



CONTACT INFORMATION
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AGREEMENT

THIS AGREEMENT made and entered into this 31st day of December, 1969, by and between JAMES A. WOOLSEY and EULA WOOLSEY, husband and wife, and ALICE N. SMITH, a single woman, hereinafter called "Seller" and JAMES L. SULLIVAN, hereinafter called "Buyer".

WITNESSETH:

quit claim deed *JAW*
E.M.W.
A.S.

WHEREAS Seller agrees to convey "all right, title or interest, either legal or beneficial, to the mining claims and applications described on Exhibit A attached hereto, hereinafter referred to as "Property", to Buyer or his nominee, and,

WHEREAS Buyer agrees to purchase the Property and pay royalties on the terms and conditions hereinafter stated;

NOW, THEREFORE, Seller and Buyer agree as follows:

Seller agrees:

1. To convey title to the Property subject only to the following:
 - a. Paramount rights of the U. S.
 - b. Roads and Highways legally established.
2. To execute and deliver to Buyer within five (5) days, on written request, any and all documents necessary to carry out the terms of this Agreement.
3. To obtain and record a quitclaim deed executed by Vernon B. Smith covering his interest in the Property, and within _____ days his written agreement to be bound by this Agreement.
4. To refrain, for a period of five (5) years, from filing mining locations on the Property, or any other mining claims within Township 4, South, Range 4, 5, and 6 East; Township 5 South, Range 4, 5 and 6 East; and Township 6 South, Range 4, 5, and 6 East and to refrain for five (5) years from filing State of Arizona prospecting permits

JAW
E.M.W.
A.S.

- in said area; either themselves or through persons or corporations acting on their behalf.
5. To assign to Buyer or withdraw the applications described on Exhibit A within five (5) days of request, and Mr. Woolsey agrees to assist Seller in obtaining the rights applied for.
 6. Immediately upon execution of this agreement, to deliver to the Buyer all drilling cores in their possession relating to the property.
 7. Upon five (5) days notice, to deliver to the Buyer all pertinent and related information, geological reports and the like in their possession or under their control which have been made regarding the Property during their ownership of the Property and prior thereto.
 8. Seller represents and warrants that Vernon B. Smith has no beneficial interest in the Property and agrees to indemnify Buyer against any claims by him.
 9. The foregoing provisions 1 through 8 are conditions of this agreement, breach of which will justify rescission, termination or other remedy at the election of Seller.
 10. Before selling their individual or collective royalty interest, to deliver Buyer a true copy of any offer received for such interest and to offer said royalty interest to Buyer at the same terms contained in the offer. Failure of Buyer to accept in writing within fifteen (15) days shall release Seller from this obligation.

Buyer agrees to the following:

1. To pay to Willis Dees, as Trustee for James A. Woolsey and Eula Woolsey, his wife, and for Vernon B. Smith and Alice N. Smith, the sum of TEN THOUSAND DOLLARS (\$10,000.00) upon the execution of this agreement and delivery of the appropriate deeds transferring the property to Buyer or his nominee, it being understood that such payment is made to the Trustee in such capacity, solely because of the record interest of Vernon B. Smith in the Property.
2. To pay to Willis R. Dees, as Trustee for Seller, one percent of the net smelter returns from ore produced from the Property, until a total of ONE HUNDRED THOUSAND DOLLARS (\$100,000.00) has been paid in royalties or cash, whereupon all liability of Buyer shall cease under this Agreement. Buyer shall have no responsibility for the application of the payments by the Trustee.
3. Net smelter returns shall be defined for the purpose of this Agreement as the gross value of all ores delivered to the smelter or other refractories less the nominal charges of smelting, refining, trucking and freight to smelter or other beneficiary agent. With respect to returns from ores produced from Indian lands, there shall also be deducted all rents, royalties or other remuneration, payable under Indian mineral leases.

4. All royalties shall be deemed legally delivered when mailed within fifteen (15) days of settlement date by certified mail to the addresses below along with copies of settlement sheets, freight bills of lading and trucking cost as customary to Arizona mining practices.

