineral Technology. Blackline print. \$1.50.

**GEOLOGIC MAP OF PIMA AND SANTA CRUZ COUNTIES, ARIZONA,** by E. Wilson, R. Moore, and R. O'Haire, 1960. Scale 1:375,000. Originally published by Arizona Bureau of Geology and Mineral Technology. Blackline print. \$1.50.

**ARIZONA MINING DISTRICT MAP,** by E. Wilson, R. O'Haire, and F. McCoy, 1961. Scale 1:1,000,000. Map and Index of Arizona Mining Districts. Originally compiled by Arizona Bureau of Geology and Mineral Technology. Blackline print. \$2.50





07/14/92

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: CONTENTION MINE

ALTERNATE NAMES:

HEAD CENTER  
FLORA MORRISON  
TRANQUILITY  
PUMP SHAFT  
YELLOW JACKET  
GRAND CENTRAL GROUP

COCHISE COUNTY MILS NUMBER: 171

LOCATION: TOWNSHIP 20 S RANGE 22 E SECTION 11 QUARTER SE  
LATITUDE: N 31DEG 42MIN 10SEC LONGITUDE: W 110DEG 03MIN 44SEC  
TOPO MAP NAME: TOMBSTONE - 15 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:

SILVER  
GOLD LODE  
LEAD  
COPPER OXIDE

BIBLIOGRAPHY:

KEITH, S.B., 1973, AZBM BULL. 187, P. 74  
AIME TRANS. V. 10, P. 335-339, 342-343  
AIME TRANS. V. 33, P. 3-37  
AZBM BULL. 143, P. 41, 43-45, 69-71  
ADMMR CONTENTION MINE FILE  
AGS 1988 FALL FIELD TRIP

07/14/92

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: TOUGHNUT MINE

ALTERNATE NAMES:

NORTHWEST  
HOODOO STOPES

COCHISE COUNTY MILS NUMBER: 213

LOCATION: TOWNSHIP 20 S RANGE 22 E SECTION 11 QUARTER SE  
LATITUDE: N 31DEG 42MIN 30SEC LONGITUDE: W 110DEG 03MIN 58SEC  
TOPO MAP NAME: TOMBSTONE - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:

LEAD  
SILVER  
ZINC  
COPPER  
GOLD LODE  
CALCIUM

BIBLIOGRAPHY:

KEITH, S.B., 1973, AZBM BULL. 187, P. 79  
ANTHONY, J.W, ET AL MINERALOGY OF AZ P 35, 92  
98, 115  
AZBM BULL 143, 1938, P 41, 44, 89, 92-93  
AIME TRANS V33, 1903, P 3-37

07/14/92

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: BUNKER HILL MINE

ALTERNATE NAMES:

MAMMOTH  
RATTLESNAKE  
BLACK BEAUTY

COCHISE COUNTY MILS NUMBER: 166

LOCATION: TOWNSHIP 20 S RANGE 22 E SECTION 14 QUARTER SW  
LATITUDE: N 31DEG 41MIN 28SEC LONGITUDE: W 110DEG 03MIN 46SEC  
TOPO MAP NAME: TOMBSTONE - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:

SILVER  
LEAD  
ZINC  
MANGANESE  
COPPER OXIDE

BIBLIOGRAPHY:

KEITH, S.B., 1973, AZBM BULL. 187, P. 74  
AZBM BULL 143, 1938, P. 45, 47  
USBM IC 7990, 1961, P. 31  
NEW MEXICO GEOL SOC GUIDE BK, 1978, 29TH CONF.  
P. 319  
ADMMR BUNKER HILL FILE

*Ken Philip*

## NOTICE

**TO:** Users of and suppliers to the Department of Mines and Mineral Resources  
**FROM:** Leroy E. Kissinger, Director  
**SUBJECT:** Department of Mines and Mineral Resources Tucson Office  
**EFFECTIVE DATE:** April 29, 1992

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Most of you know that the State of Arizona's fiscal condition is still a shambles to put the best construction on the subject. As a result of budget constraints necessary to match spending with income, the Legislature has directed the ADMMR to eliminate the mining engineer position that will be vacated May 1, 1992 with the retirement of Dick Beard.

After discussion with the Board of Governors for the Department, the hard decision has been made to close the ADMMR office in Tucson. This does not mean in any way that the Department will stop providing information for those people in Southern Arizona who are engaged in the development of mineral resources. It is our intent that we continue to provide that service with our small staff in Phoenix to the best of our ability.

The following procedures have been established to make the Department's service available to the mining public.

1. The Department can be reached by calling **1-800-446-4259** from anywhere in Arizona which will ring in the Phoenix office of ADMMR.

A staff member will review files and library references, make copies for mailing, transmit by facsimile a limited number pages, ship reports by Federal Express or other express mail service and provide the same service that is given to our constituency throughout North America.

Most published reference material - that is, books, trade publications, etc. are available at

the University of Arizona Library, the U.S. Bureau of Mines and the U.S. Geological Survey office, or the Arizona Geological Survey.

2. It will be possible to set up field visits with a member of our technical staff for major projects.

3. The Federal mining claim microfiche are now available at the Tucson BLM office at 675 N. Freeman Road in Tucson. Don Ducote is the BLM office manager in Tucson. Their telephone number is (602) 670-5321. The Federal mining claim microfiche are also available for use at the Pima County Recorder's Office, phone (602) 740-8151.

4. We encourage those who are able, to visit our offices at 1502 West Washington in Phoenix. You will find reference material, mine and prospect files, and other mining related information readily available. You will also find a convenient and comfortable place to work and do your research in your quest for discovering new projects or developing old mining projects.

While it by no means will be as convenient for our friends in Tucson, we believe that with a minimum of extra effort on your part, we can still provide the service that you desire and deserve.

The positive side of this solution is that we believe the job can still be done with a significantly lower cost to us taxpayers.

Good hunting !!!





JABA INC.  
 2100 N. Wilmot Rd. #218  
 Tucson, AZ 85712  
 (602) 885-9141  
 (FAX) 721-2768

April 30, 1992

Mr. Douglas MacKenzie  
 President  
 Excellon Resources Inc.  
 Suite 200-20 Adelaide St.E.  
 Toronto, On Canada M5C 2T6

Dear Douglas,

Re: Progress in digitization of Tombstone maps.

The digitizing of the underground mine workings is going somewhat more rapidly than I had expected. Pete Bondante has completed the Contention Pump Shaft area horizontal workings, and will be working on inputting the shafts and stopes today. You will recall that we are entering it into AutoCAD in 3 dimensions. This will allow us to understand various aspects of the mines and geology that are simply not possible in a 2 dimensional presentation. Even with this preliminary look we are able to see some important relationships that were not apparent before. For example, it appears the Tranquility Fault portion of the Contention Zone may be listric-normal, that is it appears to flatten with depth. Lower workings appear to be concentrated in the footwall of this fault. This suggests the hanging wall has never been explored and introduces the possibility that virgin mineral zones may be present in this block.

Further good news has resulted from Tom Waldrips research of our files in the last week. Fourteen years ago, in 1978, our librarian cataloged 150 additional maps and some 2,000 assays covering workings and stopes in the anticlinal rolls to the west of the Contention area. However, as a result of the law suit filed by Tom Schloss (TEI), this work was stopped and the data was never copied. These data are thought to exist in archives in Phoenix. Tom will be making a trip to check these archives as soon as he can make arrangements. Further, Tom has evidence to suggest that there are assays from the Contention area workings, and that sometime during the early part of this century, all workings were re-sampled, and these data may still exist. Of course this material will be invaluable. The 2,000 assays we have identified would cost at least \$60,000 to re-sample if the workings were accessible, which they aren't. We also hope to find the Eagle-Pitcher data on their mining operations in the district that span the period of time from the 1930's to the late 1940's(?).

When we get the additional data, we will probably enter the assay portion of it into the computer via dBaseIII+ (a powerful data base program), which will then interact with our GIS (Geographic

**F.Y.I.**  
 4/30/92  
 Tom  
 for your files  
 ↓

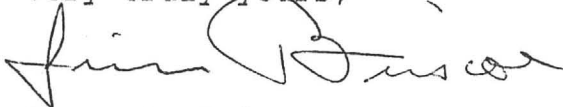


Information System) software called MapInfo. The images of the mine workings and geology will be imported from AutoCAD. When that has been accomplished we will have a "smart map" in which the data may be manipulated in a variety of useful ways, interactive with the map.

Our preliminary print outs of the underground workings are in color, and I would be happy to Fed. Ex. a copy to you if you would find it useful.

The discovery of the additional data is truly exciting. I had suspected that additional data existed and would be found once we got started. However this catalog from 1978 has remained forgotten and hidden in our files until Tom discovered it. Other data may well exist. With this information we, at low cost, will be able to reconstruct, and accurately view in a way never before possible, the extensive data that exists on the Contention Lease and surrounding area. Subsequent drilling will, as a result, have very specific targets and resulting information will be entered into an already detailed 3 dimensional model of the old part of the district. Highly informed decision making will be possible.

Very truly yours;

A handwritten signature in cursive script, appearing to read "James A. Briscoe". The signature is written in dark ink and is positioned above the typed name.

James A. Briscoe





JABA INC.  
2100 N. Wilmot Rd. #218  
Tucson, AZ 85712  
(602) 885-9141  
(FAX) 721-2768

April 30, 1992

Mr. Douglas MacKenzie  
President  
Excellon Resources Inc.  
Suite 200-20 Adelaide St.E.  
Toronto, On Canada M5C 2T6

Dear Douglas,

Re: Addendum to this mornings report.

I forgot to mention an important new item.

The maps that are currently going into the AutoCAD system show drill stations that Newmont Mining used for underground diamond drilling in the early 1950s. Since we now know the 3 dimensional location of these positions, we can input the drill log data of Newmonts' that we have in our files. Further there is a core storage house at the Empire shaft that I am told contains the Newmont core. Assuming the core is intact, with legible labels, we can re-log this core or re-sample it if necessary.

Newmont unfortunately did not assay all their core for gold. This appears to be a common mistake that appears to have been repeated with every operator in the district up to the present time. Tom Waldrip thinks he sees evidence that gold disseminates outward more pervasively than silver in the ore bodies that we have data on. Thus we are encouraged that gold mineralization will be more widely distributed than the mined ore bodies.

Very truly yours;

A handwritten signature in cursive script that reads "James A. Briscoe".

James A. Briscoe

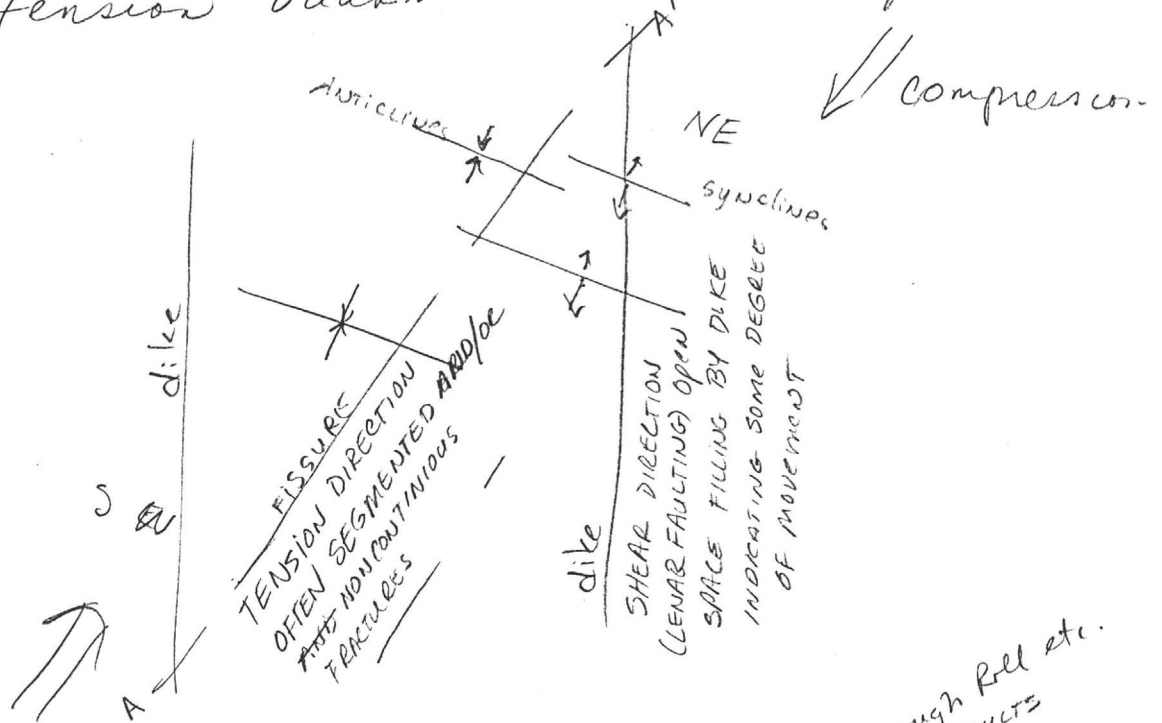


7/3/91

Rev. 8/19/91 JHJ  
Good!!