MUTUAL AGREEMENTS

1. This is an agreement for an absolute conveyance to Buyer, and royalties to the Seller.
2. Performance of annual assessment work by Buyer on the property is not a condition of this agreement. If operations by Buyer on the property during any ensuing year shall not qualify as adequate annual labor under the mining laws, Seller may enter upon the property and perform such work, but Buyer's failure to so perform shall not be deemed a breach of this agreement.
3. This Agreement binds and inures to the beneficiaries heirs, executors, assigns, nominees, and fiduciaries of all parties.
4. This Agreement nullifies and supersedes any other Agreements regarding the subject property.
5. All notices hereunder shall be given by certified mail as follows:
 - a. To Seller c/o Willis R. Dees, May, Dees & Newell, Attorney at Law, Arizona Land & Title Building, Tucson, Arizona;
 - b. To Buyer c/o B. G. Thompson, Jr., Bilby, Thompson, Shoenhair & Warnock, P.C., 9th Floor Valley National Building, Tucson, Ariz.

STATE OF ARIZONA)
) SS.
County of Pima)

This Agreement was acknowledged before me this 31st
day of December, 1969, by WILLIS R. DEES, as Trustee.

Donald F. Hulshoff
Notary Public

My commission expires:
Sept. 15, 1972

Unpatented mining claims located in Pinal County, Arizona, location notices of which are located in the office of the County Recorder of Pinal County, Arizona.

	<u>Recorded in Book</u>	<u>Page</u>
Sacaton 1-151	442	2 - 152
Sacaton 45A - 45G	442	153 - 159
Sacaton 44A	442	160
Sacaton 35A - 35F	442	161 - 166
Sacaton 34A - 34F	442	167 - 172
Sacaton 1A - 20A	442	173 - 192
Sacaton 34G - 34I	442	367 - 369
Sacaton 41A - 41E	442	370 - 374
Sacaton 44A - 44C	442	375 - 377
Sacaton 48A	442	378
Sacaton 103A - 103B	442	379 - 380
Sacaton 152 - 163	442	381 - 392

Gila River Community Prospecting Permit Applications, Prospecting Permits and/or Mineral Leases on the Gila River Community at the area office, Sacaton, in Township 5, South, Range 5 East and Township 5 South, Range 6 East, G&SRB&M, Pinal County, Arizona.

EXHIBIT A

Page: Records of Pinal County, Arizona.

WITNESS my hand and official seal the day and year first above written.

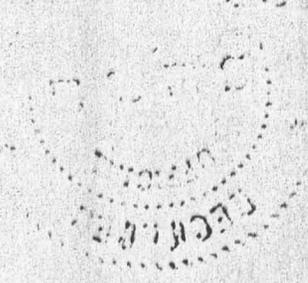
By Sophie M. Smith County Recorder, Deputy.

DOCKET 626 PAGE 55

AGREEMENT FOR ASSIGNMENT

OF

ROYALTY INTEREST



KNOW ALL MEN BY THESE PRESENTS:

That the undersigned, WILLIS R. DEES, as Trustee, for the sum of Ten and no/100 (\$10.00) Dollars and other valuable considerations, the receipt of which is hereby acknowledged, has and by these presents does assign, set over, transfer and convey unto JAMES L. SULLIVAN, an undivided one-half (1/2) interest in and to the royalty interest provided and set forth in that certain Agreement dated December 31, 1969 and of record in the Office of the County Recorder of Pinal County, Arizona, in Docket 587, Pages 116-122, as to the Sacaton Claims and all of the royalty interest provided in said Agreement as to leases received or to be received on the Gila Indian Reservation in Township 5 South and Ranges 5 and 6 East. It is understood that Beneficial Owners have warranted that they are the owners of the beneficial interests described and conveyed herein.

IN WITNESS WHEREOF, the Trustee has set his hand this 26 day of June, 1970.