Jim - I've taken a few seconds while getting material out for Frank to scan through Butler's & Wilson's article on Tombston again. Seem that our ideas about structural evolution of Tombstone fit closely with those of theirs. - i.e.

compression creating folding / reverse faulting accompanied by faulting (shearing stress) in ~~sub normal~~ <sup>sub normal</sup> direction to compression and tension breaks normal to compression.



Compression



1/16/93 Tom: I ran  
across this memo in  
my files. Your thoughts  
are good!! I'm not  
sure if you kept a  
copy so I made these.  
One should go into  
the Tombsford  
note book system -  
~~the other~~ should  
go to Dennis Luce  
for Karl Kausberg's ✕

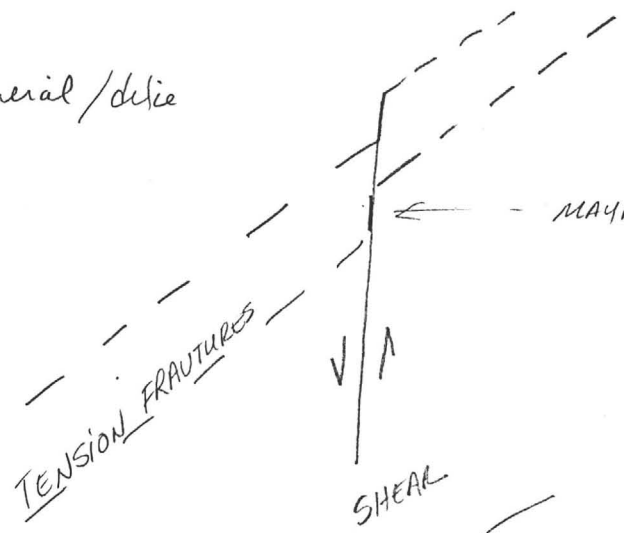
I feel <sup>they are</sup> these structural features probably were created at time of compression. The important question is timing of dike emplacement and mineralization. I believe that all events may have taken place at relative one time frame. I've never been able quite to understand how the fissures carried mineralization and dikes generally were barren but I think now I've come up with an idea, as follows

Compression: Creating folds and reverse faulting  
also SHEAR FAULTING and Tension breaks

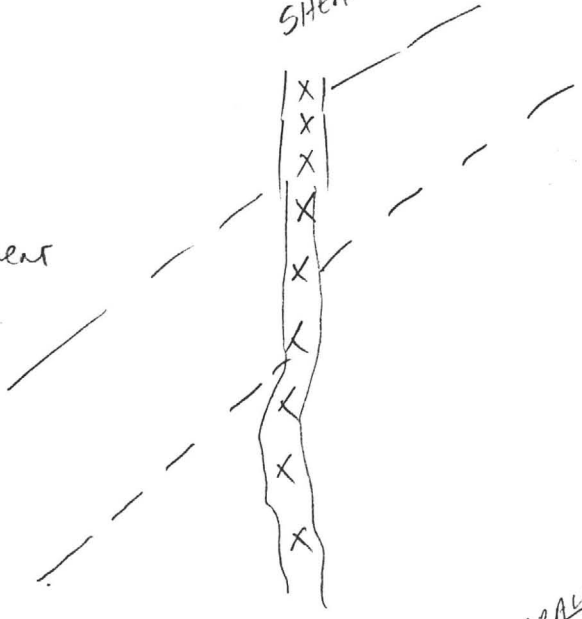
Emplacement of dikes along SHEAR FAULTS with resultant fracturing of wall rock. SHEAR FAULTS were continuous to depth and receptive zones for dike emplacement while Tension breaks were non-continuous and unreceptive.

Hydrothermal solutions - were generally sealed off from SHEAR FAULTS (occupied by sills/dikes) but able to go surface ward in Tension breaks. Due to hydrostatic pressure the Tension breaks tended to split apart and become continuous probably creating enough movement along their length to create some shear. As this stress encountered the dike they <sup>(dike rock)</sup> tended to break (brittle failure) in their original shear direction - this explains how sometimes these areas are strongly mineralized. - see next page

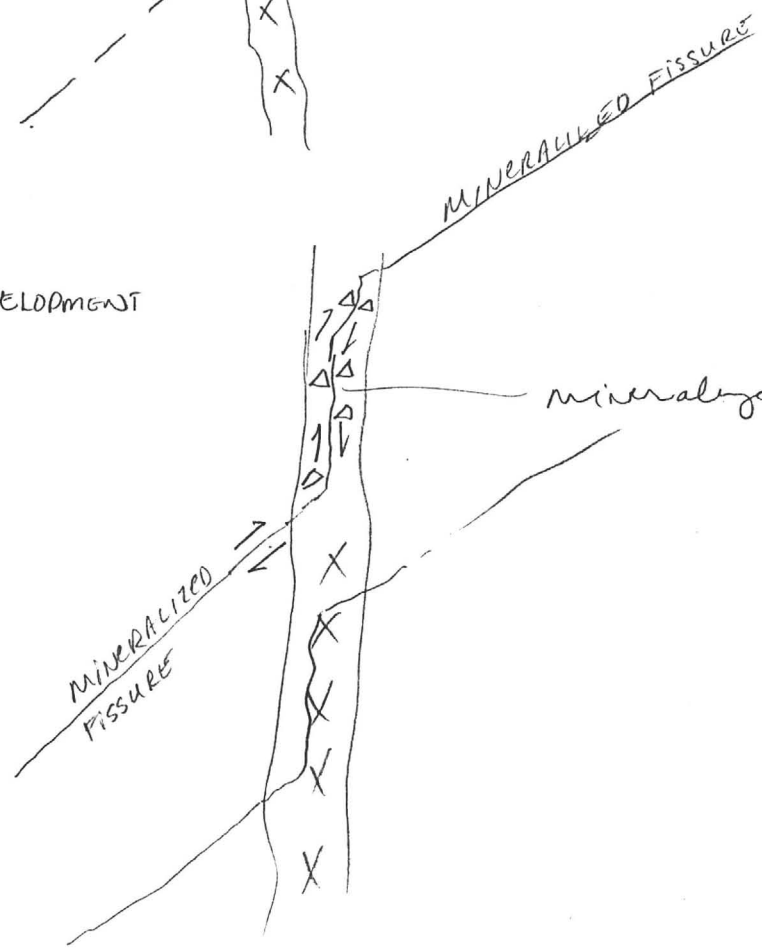
Pre mineral/dike



DIKE EMPLACEMENT



MINERAL DEVELOPMENT



mineralogy of dike area often high grade - due to many small spaces and veins

Normal faulting - Tranquility Contention fault.

post mineral - off set both fissure zones and Empire Dike (faulted segments being Contention dike(s))

obviously normal faulting of a shale sequence <sup>would</sup> create some ~~some~~ stress within a solid dike and it would tend to undergo brittle fracturing.

Supergene mineralization - weathering create environment whereby sulphide mineral break down creating sulphuric alteration, removing all but silica and clays. These zones would thus be ~~conduc~~ ideal hosts for supergene mineralization of Gold & Silver.

Of interest is the fact that the dike does carry some mineralization in the "faulted" zones above the 5<sup>th</sup> level. (Secondary mineralization) as do the footwall of faults near dikes.

Of even more interest is that where these faults intersect receptive horizons below the dike that also are mineralized. There fore my conclusion is that the faults and dike have nothing to do with the original mineralization - but did act as channel ways for secondary leached solutions - where supergene mineralization took place -

See attached for ideas etc.

reading

The effect of the Tranquility fault system is to drop the hanging wall area to the east, perhaps as a single block in the northern part and as a series of slices or blocks in the southern part. The details of this fault so far as known are illustrated and discussed in the descriptions of the Contention-Grand Central ore zone.

The displacement on the fault is not known from direct measurement. Assuming that the Contention dike is a faulted portion of the Empire dike and that the movement was down dip, a displacement of 500 feet is calculated. The total displacement of the segments of the Contention dike, shown on Plate VIII, amounts to 590 feet.

#### Grand Central fault

Cutting the rocks in the southern portion of the Tombstone basin is a system of northwesterly striking faults of which the best known is the Grand Central fault. This fault offsets both dikes and fissures, but its age relation to the Tranquility-Contention fault is not known. Where the faults meet in the Little Joe workings, the rocks are greatly crushed, and there are not enough accessible openings to make a determination of the relations possible.

#### Date of the late faulting

The time of the late faulting is not definitely known. It was later than mineralization. On the Southern Belle claim, 300 feet east of the Dipper shaft, is a fault that lies in strike with the Tranquility-Contention fault, dips eastward, and displaces the Cenozoic deposits. It seems likely that a part, at least, of the movement on the Tranquility-Contention fault took place at the end of Tertiary or in early Quaternary time.

### CAUSE AND RELATION OF STRUCTURAL FEATURES

The several structural features of the Tombstone district are perhaps the result of a single system of forces acting over a considerable period of time, but, if so, the character and direction of such forces have not been clearly determined or postulated. The earliest forces in the Laramide revolution seem to have been compressive and resulted in folding and reverse faulting. As judged by the nearly east-west Prompter reverse fault, the compression was in a north-south direction, but the folds in the Tombstone basin and in the southeastern part of the district indicate that the compression was in a northeast-southwest direction.

The early folding and reverse faulting were followed and perhaps in part accompanied by the nearly north-south fracturing. Displacement occurred on the stronger of these fractures, and the presence of dikes in some of them indicates that they were deep seated. They may be regarded as the results of shearing stresses that accompanied the folding.

The northeast ore fissures trend nearly at right angles to the folds in the Tombstone basin and are marked by very little displacement. They are more continuous as fissure zones than as individual fissures. These features suggest tension breaks rather than compression breaks.

The earlier structures might therefore have resulted from forces compressing the region in a southwest-northeast direction, with accompanying tension at right angles.

The later faults are normal, indicating extension rather than compression, and may be regarded as the result of the cessation of the compressive forces and the settling and readjustment of the region by gravity.

## ORE DEPOSITS

### HISTORY AND PRODUCTION

#### Summary

The Tombstone district proper was discovered by Ed. Schieffelin in 1877. By 1880 it was developed to large production with metallurgical plants on the San Pedro River.

By 1882 some of the mines had reached water level, and pumping was undertaken. The encountering of water in the mines led to the building of metallurgical plants at Tombstone and the abandonment of those on the San Pedro River.

By 1886 many of the large ore bodies had either been mined out or mined to water level, and production in the district fell off sharply.

<sup>1877-1886 - 9 years</sup>  
~~During this early period to 1886 the district produced about one half of its total to the present.~~ In 1881 and 1882 it yielded more than \$5,000,000 worth of ore per year. From 1886 to the present the district has been a steady producer. Production has varied with conditions but has averaged more than a third of a million dollars per year. It was stimulated during the World War and subsequent years by the high price of manganese and silver and in recent years by the increased price of gold.