Willis R. Dees
Willis R. Dees, Trustee

STATE OF ARIZONA)
(ss
COUNTY OF PIMA)

On this the 26th day of June, 1970, before me, the undersigned officer, personally appeared WILLIS R. DEES, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same for the purpose therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

My commission expires:
September 15, 1972

Norothy J. Kulakoff
Notary Public

EXHIBIT A

The following unpatented lode mining claims are situated in the Blackwater Mining District, Pinal County, Arizona and are of record in the office of the Pinal County Recorder as follows:

<u>Name of Claim</u>	<u>Docket</u>	<u>Page</u>
White #59	547	796
White #60	547	797
White #61	547	798
White #62	547	799
White #63	547	800
White #64	547	801
White #65	547	802
White #66	547	803
White #67	547	804
White #68	547	805
White #69	547	806
White #70	547	807
White #71	547	808
White #72	547	809
White #73	547	810
White #74	547	811
White #75	547	812
White #76	547	813
White #77	547	814
White #78	547	815

EXHIBIT B

The following unpatented lode mining claims are situated in the Blackwater Mining District, Pinal County, Arizona and are of record in the office of the Pinal County Recorder as follows:

<u>Name of Claim</u>	<u>Docket</u>	<u>Page</u>
Red 290	549	780
Red 291	549	781
Red 292	549	782
Red 293	549	783
Red 294	549	784
Red 295	549	785
Red 296	549	786
Red 297	549	787
Red 298	549	788
Red 299	549	789
Red 300	549	790
Red 301	549	791
Red 302	549	792
Red 303	549	793
Red 304	549	794
Red 305	549	795
Red 306	549	796
Red 307	549	797
Red 308	549	798
Red 309	549	799



JACK WILLIAMS
Governor

ARIZONA STATE LAND DEPARTMENT

1624 WEST ADAMS - ROOM 400
PHOENIX, ARIZONA 85007

February 22, 1972

ANDREW L. BETTWY
Commissioner
271-4621

Accounting
271-4624

Forestry
271-4633

P. P. Application No. 21662

Leasing
Records
271-4634

Dear Applicant:

The following described land was open and available at the time your application was filed with the department.

Lots 3&4; S $\frac{1}{2}$ NW;
Sec. 1 Twp. 6S Rge. 5E Acres 169.12

Mineral
Oil & Gas
271-4628

A rental statement and bond forms are enclosed for your use. One copy of the bond and the rental per billing must be submitted on or before the due date as indicated in the statement.

Sales
271-4631

If rental and bond are not returned to this office your application will automatically be denied.

Soil Conservation
271-4625

STATE LAND DEPARTMENT

kea
8-10-70
2-72

Water Control
271-4629



JACK WILLIAMS
Governor

ARIZONA STATE LAND DEPARTMENT

1624 WEST ADAMS - ROOM 400

PHOENIX, ARIZONA 85007

February 22, 1972

ANDREW L. BETTWY

Commissioner

271-4621

Accounting

271-4624

Forestry

271-4633

Leasing

Records

271-4634

Mineral

Oil & Gas

271-4628

Sales

271-4631

Soil Conservation

271-4625

Water Control

271-4629

*Previous
top filed
P.P.s
Sections 1 & 2*

P. P. Application No. 21663

Dear Applicant:

The following described land was open and available at the time your application was filed with the department.

Lots 1-4; S $\frac{1}{2}$ N $\frac{1}{2}$ Sec. 2 Twp. 6S Rge. 5E Acres 339.04

A rental statement and bond forms are enclosed for your use. One copy of the bond and the rental per billing must be submitted on or before the due date as indicated in the statement.

If rental and bond are not returned to this office your application will automatically be denied.

STATE LAND DEPARTMENT

kea

8-10-70

2-72

Mine planned

*Tucson Daily
Citizen 9/5/72*

by ASARCO



THIS MONTH IN MINING

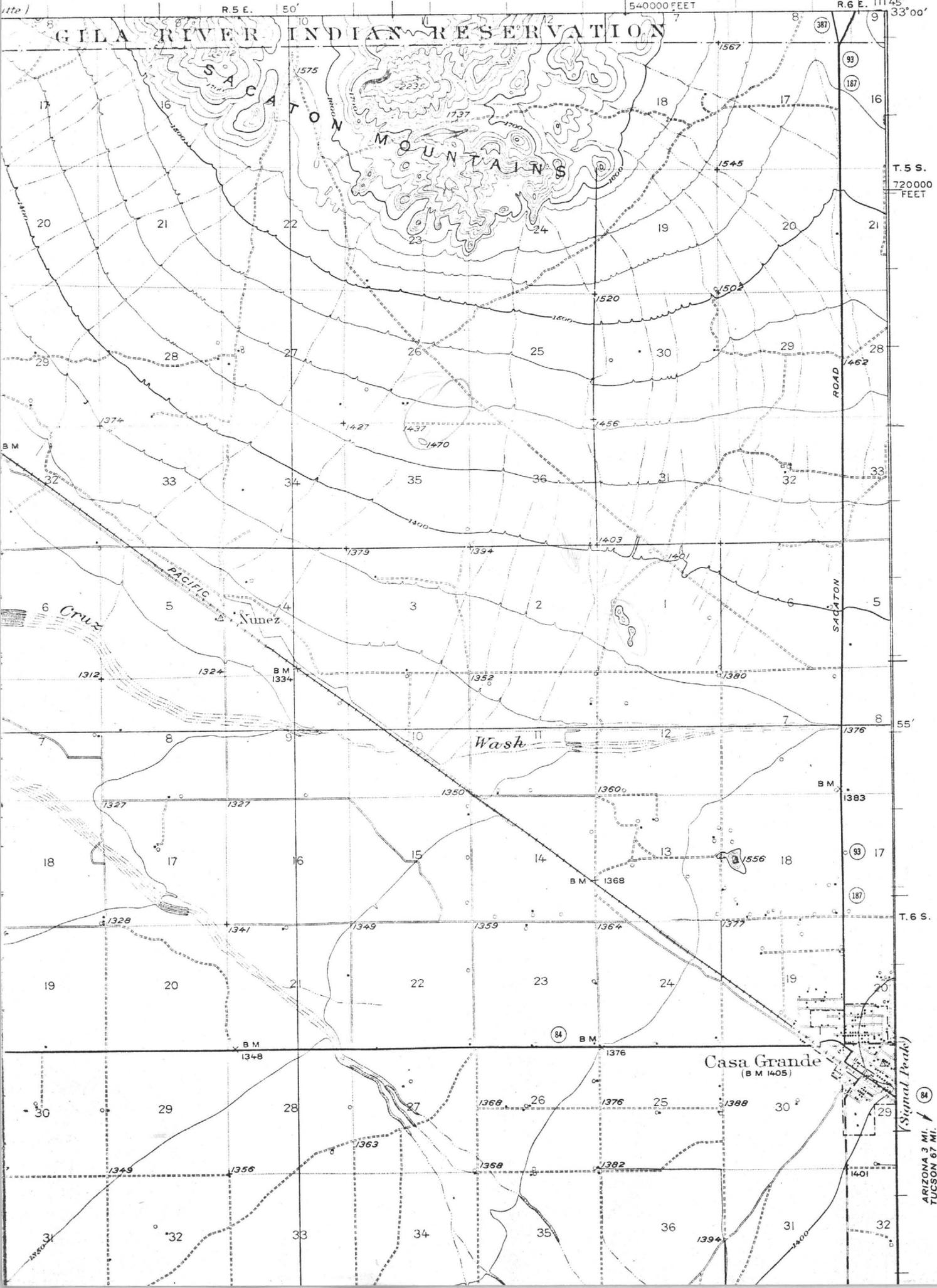
E/MJ

May 1972

Asarco plans two new copper projects in Arizona



(Sacaton)