By 1900 many of the properties had been combined under one ownership, and during the next decade a serious attempt to develop the deposits below water level was made. This attempt did not prove profitable and was abandoned in 1911.

The value of metals produced to the close of 1936 is estimated at \$37,000,000: \$19,000,000 was produced from 1879 to 1886 and \$18,000,000 from 1886 to 1936.

The accompanying table is a brief summary of the history of the district.

#### Detailed description<sup>27</sup>

Before its purchase from Mexico, the region that constitutes southern Arizona was largely controlled by Indians. Prospectors

<sup>27</sup> Based largely upon unpublished notes by J. B. Tenney and information furnished by J. H. Macia.

The shales of the Bisbee group above the Blue limestone are weak beds that in places are complexly folded, but for much of the area the details of this folding have not been determined. The most favorable beds on which to work out the general structure are those of the Blue limestone and the top of the Naco limestone. The brittle "Novaculite" lying between these strata presents a complexity due to adjustment that is difficult to understand until the main structure as represented by the more competent beds is determined. There is some suggestion, especially in the Empire area, where close folding has brecciated the "Novaculite" and dike fissures further broke it, that the entering dike tended to bulge into the brecciated areas, and the resulting adjustment further complicated the structure of this zone.

Dikes

Opportunity for observing structural features in the dikes has not been favorable in the Contention-Grand Central zone where mineralization along and in the dikes is greatest, since the mine workings in that area are largely caved. This dike fissure is a fault on which there has been considerable displacement, in contrast to most of the other dike fissures on which little movement has taken place. The deformation resulted in considerable brecciation in some of the beds cut by the fault, and the intrusion of the dike material into the fissure probably further brecciated the rocks along the walls. The walls of the fissure and the dike were further broken by movement on the fissure after the dike material had solidified. In general, faulting of the dikes resulted in gouge along the break rather than in breccia, but the mineralization in the Contention dike indicates that under some conditions permeable zones must have resulted from faulting along and in the dike. In general the dike fissures on which there was some faulting, such as the Contention-Empire dike fissure, have produced permeable zones along the dikes and to some extent in the dikes that have been favorable to mineralization. Prospecting along other dikes with less movement on their fissures has not revealed much ore. The northeast fissures, where they crossed the dike fissures, further broke the rock and completed the preparation of the ground for mineralization.

← see on foot movement

As described in the section on structure, the northeast fissures do not cross the dikes directly but tend to swing into the dikes for some distance in crossing.

} important

The large ore shoots are at such crossings.

DEPOSITS ASSOCIATED WITH NORTH-SOUTH (DIKE) FISSURES

Contention-Grand Central ore zone

The Contention-Grand Central ore zone follows the Contention dike from the Tranquility fault southward through the Head Center, Contention, Flora Morrison, and Grand Central mines, past the Brady stope. In this length of 3,300 feet, it contained many large, rich ore bodies mainly between the surface and the

replace- sandstone se- considerable. Side fissures. are walls are for or limy of the shale- of the Tomb- ale and sand-

sits has come of the Naco some higher. These beds and chemical conditions.

on composed chiefly fine- ses and some ttle and the

this beds of es not brec- nds to break recciate over ent than the nestone are e are weak,

d in a rather ve produced strong zones eaks in the lyi. shales. e healed.

the folding. d open folds

Novaculite," e limestone n the Naco ainly in the th the Blue d th' broken n sharp cracks").



fourth level. As the Contention, Grand Central, and Head Center mines yielded more than \$10,000,000 worth of ore prior to 1886, this ore zone has been the most productive one of the Tombstone district. Generally the rock was soft and the mining costs were low.

Water was encountered below the sixth level. During 1901-6, in an expensive effort to unwater the district, the Pump shaft of the Contention Mine was sunk to the tenth level. This project was abandoned in 1911, and subsequently the Pump shaft caved. The greater part of the Contention-Grand Central workings are now inaccessible.

Here the surface is composed of shale and sandstone of the Bisbee group, stratigraphically higher than the "Joe" limestone member (page 19). These beds prevailingly dip at low angles eastward and are intruded by the Contention dike. The Tranquility fault, swinging southward near the Tranquility shaft and separating into several branches, displaced the sedimentary beds and the dike in a complex manner (Plates IV and VIII). Some of these branches follow the bedding planes, and others dip more steeply. Due to their eastward dip, these faults displaced three or four segments of the dike successively downward and eastward, all above the fifth level (Plate VIII). At places the structure has been further affected by cross faults of east to northeast strike and relatively small displacement.

Ore occurs (1) in the faulted segments of the dike, (2) in brecciated footwall zones of these segments, and (3) in limestone beds of the shale sequence. Very little ore has been found below the fifth level where the dike is in place and unfaulted.

The ore bodies appear to have been genetically connected with northeast fissures, some of which are traceable on the surface (Plate IV). As stated on page 36, an ore fissure, upon intersecting the dike, tends to follow it for an interval before resuming the northeastward trend.

Two ideas as to the structural relations may be considered.

1. Prior to displacement by the postmineral Tranquility fault system, the upper portion of the dike, with steep, westward dip, and the sedimentary beds, with gentle easterly dip, formed a single northward-trending structure, like an inverted trough, that trapped the ore solutions. Within this structure, the rocks of sufficient permeability and favorable chemical composition were mineralized by the ore solutions from the northeast fissures.

Due, probably, to unknown conditions of fracturing, the portions of the dike above the fifth level were relatively permeable and susceptible to mineralization, whereas the dike on the seventh and lower levels was very little altered.

2. The Contention dike was faulted by the Tranquility fault system ~~before~~ the formation of the northeast mineralizing fissures, and the ground in the faulted block was well prepared for mineralization. ~~The evidence does not warrant a definite selection of one of these but suggests the latter with the probability of renewed postmineral movement.~~ According to Blake the dike is

below  
SPC 1

AFTER

Supergene

laminated parallel to its walls, and large portions of it are strongly silicified. In the upper three levels, particularly, the dike and adjacent shale show extensive kaolinization.<sup>49</sup>

The ore was rich in silver, gold, and lead. Much of it was high in iron, and most of it was oxidized.

In the northern part of the zone were numerous large ore bodies, as shown on Plates IV and IX. South of the Grand Central shaft there were three large ore bodies in a faulted segment of the dike above the third level. No ore was found in the dike south of the southernmost or Brady stope. On the footwall side of the dike near the Brady stope, impure limestone in the shale sequence contained a sulphide ore body that was mined for 50 feet below the third level.

The Contention dike was followed on the third level for some 1,500 feet south of the Brady stope to the Dipper shaft but without finding any important ore bodies.

It may be noted that the intersections of the northeast fissures with the Blue limestone, "Novaculite," and upper part of Naco limestone have not been thoroughly prospected in this area.

#### Emerald Mine

The collar of the Emerald shaft is at the top of the Cambrian Abrigo limestone, which dips 35 to 45 degrees E. The mine workings connected with the 900-foot inclined shaft attain a vertical depth of approximately 880 feet and pass from Abrigo limestone into Bolsa quartzite at the eighth level. As these workings were inaccessible at time of visit, the following description of the underground features is based upon unpublished notes by F. L. Ransome, together with additional information furnished by J. H. Macia.

The ore deposit is mainly south of the shaft, within a fault fissure that strikes N. 20 degrees E. and dips about 76 degrees W. Replacing crushed material, the ore is narrow to absent where the fissure is tight. It is wider and of somewhat better grade in the Abrigo limestone than in the Bolsa quartzite. Although not of commercial width or grade throughout, the ore formed an essentially continuous shoot 1,100 feet long by ½ to 10 feet wide from the surface to below the deepest workings. According to Mr. Macia, an 80-foot winze from the ninth level, about 400 feet south of the Emerald shaft, showed a width of 6 feet of ore that contained 10 per cent lead, 8 per cent zinc, ⅔ per cent copper, 11 ounces of silver, and \$2.00 in gold per ton. Discontinued because of water, this winze did not reach the bottom of the ore shoot. Mr. Macia states that the production from below the seventh or water level was worth \$278,000.

The ore mined was partially oxidized sulphides. According to Ransome, considerable wulfenite was present in the oxidized material, and horn silver occurred in some of the solid galena.

<sup>49</sup> Wm. P. Blake, "Geology and Veins of Tombstone, Arizona" (Am. Inst. Min. Eng. Trans.), X (1882), 338-39.

Probably more accurately described as Empire Dike

CONTENTION DIKE

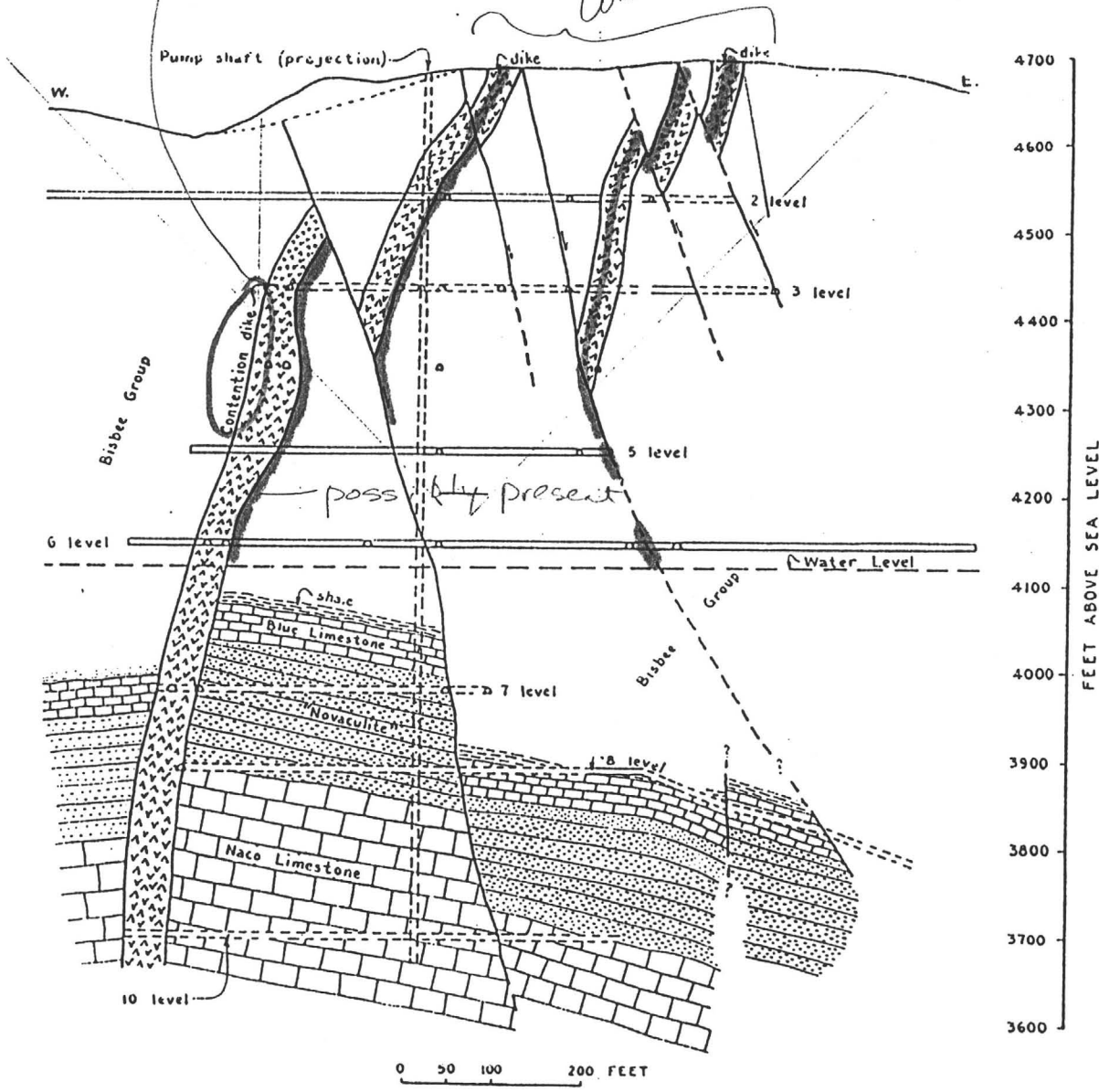
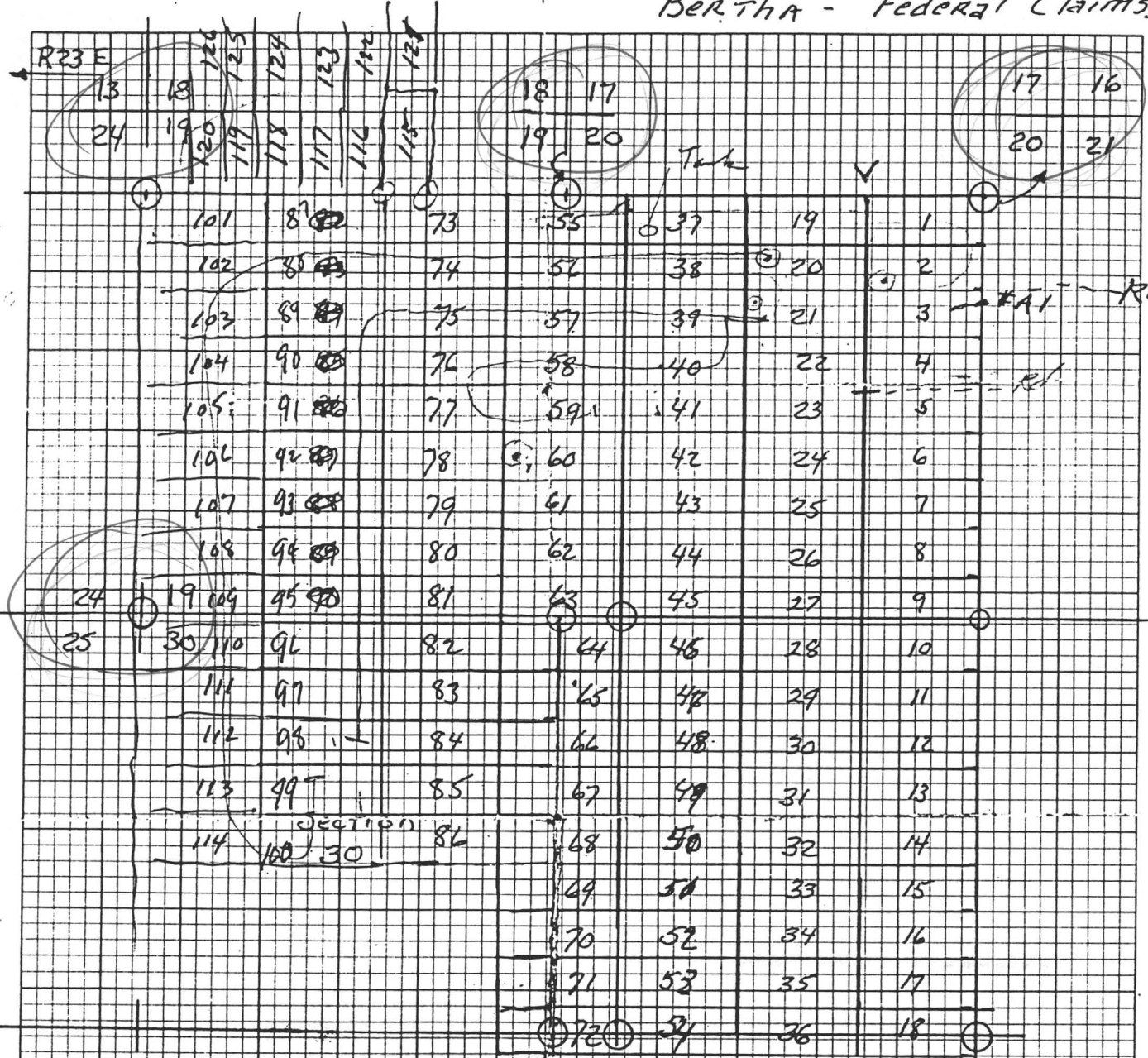


Plate VIII.—Generalized cross section through Contention dike at Pump shaft, looking north. (Modified from F. L. Ransome.)

Zones of mineralization



NOTES: All Claims Except #64 thru 72 shall be

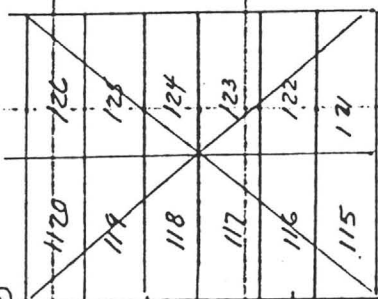
1500' x 600'  
 Claims 104 thru 72 shall be 600' wide by actual length to close with Section line East line Section 30.

✓ this out as possible area of interest

JAMES STEWART COMPANY  
 3033 N CENTRAL  
 PHOENIX ARIZ

*[Handwritten signature]*  
 1/1/68

BERTHA - MINE  
 FEDERAL CLAIMS -  
 LOCATION WORK - 1968  
 Field WORK Copy - CAC.



101	87	73	55	37	19	1
102	88	74	56	38	20	2
103	89	75	57	39	21	3
104	90	76	58	40	22	4
105	91	77	59	41	23	5
106	92	78	60	42	24	6
107	93	79	61	43	25	7
108	94	80	62	44	26	8
109	95	81	63	45	27	9
110	96	82	64	46	28	10
111	97	83	65	47	29	11
112	98	84	66	48	30	12
113	99	85	67	49	31	13
114	100	86	68	50	32	14
			69	51	33	15
			70	52	34	16
			71	53	35	17
			72	54	36	18

D DRILL HOLE - (A) 200' PLUS  
 CLAIMS 121-126 INCLUSIVE  
 Plus 1, 2, 19, 37, 55, 73, 87 & 101  
 Drilled By Boyles Bros - 283/1768

BERTHA ASSAYS.

	Cu	<sup>oz</sup> Au	<sup>oz</sup> Ag	<sup>g</sup> Pb	<sup>g</sup> Zn		
- 400'	.075						AA
- 900'	.04	Tn	.3				A-A
- 1135	.035	Tn	.3				A-A
3A 1232 *	.035	Tn	.4				V.A
4 - 1250	.055	.035	Tn				
1560'	.055	Tn	.3			3/29/68	A.A
6 - 1750-± Rochin	0.10	Tn	4.2	0.75	0.80	4/8/68	Rochin
- 1780	0.08	Tn	Tn	0.73	0.17	4/15/68	✓
8 - 1794-1804 *	0.045	Tn	.4			4-12	AA
1814-1825	0.05	Tn	.4			4-12	AA
1825-1834	0.04	Tn	.4			4-12	AA
1834-1844	.06	Tn	.4			4-12	AA
1891-1901	.06	Tn	.4			4-12	AA
1901-1911	.115	Tn	.4			4-12	AA
1780 Spectigraph	.054	0	0.327	0.26	0.75	4-24	Mines Engineer C. D. KA
2135	0.14	Tn	Tn	0.15	Tn	5-2	Rochin
2170-72	0.055		.32				A-A
2294	.12	Tn	.32				
2514	.055	.03	.9				
2558	Nil	Tn	.6				
2300	.02	Tn	Tn				
2286	.05	Tn	Tn				
1600 Dube		Tn	.4				
1714		Tn	.4				
1725		Tn	.4				
1753		Tn	.4				
2518		Tn	.4				
5/19/68	✓	✓	✓				
2784	✓	✓	✓				
2373		✓					
1433-37		✓					
1948		✓					
1357		✓					
700		✓					



Op No. 21  
 File No. 2040 ST

Date 12 APRIL 1968  
 (Registered)

815 North First Street  
 Phoenix, Arizona  
 P. O. Box 1148

# Arizona Assay Office

Phone ALpine 3-4001

**VALUES**  
 Latest Quotation

1 oz Gold .....  
 1 oz. Silver.....  
 1 lb. Copper.....  
 1 lb. Lead .....  
 1 lb Zinc.....

**JAMES STEWART CO**  
**PHOENIX ARIZONA 85012**

Short Ton ..... 2000 Lbs.  
 Short Ton Unit ..... 20 Lbs.  
 Long Ton ..... 2240 Lbs.  
 Long Ton Unit ..... 22.4 Lbs.

**THIS CERTIFIES**  
 Samples submitted for assay  
 contain as follows:

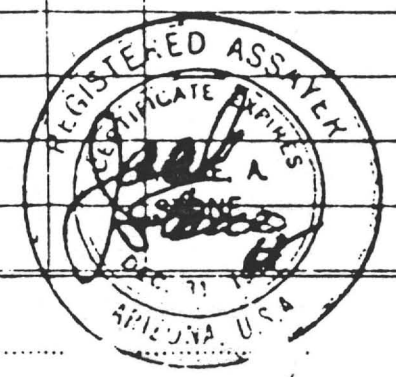
MARKS	SILVER PER TON		VALUE PER TON	GOLD PER TON		VALUE PER TON	TOTAL VALUE PER TON of Gold & Silver	PERCENTAGE		REMARKS
	Ozs.	Tenths		Ozs.	100ths			COPPER		
Charleston # 3 -2107	.40							0.04		
<i>Bertha</i> B B 1232	.40			TRACE				0.036		
<i>Bertha</i> BERTHA # 1 BOX 188 1794-1804	.40			NIL				0.045		
<i>Bertha</i> BERTHA BOX 190 1814 - 1825	.40			TRACE				0.05		
<i>Bertha</i> BOX 191 1925 - 1834	.40			TRACE				0.04		
<i>Bertha</i> MIKE - BOX 192 1334 - 1844	.40			TRACE				0.06		<i>Bertha - 19.00</i>
<i>Bertha</i> BERTHA - BOX 195 1891 - 1901	.40			TRACE				0.06		<i>Zinc - 45.50</i>
<i>Bertha</i> BERTHA - BOX 196 1901 - 1911	.40			TRACE				0.115		<i>Ch - 5.50</i>
<i>Limestone Project</i> L - 1 - 139								0.03		
L - 1 - 143								0.02		
L - 1 - 144								0.03		
L - 1 - 148	.40			TRACE				0.02		
L - 1 - 150								0.05		
L - 1 - 153								0.05		

70.00

Charges \$.....

Assayer.....

ANDY CHUCA, PRINT



375



Shop No. 149  
 File No. 2037 ST

Date 18 March 1968

*Charleston*

**VALUES**  
 Latest Quotation  
 1 oz. Gold.....  
 1 oz. Silver.....  
 1 lb. Copper.....  
 1 lb. Lead.....  
 1 lb. Zinc.....

# Arizona Assay Office

815 NORTH FIRST STREET

Phone: 253-4001

Phoenix, Arizona 85001  
 P. O. BOX 1148

**JAMES STEWART CO**  
**Phoenix Arizona**

Short Ton ..... 2000 Lbs.  
 Short Ton Unit ..... 20 Lbs.  
 Long Ton ..... 2240 Lbs.  
 Long Ton Unit ..... 22.4 Lbs.

**THIS CERTIFIES**  
 Samples submitted for assay  
 contain as follows:

MARKS	SILVER PER TON		VALUE PER TON	GOLD PER TON		VALUE PER TON	TOTAL VALUE PER TON of Gold & Silver	PERCENTAGE			REMARKS	
	Ozs.	Tenths		Ozs.	100ths							
<u>B-1-1135</u>		<u>.3</u>	<u>\$ .45</u>		<u>TRACE</u>							
<u>3-2077</u>												



Charge 9.00

Assayer.....

Shop No. 141  
 File No. 2036 ST

Date 11 MARCH 1968

*Charleston*

**VALUES**  
 Latest Quotation

- 1 oz. Gold.....
- 1 oz. Silver.....
- 1 lb. Copper.....
- 1 lb. Lead.....
- 1 lb. Zinc.....