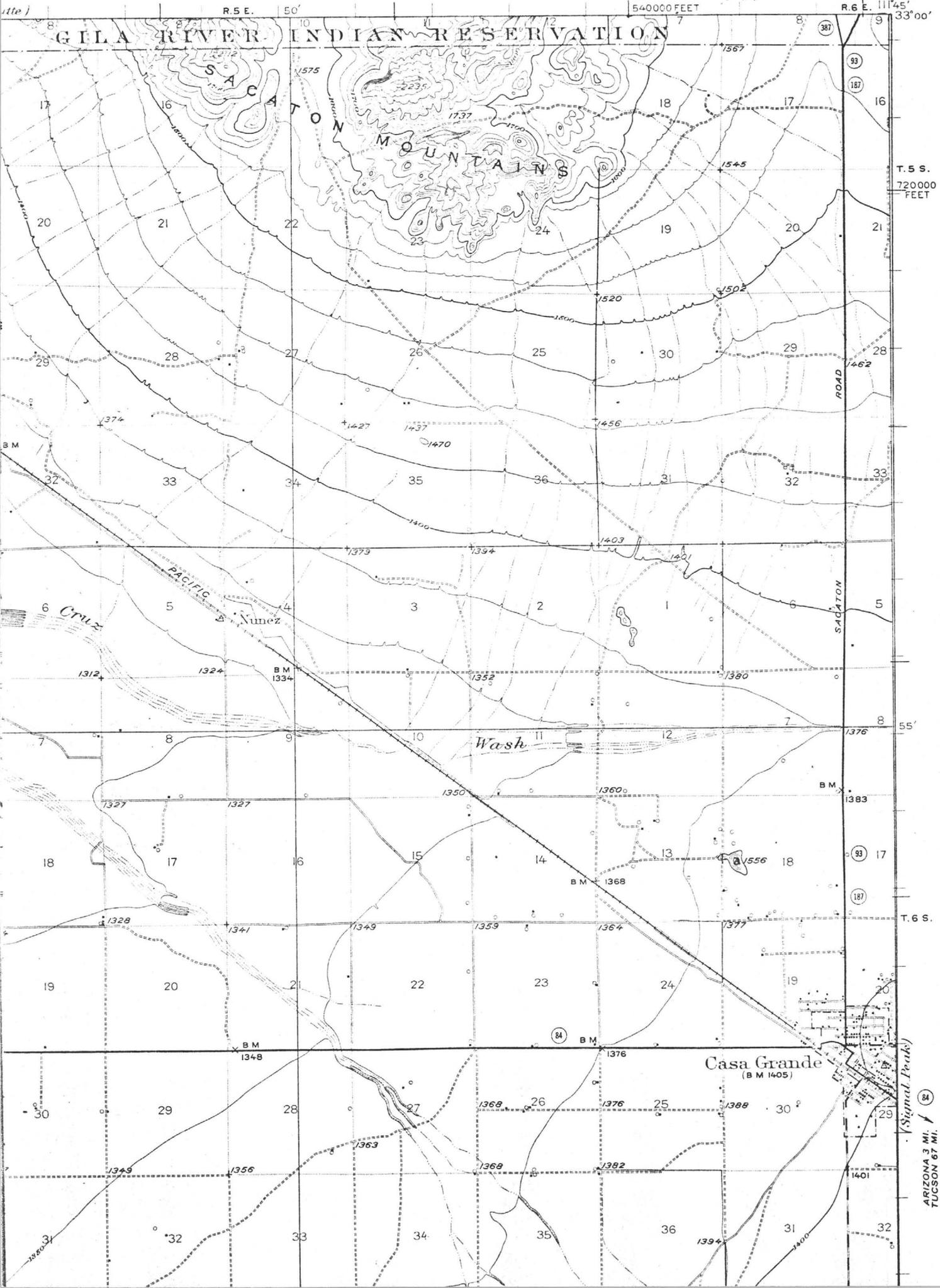
T. 5 S.
720000
FEET

T. 6 S.

ARIZONA 3 MI.
TUCSON 67 MI.

(Signal Peak)

(Sacaton)



T. 5 S.
720000
FEET

T. 6 S.

ARIZONA 3 MI.
TUCSON 67 MI.

February 29, 1972

HEINRICHS GEOEXPLORATION CO.
806 West Grant Road
Tucson, Arizona 85703

HEINRICHS
GEOEX

Cable: GEOEX



REC'D MAR 2 1972 REC'D

MEMORANDUM

SUBJECT: State and Federal Claims located in Sections 34, 36, Township 5 South, Range 5 East, and Sections 1, 2, 11, and 12 Therein.

BOX 5964 TUCSON, ARIZONA 85719
PHONE: (AREA 602) 623-0578

Development by Heinrichs Geoexploration Co., and/or Their Clientele.