THIS CERTIFIES  
 Samples submitted for assay  
 contain as follows:

# Arizona Assay Office

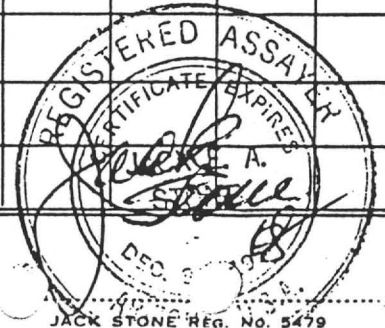
815 NORTH FIRST STREET  
 Phone: 253-4001

Phoenix, Arizona 85001  
 P. O. BOX 1148

**JAMES STEWART CO**  
**PHOENIX**  
**ARIZONA**

Short Ton ..... 2000 Lbs.  
 Short Ton Unit ..... 20 Lbs.  
 Long Ton ..... 2240 Lbs.  
 Long Ton Unit ..... 22.4 Lbs.

MARKS	SILVER PER TON		VALUE PER TON	GOLD PER TON		VALUE PER TON	TOTAL VALUE PER TON of Gold & Silver	PERCENTAGE				REMARKS
	Ozs.	Tenths		Ozs.	100ths			COPPER				
B - 1 - 960		.3	\$ .45	TRACE				0.04				
B - 1 - 900								0.04				
1980								0.04				
<i>Gold? Charleston</i>												



Charges 11.50

Assayer.....

377

Shop No. 27 Date 25 11 1968  
 File No. 116 ST

Phoenix, Arizona 85001  
 P. O. BOX 1148

# Arizona Assay Office

815 NORTH FIRST STREET  
 Phone: 253-4001

**JAMES STEWART CO**  
**PHOENIX ARIZONA**

**VALUES**  
 Latest Quotation

- 1 oz. Gold.....
- 1 oz. Silver.....
- 1 lb. Copper.....
- 1 lb. Lead.....
- 1 lb. Zinc.....

THIS CERTIFIES  
 Samples submitted for assay  
 contain as follows:

Short Ton ..... 2000 Lbs.  
 Short Ton Unit ..... 20 Lbs.  
 Long Ton ..... 2240 Lbs.  
 Long Ton Unit ..... 22.4 Lbs.

MARKS	SILVER PER TON		VALUE PER TON	GOLD PER TON		VALUE PER TON	TOTAL VALUE PER TON of Gold & Silver	PERCENTAGE				REMARKS
	Ozs.	Tenths		Ozs.	100ths			COPPER				
B B - 1 # 2040	.40			TRACE			0.045					
L 1 - 2668	.40						0.04					
#3 - 2218	.40						0.035					



Charges \$.....**17.50**.....

Assayer.....

ANDY CHUKA, PRINT

JACK STONE REG. No. 5479

378



Shop No. 034  
 File No. 2034 ST

Date 7 ARCH 1968

Phoenix, Arizona 85001  
 P. O. BOX 1148

# Arizona Assay Office

815 NORTH FIRST STREET

Phone: 253-4001

JAMES STEWART CO  
 PHOENIX ARIZONA 85012

Short Ton ..... 2000 Lbs.  
 Short Ton Unit ..... 20 Lbs.  
 Long Ton ..... 2240 Lbs.  
 Long Ton Unit ..... 22.4 Lbs.

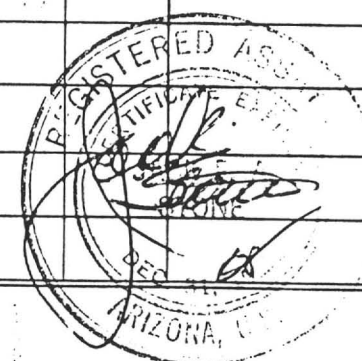
**VALUES**  
 Latest Quotation

- 1 oz. Gold.....
- 1 oz. Silver.....
- 1 lb. Copper.....
- 1 lb. Lead.....
- 1 lb. Zinc.....

**THIS CERTIFIES**  
 Samples submitted for assay  
 contain as follows:

MARKS	SILVER PER TON		VALUE PER TON	GOLD PER TON		VALUE PER TON	TOTAL VALUE PER TON of Gold & Silver	PERCENTAGE		REMARKS
	Ozs.	Tenths		Ozs.	100ths			COPPER		
206-I-1								0.18		
RED CORE - Bertha - 500± zone								0.075		

MAR 11 1968  
 JAMES STEWART COMPANY  
 PHOENIX, ARIZONA



Charges \$ 5.00

Assayer.....

ANDY CHUKA, PRINT

JACK STONE REG. No. 5479

380

MEMORANDUM TO FILE

March 4, 1968

RE: Mining - Limestone

Pick Hole  
of →

Diamond drilling of this deposit was authorized on February 29. Drill location was picked near the limestone outcropping which occurs on State Land Section 7, T 20 S, R 22 E. However, actual drilling is on Federal Land approximately 15 feet west of east section line and on the Claim Horne #123 near the east end center post.

Geophysics of the hole reveals:

<del>Depth to Cu</del>	<del>825'</del>
<del>Ore Thickness</del>	<del>1080'</del>
<del>"A"</del>	<del>12.6</del>
<del>"B"</del>	<del>11.6</del>

Geophysics of spot 175' southeast

<del>Depth <del>to</del> to Cu</del>	<del>750'</del>
<del>Ore Thickness</del>	<del>1365'</del>
<del>"A"</del>	<del>10.5</del>
<del>"B"</del>	<del>7.7</del>

*Handwritten signature*

MEMORANDUM TO FILE

March 7, 1968

RE: Limestone - Boyles Brothers Drilling - HOLE L-1

Wednesday evening, March 6, 1968 - 4 p.m. - Hole at 250' depth. Now in the U. S. Porphyry - fairly good alteration zones in preceding 100'. A sample taken at 206' to be assayed.



---

C. A. Cosgrove

CAC:ef

Op No. 21  
 File No. 2049 ST

D 12 APRIL 1968  
 (Registered)

8 North First Street  
 Phoenix, Arizona  
 P. O. Box 1148

# Arizona Assay Office

Phone ALpine 3-4001

JAMES STEWART CO  
 PHOENIX ARIZONA 85012

- VALUES**  
 Latest Quotation
- 1 oz. Gold.....
  - 1 oz. Silver.....
  - 1 lb. Copper.....
  - 1 lb. Lead.....
  - 1 lb. Zinc.....

**THIS CERTIFIES**  
 Samples submitted for assay  
 contain as follows:

Short Ton ..... 2000 Lbs.  
 Short Ton Unit ..... 20 Lbs.  
 Long Ton ..... 2240 Lbs.  
 Long Ton Unit ..... 22.4 Lbs.

MARKS	SILVER PER TON		VALUE PER TON	GOLD PER TON		VALUE PER TON	TOTAL VALUE PER TON of Gold & Silver	PERCENTAGE			REMARKS
	Ozs.	Tenths		Ozs.	100ths			COPPER			
Charleston # 3 -2107		.40						0.04			
B B 1232		.40		TRACE				0.035			
BERTHA # 1 BOX 188 1794-1804		.40		NIL				0.045			
BERTHA BOX 190 1814 - 1825		.40		TRACE				0.05			
BOX 191 1825 - 1834		.40		TRACE				0.04			
DIKE - BOX 192 1834 - 1844		.40		TRACE				0.06			
BERTHA - BOX 195 1891 - 1901		.40		TRACE				<del>0.06</del> (0.06)			
BERTHA - BOX 196 1901 - 1911		.40		TRACE				0.115			
L - 1 - 139								0.03			
L - 1 - 143								0.02			
L - 1 - 144								0.03			
L - 1 - 148		.40		TRACE				0.02			
L - 1 - 150								0.05			
L - 1 - 153								0.05			

70.00

Charges \$.....

Assayer.....



363



Shop No 270  
 2046 ST  
 File No.

Date 25 April 1968

Phoenix, Arizona 85001  
 P. O. BOX 1148

# Arizona Assay Office

815 NORTH FIRST STREET  
 Phone: 253-4001

JAMES STEWART CO  
 PHOENIX ARIZONA

Short Ton ..... 2000 Lbs.  
 Short Ton Unit ..... 20 Lbs.  
 Long Ton ..... 2240 Lbs.  
 Long Ton Unit ..... 22.4 Lbs.

VALUES  
 Latest Quotation

1 oz. Gold .....  
 1 oz. Silver .....  
 1 lb. Copper .....  
 1 lb. Lead .....  
 1 lb. Zinc .....

THIS CERTIFIES  
 Samples submitted for assay  
 contain as follows:

MARKS	SILVER PER TON		VALUE PER TON	GOLD PER TON		VALUE PER TON	TOTAL VALUE PER TON of Gold & Silver	PERCENTAGE			REMARKS
	Ozs.	Tenths		Ozs.	100ths			COPPER			
E B - 1 2040		.40		TRACE				0.045			
L-1 - 268: Limestone 2669?		.40						0.04			
#3 - 2215		.40						0.038			



Charges \$ 17.50

Assayer.....

JACK STONE REG. NO. 5479

ANDY CHUKA, PRINT

384

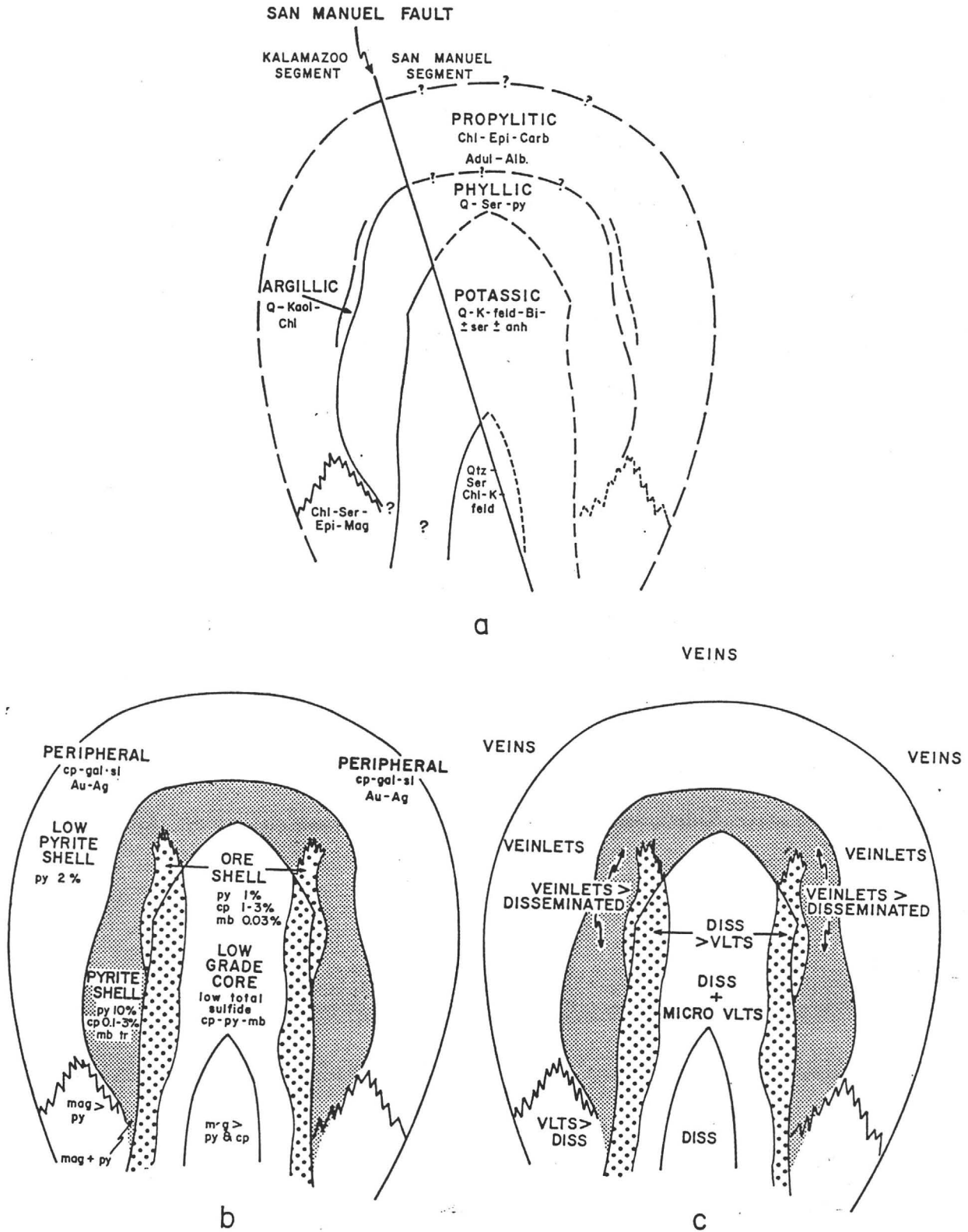


Fig. 3. Concentric alteration-mineralization zones at San Manuel-Kalamazoo. (a) schematic drawing of alteration zones. Broken lines on Kalamazoo side indicate uncertain continuity or location and on San Manuel side extrapolation from Kalamazoo. (b) schematic drawing of mineralization zones. (c) schematic drawing of the occurrence of sulfides.