- 1) James Sullivan is willing to grant to the above named company and/or parties a period of 60 days to allow said parties to explore said lands geophysically and geologically only; it being understood that such exploration is without cost to James Sullivan and will likewise be a "free period" to Heinrichs and associates. However, a minimum of \$_____ in geophysical and geological work will be expended on the property by Heinrichs and associates during this 60-day period.
- 2) At the end of this 60-day period, Heinrichs and associates may terminate by turning over to Sullivan, any and all information obtained.
- 3) At the beginning of the time period following this initial 60-day period, and additional 120-day time period will be granted for the purpose of preliminary drilling on any potential target discovered by the geophysics. In return for the granting of this additional 120-day time period, Heinrichs and associates will reimburse Sullivan the monies expended on this property for the past fiscal year. A minimum amount of _____ footage must be drilled during this 120-day period.
- 4) Heinrichs and associates may obtain an interest in this property under a lease or an option, or retain an interest through Sullivan by receiving proceeds from a sale, lease or option. Or, they may acquire all right, title and interest to the property on a yet to be negotiated end price, with Sullivan reserving the right to acquire through purchase (buy-back) an interest back into the property and its development.

The above points encompass some basic outlines and, obviously, it is a matter for face-to-face negotiation, to come to a final understanding and consequently, a more detailed agreement.

Respectfully submitted,

James Sullivan

James Sullivan
4821 N. Scottsdale Rd. Suite A-9
Scottsdale, Arizona 85251

JS/jb

in situ by lectron

LINE

LINE 12

275
1650

Fence Between 25 & 36

START

Pa Ma
1000 40.0

20.0

100

10

L 12

Pa Ma
1000 40.0

20.0

100

10

L 12

Fence

HOR. SCALE 1" = 500'
CURRENT ELECTRODE TO NORTH.

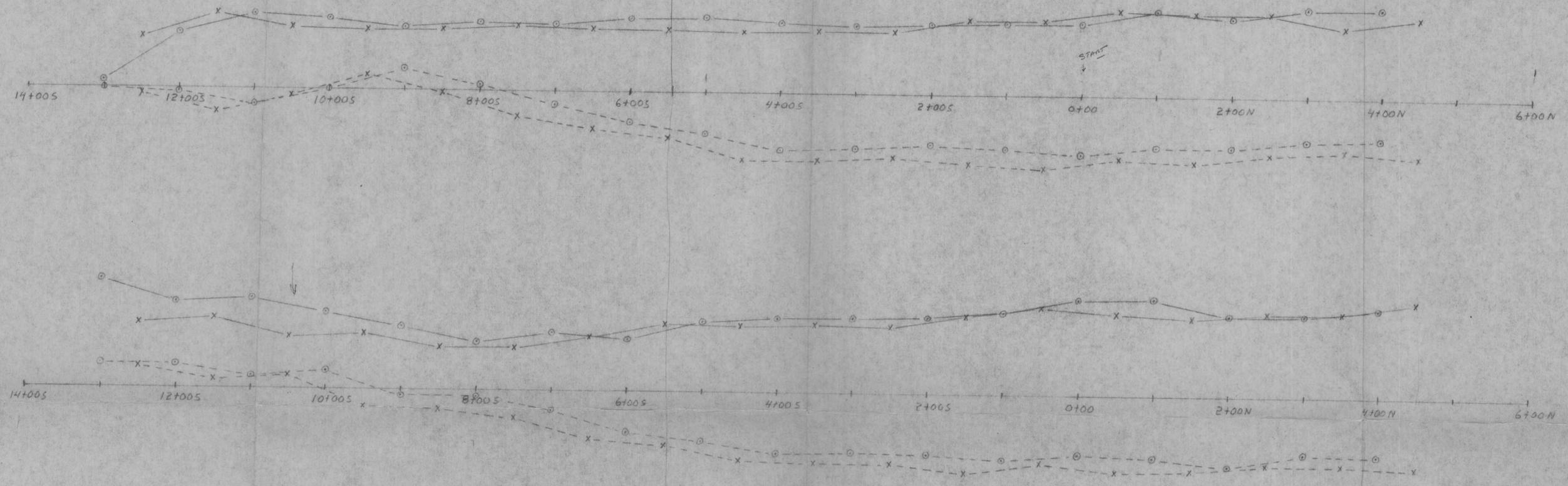
CASA GRANDE
Pole Dipole Array

Time-
NOT ALT.

Ma Ca

n=3
x-----x

n=4
o-----o





R.4E R.5E CONTOUR INTERVAL @ 25 FEET

SCALE

1 INCH TO 1/4 MILE
1/2 INCH TO 1 MILE

AMERICAN SMELTING AND REFINING CO. CLAIMED AREA.

BESSUL MINING AND DEVELOPMENT CO.

INFORMATION

- ▲ DENOTES DRILL HOLE SITE
A-ASAR, 620' TOTAL DEPTH
28- DRILL HOLE NUMBER
⊗- DRILL HOLE LOCATION
■- MINERALIZED DRILL HOLE
- ⊗ DENOTES DRILL HOLE FOR MEXCO
- MARV 13 CLAIM NAME AND NUMBER
- IP LINE AND ELECTRODE POSITIONS
- WEAK IP ANOMALISM
- ⊗ MOBILE MAGNETIC COVERAGE
- ⊗ TOTAL DESTA CONGLOMERATE
- ⊗ HAND MAGNETICS

BASE MAP FROM J.L. SULLIVAN

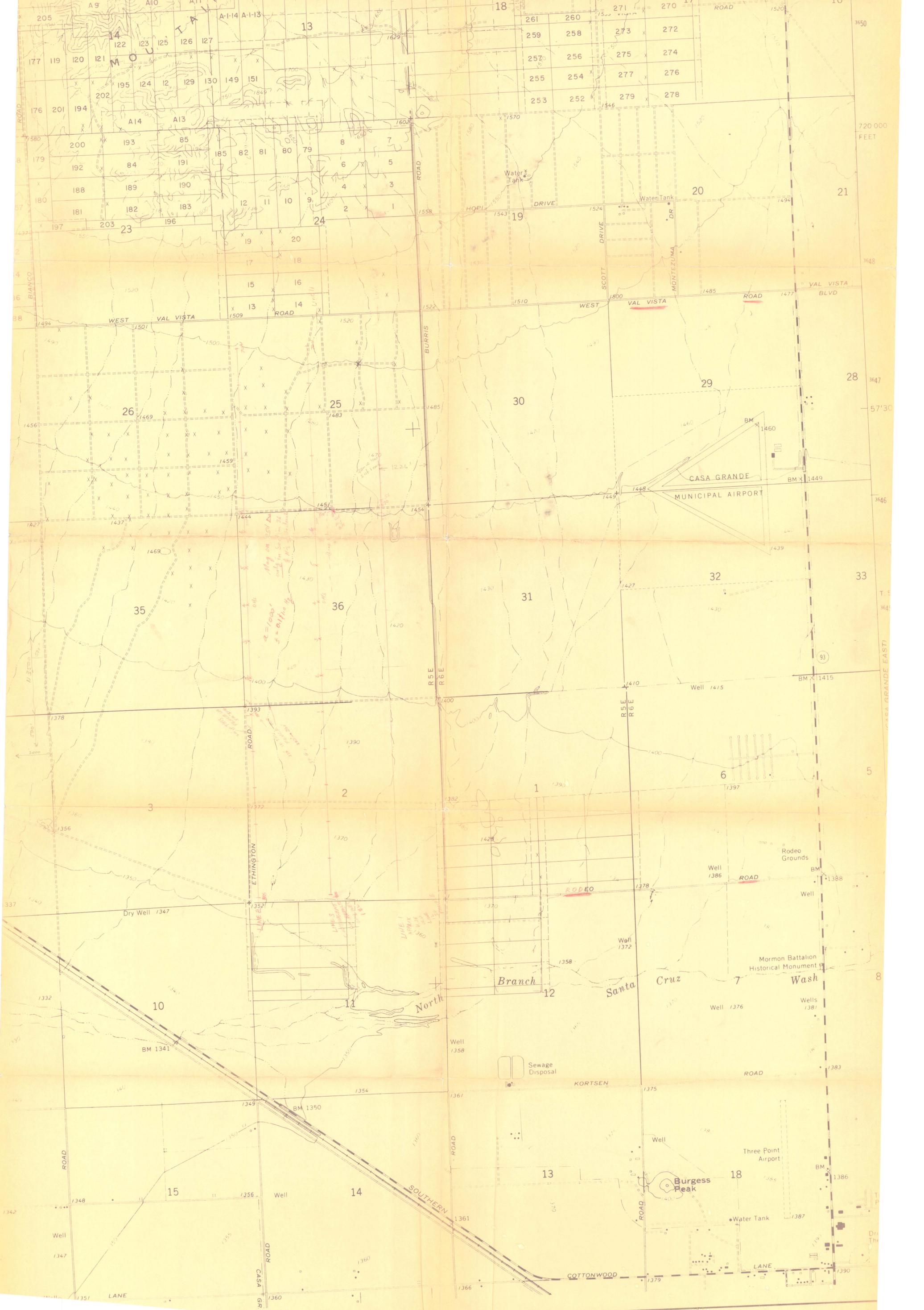
SECTION 16, T.5S. R.5E

Private land: Sold by State
 Patent owner: Angelo Guina, 1893 Wyo. Ave. Forty Fort Pa.
 Claims optioned to George Freeman by Paul Hinshaw & A. B. Walker
 Located: August 12, 1963

D - Droupy Claim Group
 R. B. - Roscoe Bob Claim Group

Woolsey Claims known as the Hunch Group, Located August 28, 1963
 and overlap the public domain part of Sec. 16 and the Droupy and
 Roscoe Bob Claims.

HEINRICHS GEOEXPLORATION COMPANY P.O. Box 5671 Tucson, Arizona		
COMPOSITE MAP		
FOR MINERALS EXPLORATION CO.		
SACATON PROJECT PINAL COUNTY ARIZONA		
SCALE: 1" = 1/4 MILE	CONTOUR INTERVAL:	REVISIONS
DATE: AUG 1963	DATA BY:	9/25/63
DRAWN BY:	SHEET OF	11/18/63
	DRAWING NO.:	FILE:



MEMORANDUM OF AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

That, by written exploration lease option agreement entered into as of the _____ day of _____, 1972, JAMES P. L. SULLIVAN and FLORENCE SULLIVAN, his wife, leased to _____ those _____ those certain unpatented mining claims in the Blackwater Mining District of Pinal County, Arizona, more particularly described in Exhibit "A" and "B" attached hereto.