Memo

To: James A. Brusca

From: T.E. Waldrop Jr

Date: June 19, 1992

Re: Computer 3-D Geologic map construction, objectives, procedures, Tombstone Mining District, Cochise County Arizona P-...-01

Jim:

Pursuant to our meeting of Thursday morning, June 18, 1992 please find following information regarding our expected and envisioned means of constructing a three dimensional geologic map of the Tombstone Mining District. As you are aware this is the first time that any of us, you, Pete or I, have undertaken a drafting project of this type (3-D), <sup>of such</sup> magnitude and complexity.

Therefore by necessity, we've proceeded ~~with~~ with caution in our digitizing efforts, taking extreme care to break-out all <sup>individual</sup> components onto separate layers. Heretofore, Peter and I have been proceeding towards a hypothetical goal ~~results~~ without benefit of a written format or check list of procedures to reach these goals.

This is not to say we've been proceeding without direction, just that the ideas have <sup>been</sup> encapsulated in my head and not written down. As a result of ~~the~~ our meeting it was clear that these ideas needed to be transposed to paper in order to have a more formal guideline to proceed by and also keep our client informed of our efforts.

(2)

Following please find my initial outline, which by necessity will be <sup>influenced by</sup> dynamic ~~and~~ processes, and ever changing as a results of changing hardware, software, lead time, financial conditions to name <sup>only</sup> a few items.

I. Review & Interpret in house data.

During this process, where heretofore, I've taken inhouse and external sources of geologic data and prioritized as to value for inclusion into the data base for digitizing, including mine workings, geologic maps, plan maps, cross-sections, drilling data trenching, sampling data etc. Numerous duplicate and/or information repetitive items have been eliminated by this process. I've also up graded all maps so far, by colouring them (heretofore most maps were black/white copies) to make them easier to input similar data and often clarify what initially appeared to be extraneous and at best unclear data. Secondary, it was necessary to carefully color coordinate various elevational data <sup>present</sup>. Since many <sup>of</sup> plan maps have information projected either up or down to the plan map elevation this data had to be separated, clearly, to accurately reflect the proper elevation (Z value) in the <sup>current</sup> 3-D drawing. This has been no easy task, for in the past

little attention has been paid for presenting elevational data, in a clear and concise manner. I've now charted out elevations for most of the major mines in the District along with <sup>their</sup> levels, but revisions are still being made to increase accuracy as more data is received.

Not to worry, though, is the fact we can easily change an elevation on any previous work done, in seconds, because of our layered drawing system, resulting in greater degrees of accuracy and not more work.

## II External Sources of Data

To date three additional sources of map data ~~data~~ have been located for underground workings (geologic, workings and assay data) amounting to as reported 250 additional maps. Access and copyability is ~~to~~ believed to be ~~un~~ <sup>unlimited</sup> except at the cost of copying, schedules and security of the property. These sources will be looked into as in-house sources of data are exhausted and adequate funding is in hand to undertake such work.

## III Data Input

This will be an on going process through out the life of the project, heavily loaded on the front-end in both time, effort and expense. This I feel is the weakest link in the chain as it is the point of greatest potential error input

- of questionable (useful) data. Great care must be taken to accurately <sup>by (1)</sup> place the data in space, (2) interpret <sup>the</sup> often cryptic notes and detail; (3) understand that you are dealing with data from several eras, some of which is of varying degrees of accuracy; ~~and~~
- 4) predict predrawn bias of authors doing the work especially on interpreted data such as cross-sections and projected data to plan or cross-section, and
  - 5) visualize the complex nature of the mode of mineralization that is projected to plan maps most of which is actually dipping between levels.

Heretofore, most usual <sup>geologic</sup> presentations have been either vertical or horizontal projections of three dimensional data to two-dimensional surfaces (plans or cross-sections) a relative simple almost mechanical method of presentation. Generally, elevation components were illustrated only in cross-section - for which the greatest degree of interpretation of geologic features is also present. On the other hand - plan maps have the greatest amount of real data but little elevational detail. When one begins drafting in 3-D one must not only be understanding of the 3-D surface detail but also detail in space below ground at various elevations and the interactions of all components; ~~as~~ with the earth's surface blocking views of underground workings. Computer generated terrain projection create a similar situation, thus the term virtual reality maps. Thus working on the computer

one must drag <sup>or extrude</sup> elements off the heretofore 2-D (5)  
illustrated maps to their proper location in  
space. <sup>on 3-D projection</sup> A <sup>simple</sup> case in point - land maps have  
known surveyed directions from some place to a  
monument and then <sup>direction and distance</sup> around the boundary of  
the claim. By drawing a claim of the above  
direction and distance one has a 2-D  
rectangle sitting in space, not really reflecting  
reality on the earth's surface. In 3-D modeling  
each claim monument must be dug <sup>vertically</sup> to the  
earth surface model and placed on the surface.  
Then if one wishes to reflect the area of the  
claim a line needs to be dug along the  
surface between points. Almost without exception  
this line is longer than the true horizontal  
distance as measured on flat plan as in  
surveying (the earth surface is irregular object).  
One could leave the claim as such -  
reflecting the surface area only - but one must  
think ultimately of how, ~~and~~ what use and  
need one might have in the future for  
such a claim boundary. Obviously should  
one wish to draw cross-sections <sup>of</sup> plan maps.  
in the future one would no-doubt like to  
see claim boundaries as the cross any section  
or plan elevation map. Reflecting this need  
lines <sup>(walls)</sup> can be <sup>extruded</sup> <sup>from</sup> towards the earth's center  
to any depth, <sup>vertically</sup> ~~to~~ <sup>the surface boundaries</sup> but a serious dichotomy arises  
by doing this. One tends to block <sup>his</sup> view in space  
of other objects from certain view <sup>in</sup> perspectives,  
such as mine working geology etc.

(6)

One has created a ~~massive~~<sup>beehive</sup> of cells (area of claims) a walled maze in reality. How do you deal with this. Only by very careful handling of layers keeping each component separate and by turning layers on or off as needed for a particular presentation or illustration when printing. Multiply this by tens to hundreds of semi-solid objects (stopes, workings, geological formations, fault, dikes etc.) in the space of a mining district and you might start to see the complexity of 3-D modeling. This discussion thus reflects why it is a very slow process, care being taken not to create future problems for illustrative output.

During this stage, which I might add, will be additive through-out the entire stage of the project information such as location of drilling, mineralization, sampling, topographic, alteration, land status, lithology, structure, culture, and man's past mining activities will be represented basically on a one-to-one basis in three dimensional space. Thus we will be taking any useful data representing hard information and for which we feel a third dimension maybe known or found and placing that information in the drawing files for the project. Even interpretative data such as cross-section can be useful in determining projected plunges of say ore structures or any number of other items such as underground workings, bedding units etc. Most reconstructable past and present



Data can be input at reasonable degrees of accuracy (reality). This work then becomes the base map, if you will, for all future work which will either become additive and reinforce the old data, additive and disprove interpretation and/or

real data or additive to areas of no information. In so doing one can quickly make judgements as to the validity of old data sets, its accuracy and any potential insight into intuitive interpretation provided by visualization or deductive reasoning.

#### IV Creation of Data Base.

Hitherto efforts have been essentially directed towards identification of the parts and pieces of the puzzle, trying to get a handle on the shapes, where they fit within the puzzle, how they fit together as a unit or units, complicated by the reality that we are dealing with multiple puzzles stacked on top of one another. <sup>known to</sup> ~~so what~~ called the Data Input Phase. During this the next phase we are taking the pancaked puzzles and creating individualized data sets for each of the components that ultimately will be designed, as exemplified by mineralization, alteration, slopes, lithology etc.. Regularly shaped objects, need not generally be 3D with, if they can be portrayed by lines planes, ~~or~~ other simple rectangular shapes in a height, width, depth format in three dimensional

space. Regular faults, unfolded sediments, mine workings, shafts, claim boundaries <sup>and dikes</sup> might represent examples of such regularly shaped objects. <sup>They</sup> are generally straight forward. On the other hand, <sup>irregularly</sup> shaped objects require <sup>to be</sup> much closer attention in order to semi-accurately project them as real features with volume and shape in the three dimensional atmosphere.

One must realize that each irregular <sup>shaped</sup> object is none-the-less constructed of a multitude of generally simple ~~simple~~ <sup>simple</sup> rectilinear <sup>or circular like</sup> shapes draped <sup>over</sup> a frame <sup>mesh</sup>. These facets <sup>faces</sup> give the object the perspective of volume and shape. Often these irregularly shaped object are only partially present in shape and one dimension or the other must be <sup>either</sup> inferred or interpolated from what data is present, above below or somewhere around the irregularly shaped object. The whole picture is not present.

Most of the valuable information necessary to correctly visualize <sup>irregularly shaped</sup> object in space lie they slopes, folded sedimentary units, alteration zones, mineralization etc. fit this category.

One can either grossly simplify them or expend additional energies to more accurately portray them realistically. Several recently released software programs may ~~now~~ be able to automatically take drawing file data of irregularly shaped objects and make a topological rendering of its external surface over which a meshlike mosaic of planar surfaces are draped. creating a visually correct

9

appearing object with depth of view or in other words, volume, which can be measured at least on the computer. Should these programs be found lacking, a stand by method would be to create a digital data base using  $x, y$  &  $z$  values for the desired object. run these attribute values through a contouring program and then fit a ~~wire~~ mesh over that to create a object and then reinset the created object back into the drawing as a rendering of the object. This later method take time and is much more mechanical but achieves the same results. For example lets say we wanted the bottom surface of the Besbee Fan. One would set up a grid, hopefully in such a way to incorporate as much known <sup>real</sup> data sets as possible for the bottom of the Besbee. Imaginary drill holes would then need to be drilled in such a way to intersect the the bottom of the Besbee in intermediate areas containing no real data sets and interpolated values appended as if it <sup>were</sup> real data. The data is then contoured and you have a worm's eye view of the basal Besbee. Both methods are only models <sup>ing of reality</sup> and would only be as realistic and valid as the amount of real data available for use at the time of model construction. Future work would be necessary to refine all models to their greatest accuracy. The more work the closer the model

will fit reality. By necessity one will probably (10)  
have to rely on rather crude pictures of any one  
piece of the picture. The key factor here is that  
even a crude picture is better than no picture  
at all; and groups of pictures composed of all the  
known information can significantly increase  
the viewer's deductive capacity when viewing the  
correctly arranged data in space. Thus the  
relationships between mineralization, alteration,  
structure and lithologies <sup>of any</sup> may become very much  
more clear, leading one to other similar areas  
(targets) within the District and hopefully enhancing  
the rate (success) of discovery of <sup>additional</sup> mineralization..

#### V Contouring

As present <sup>in the section</sup> above the exact needs of  
this action await evaluation of various other  
methods of modeling <sup>of irregular shaped</sup> below surface data. I'm  
optimistic <sup>that</sup> these other <sup>options</sup> will provide a  
workable solution for modeling such objects. None the  
less surface modeling will be done to provide us  
with a surface terrain model of topographic  
information <sup>of</sup> over the District.

#### VI Shading and Integration of Drawing Files

Once the stage has been reached that sufficient  
detail has been retained in various drawing  
files, <sup>and</sup> this information is then ready to  
to be shaded or painted on the surface and  
all the components combined to make a composite  
model. Here is the starting point where  
file maintenance become very important

in determining what layers of information are to be worked with. If mine been successful in keeping information relatively well separated between various layers it should be a relative easy process to shade necessary object. Otherwise additional separation will be necessary before we work on this step. Shaded objects will take on the shape of that object but these objects will be hollow. This fact creates some problems when constructing later cross-sections and plan maps because of the hollow interior cross-section of such objects but we should be able to overcome this by some sort of touching-up when cross-sections or maps are constructed.

VII Cross-sections and Plan Map Construction.

Ultimately most of the information entered into the model of the Tombstone Mining District will be integrated into one large drawing file; master model if you will. Because of the volume of data, and that the data will tend to be hidden by objects in front of, behind, under or over the intended viewing area, a method must be devised in order to view such information, for <sup>its</sup> interpretative value. In some cases, some relationships may become apparent by direct observation from the computer monitor simply by manipulation of certain layers of information contained in a drawing file. However, for most of the information a more limited viewing area will be necessary in order to ~~fully~~ visually integrate the information and understand its value. This is in reality

is a problem of perspectives of the viewer, intertwined with a transparent view of the model, ~~in~~ in which opac walls have been placed. These opac walls are omnidirectional in space and <sup>tend to</sup> block off the at some point the observers view of other objects behind them. Because of the <sup>opac</sup> omnidirectional distractions one must continually change view point and perspectives to see what needs to be viewed on the computer generated monitor version. To avoid this confusion multiple horizontal and/or vertical slice map can be constructed to integrate all of the information into 2-directional maps which can be viewed without interference of the opac wall. A series of these maps can then be quickly looked at to get a visual quasi <sup>quasi</sup> three dimensional model of the area.

Care needs to be taken, however when constructing any slice maps. Whenever a slice of the 3-D model is taken by a verable width slab of the earths surface must be looked at. If one makes this slab to thick or to thin details can be confusing. This is due to the fact that everything in that slab is projected to the plane of the drawing. Thus you could get mine workings on top of one another, slopes blocking out mine workings, and <sup>disproportion</sup> lithological contacts appearing as thicker units or formations, only to mention a few problems. Further, any void shaped objects in the drawing, including anything capable of being measured for volume will need to be

1. Things on Wind Mtn. (writeup)

2. LIST OF THINGS TO DO - PRIORITY & AMOUNT OF TIME

3. Tombstone MAP TOGETHER



**THE COMPLETE RESIDUAL BOUGUER GRAVITY ANOMALY MAP**

**Nogales**

**BY**

Joseph C. Lysonski, C. L. V. Aiken, and John S. Sumner  
1981

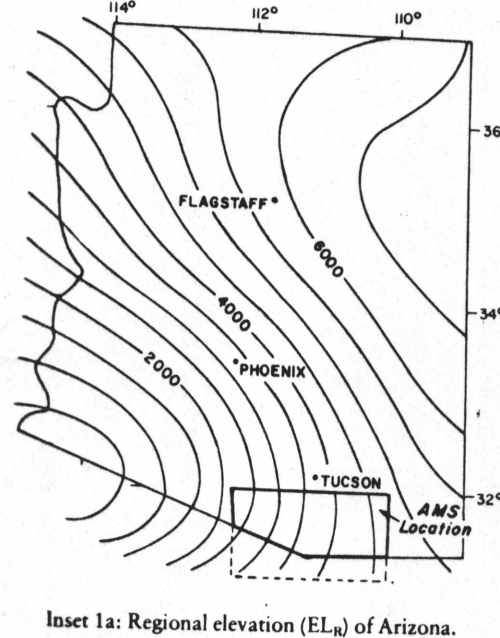
A density of 2.67 g/cm<sup>3</sup> is used for the Bouguer correction and for terrain corrections calculated by computer for a radial zone of 2.6 to 167 km. around each station. A trend surface of elevations of Arizona (Inset 1a) was used to define a regional Bouguer anomaly (Inset 2a) and to compute residual anomaly values. For a complete discussion of data sources, availability, and data reduction programs see:

Aiken, C. L. V., 1976, Analysis of Gravity Anomalies in Arizona: Ph.D. dissertation, University of Arizona, Tucson; Ann Arbor, University Microfilms Order DBJ77-02313.

Lysonski, J. C., 1980, The 15GN71 Residual Bouguer Gravity Anomaly Map of Arizona: M.S. thesis, University of Arizona, Tucson.

Aiken, C. L. V., Lysonski, J. C., Sumner, J. S., and Hahman, W. R., Sr., 1981, A Series of 1:250,000 Complete Residual Bouguer Gravity Anomaly Maps of Arizona: Arizona Geological Society Digest, v. 13, (in press).

Financial assistance for the production of this map was provided by the U.S. Department of Energy, Division of Geothermal Energy, under contract DE-FC07-791D12009 through the State of Arizona, Bureau of Geology and Mineral Technology, Geological Survey Branch, Geothermal Group.



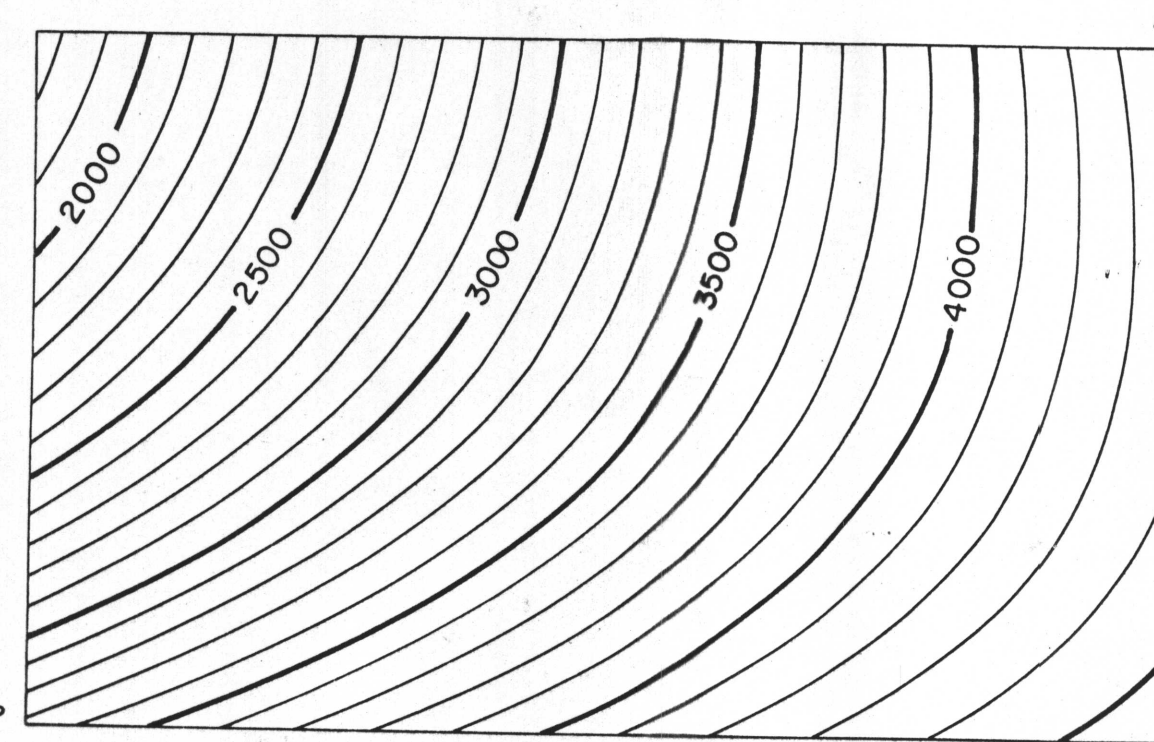
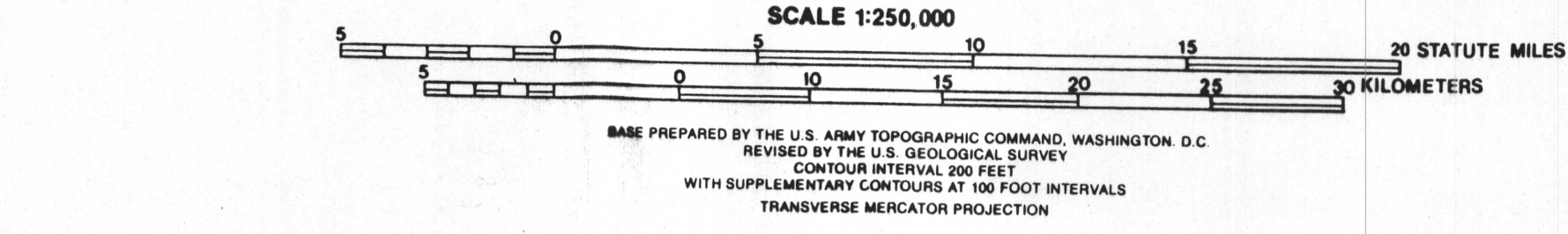
Inset 1a: Regional elevation (EL<sub>a</sub>) of Arizona.

The complete residual Bouguer gravity anomaly map was computed by using a Bouguer correction of the following form:

$$\delta g_{res} = -2\pi G \rho [EL_s - EL_a] + CC + TC$$

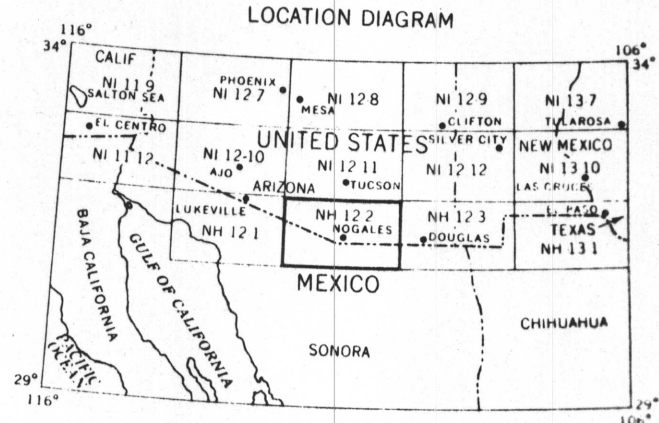
where:

- G = universal gravitational constant
- $\rho = 2.67 \text{ g/cm}^3$
- EL<sub>s</sub> = station elevation
- EL<sub>a</sub> = regional elevation
- CC = curvature correction using (EL<sub>s</sub> - EL<sub>a</sub>) as thickness of slab
- TC = terrain correction



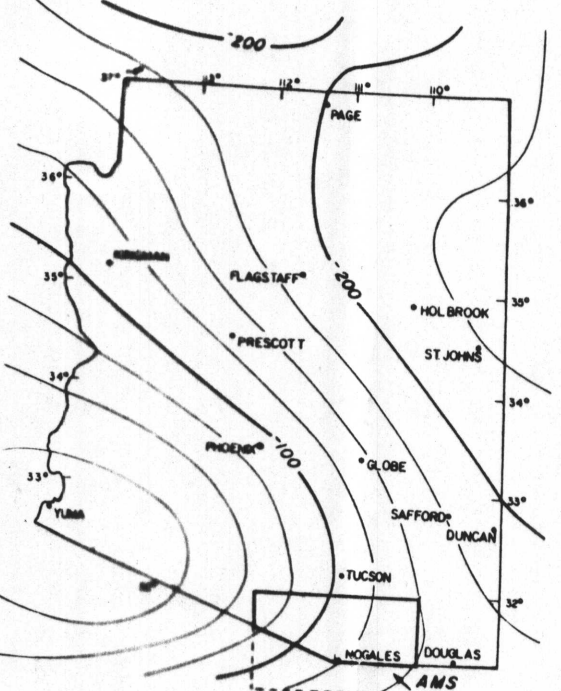
Inset 1b: Regional elevation of this AMS sheet. Contour interval is 100 feet. Scale 1:1,250,000.

NOTE: Because gravity-station density is sparse in some areas, control is limited in drawing gravity contours.



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For sale by the Bureau of Geology and Mineral Technology  
845 N. Park Ave., Tucson, Arizona 85719



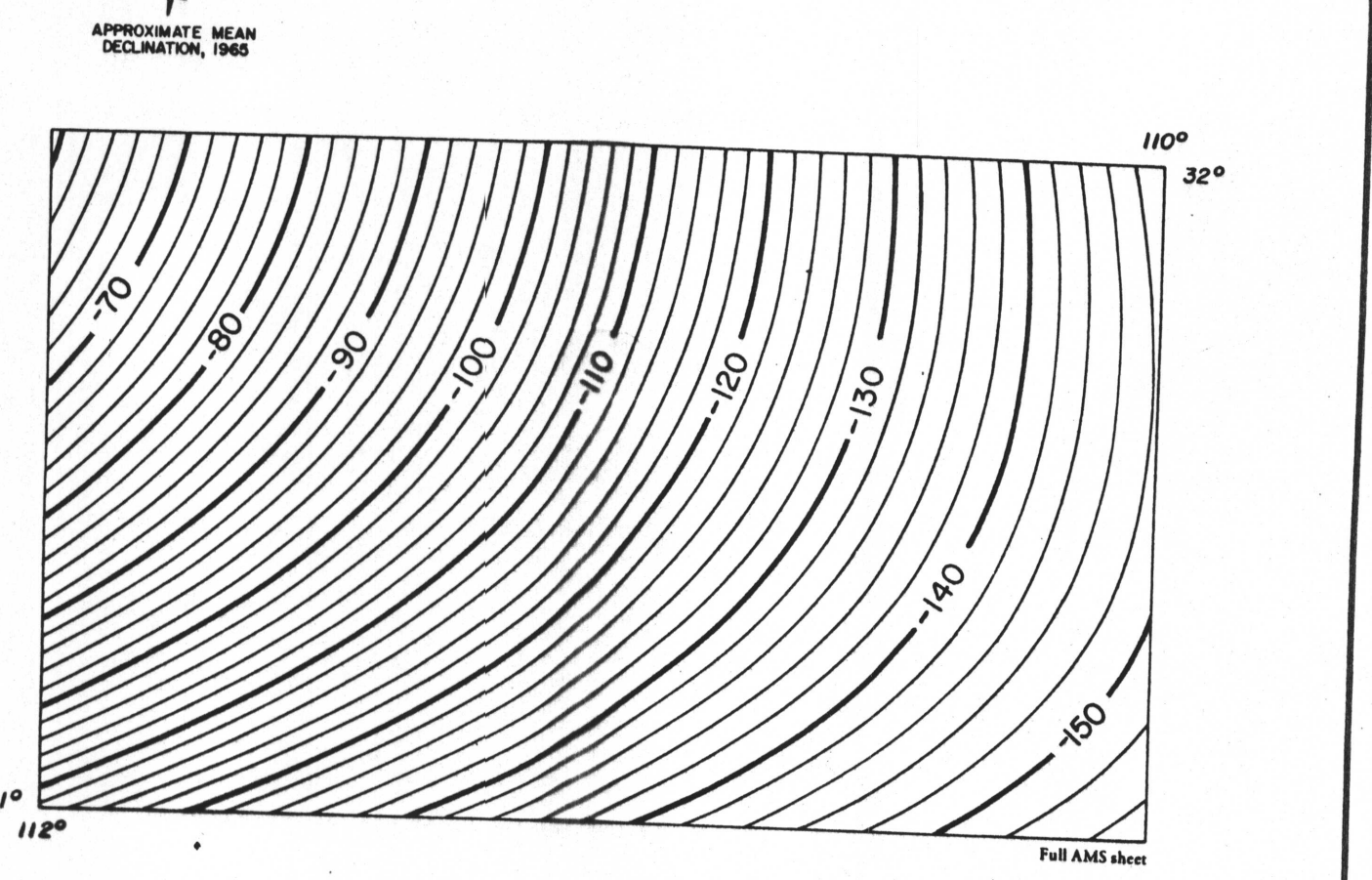
Inset 2a: Regional Bouguer anomaly (g<sub>a</sub>) map of Arizona. Contour interval is 25 milligals.

This regional Bouguer anomaly map of Arizona was derived by multiplying the regional elevation (Inset 1a) by -0.0341 mgals/m (the Bouguer correction for 2.67 g/cm<sup>3</sup> density).

This inset shows the regional anomaly (g<sub>a</sub>) removed from the Bouguer anomaly (g<sub>res</sub>) by using the correction procedure shown below. The resulting residual values (g<sub>res</sub>) contoured on this AMS sheet can also be computed by subtracting this regional anomaly from the Bouguer anomalies.

$$g_{res} = g_a - g_a$$

CONTOUR INTERVAL IS 2 MILLIGALS  
+ REPRESENTS GRAVITY STATION LOCATION



Inset 2b: Regional Bouguer anomaly map of this AMS sheet. Contour interval is 2 milligals. Scale 1:1,250,000.



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BLOCK NO. 4  
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BLOCK NO. 4  
WEST FOX CLAIM GROUP

WEST FOX 2	WEST FOX 1	FOX 11
WEST FOX 4	WEST FOX 3	FOX 12
WEST FOX 6	WEST FOX 5	FOX 13
WEST FOX 8	WEST FOX 7	FOX 14
WEST FOX 10	WEST FOX 9	FOX EX N 15
WEST FOX 12	WEST FOX 11	FOX EX N 9
WEST FOX 14	WEST FOX 13	FOX 9
WEST FOX 16	WEST FOX 15	FOX 10
WEST FOX 18	WEST FOX 17	

BLOCK NO. 4  
FOX CLAIM GROUP

CONTENTION LEASE

BLOCK NO. 2  
T.S.A. CLAIM GROUP

TS 1	TS 2	TS 3	TS 4	TS 5	TS 6	TS 7	TS 8	TS 9	TS 10	TS 11	TS 12	TS 13	TS 14	TS 15	TS 16	TS 17	TS 18	TS 19	TS 20	TS 21	TS 22	TS 23	TS 24	TS 25	TS 26	TS 27	TS 28	TS 29	TS 30	TS 31	TS 32	TS 33	TS 34	TS 35	TS 36	TS 37	TS 38	TS 39	TS 40	TS 41	TS 42	TS 43	TS 44	TS 45	TS 46	TS 47	TS 48	TS 49	TS 50	TS 51	TS 52	TS 53	TS 54	TS 55	TS 56	TS 57	TS 58	TS 59	TS 60	TS 61	TS 62	TS 63	TS 64	TS 65	TS 66	TS 67	TS 68	TS 69	TS 70	TS 71	TS 72	TS 73	TS 74	TS 75	TS 76	TS 77	TS 78	TS 79	TS 80	TS 81	TS 82	TS 83	TS 84	TS 85	TS 86	TS 87	TS 88	TS 89	TS 90	TS 91	TS 92	TS 93	TS 94	TS 95	TS 96	TS 97	TS 98	TS 99	TS 100	TS 101	TS 102	TS 103	TS 104	TS 105	TS 106	TS 107	TS 108	TS 109	TS 110	TS 111	TS 112	TS 113	TS 114	TS 115	TS 116	TS 117	TS 118	TS 119	TS 120	TS 121	TS 122	TS 123	TS 124	TS 125	TS 126	TS 127	TS 128	TS 129	TS 130	TS 131	TS 132	TS 133	TS 134	TS 135	TS 136	TS 137	TS 138	TS 139	TS 140	TS 141	TS 142	TS 143	TS 144	TS 145	TS 146	TS 147	TS 148	TS 149	TS 150	TS 151	TS 152	TS 153	TS 154	TS 155	TS 156	TS 157	TS 158	TS 159	TS 160	TS 161	TS 162	TS 163	TS 164	TS 165	TS 166	TS 167	TS 168	TS 169	TS 170	TS 171	TS 172	TS 173	TS 174	TS 175	TS 176	TS 177	TS 178	TS 179	TS 180	TS 181	TS 182	TS 183	TS 184	TS 185	TS 186	TS 187	TS 188	TS 189	TS 190	TS 191	TS 192	TS 193	TS 194	TS 195	TS 196	TS 197	TS 198	TS 199	TS 200	TS 201	TS 202	TS 203	TS 204	TS 205	TS 206	TS 207	TS 208	TS 209	TS 210	TS 211	TS 212	TS 213	TS 214	TS 215	TS 216	TS 217	TS 218	TS 219	TS 220	TS 221	TS 222	TS 223	TS 224	TS 225	TS 226	TS 227	TS 228	TS 229	TS 230	TS 231	TS 232	TS 233	TS 234	TS 235	TS 236	TS 237	TS 238	TS 239	TS 240	TS 241	TS 242	TS 243	TS 244	TS 245	TS 246	TS 247	TS 248	TS 249	TS 250	TS 251	TS 252	TS 253	TS 254	TS 255	TS 256	TS 257	TS 258	TS 259	TS 260	TS 261	TS 262	TS 263	TS 264	TS 265	TS 266	TS 267	TS 268	TS 269	TS 270	TS 271	TS 272	TS 273	TS 274	TS 275	TS 276	TS 277	TS 278	TS 279	TS 280	TS 281	TS 282	TS 283	TS 284	TS 285	TS 286	TS 287	TS 288	TS 289	TS 290	TS 291	TS 292	TS 293	TS 294	TS 295	TS 296	TS 297	TS 298	TS 299	TS 300	TS 301	TS 302	TS 303	TS 304	TS 305	TS 306	TS 307	TS 308	TS 309	TS 310	TS 311	TS 312	TS 313	TS 314	TS 315	TS 316	TS 317	TS 318	TS 319	TS 320	TS 321	TS 322	TS 323	TS 324	TS 325	TS 326	TS 327	TS 328	TS 329	TS 330	TS 331	TS 332	TS 333	TS 334	TS 335	TS 336	TS 337	TS 338	TS 339	TS 340	TS 341	TS 342	TS 343	TS 344	TS 345	TS 346	TS 347	TS 348	TS 349	TS 350	TS 351	TS 352	TS 353	TS 354	TS 355	TS 356	TS 357	TS 358	TS 359	TS 360	TS 361	TS 362	TS 363	TS 364	TS 365	TS 366	TS 367	TS 368	TS 369	TS 370	TS 371	TS 372	TS 373	TS 374	TS 375	TS 376	TS 377	TS 378	TS 379	TS 380	TS 381	TS 382	TS 383	TS 384	TS 385	TS 386	TS 387	TS 388	TS 389	TS 390	TS 391	TS 392	TS 393	TS 394	TS 395	TS 396	TS 397	TS 398	TS 399	TS 400	TS 401	TS 402	TS 403	TS 404	TS 405	TS 406	TS 407	TS 408	TS 409	TS 410	TS 411	TS 412	TS 413	TS 414	TS 415	TS 416	TS 417	TS 418	TS 419	TS 420	TS 421	TS 422	TS 423	TS 424	TS 425	TS 426	TS 427	TS 428	TS 429	TS 430	TS 431	TS 432	TS 433	TS 434	TS 435	TS 436	TS 437	TS 438	TS 439	TS 440	TS 441	TS 442	TS 443	TS 444	TS 445	TS 446	TS
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