The term of the lease is for a period of six (6) weeks commencing on the _____ day of _____, 1972, but the Lessee and Agreement thereunder has the option to extend the terms of the lease for additional time periods up to two and one-half (2 1/2) year terms. The Lessor thereunder further granted to said Lessee the option to purchase said unpatented mining properties upon the payment by Lessee of a specific aggregate sum, against which the rentals payable under said lease shall be credited.

IN WITNESS WHEREOF, the parties have executed this memorandum as of the _____ day of _____, 1972.

James P. L. Sullivan

Florence Sullivan

Notes to accompany
EXPLORATION AGREEMENT

Four paragraphs superseding Paragraph #1

- a. Parties involved
- b. Land involved
- c. [REDACTED] rights to explore
- d. Consideration

Paragraph #1

Representation by me about the land:

1. Sullivan owns by virtue of location subject to U.S.
2. Sullivan has exclusive rights to PP 17677 & 18962
3. Sullivan applied for PP on land (Exhibit C)
4. Sullivan located claims on Sections 11 & 12
5. Title free & clear (exception described in Sec. 2)
6. Sullivan has right to enter into the agreement

Paragraph #2

Interest of Alice Smith: copy of contract and interest that was acquired from Woolsey enclosed.

Copy of agreement of royalty interest and agreement itself will be given [REDACTED] for review.

Paragraph #3 & #4

The time period for exploring and payments. The work period involving time and expenditures for the ground.

1. Exploration time period:	6 weeks
Costs:	\$2,000.00
Plus rentals:	1,100.00
Funds sub-total:	3,100.00
Plus any additional exploration work but not a requirement.	
2. Next period:	4 months
Cost:	\$5,000.00
Plus work:	25,000.00
Time sub-total:	5 1/2 months
Funds sub-total:	\$33,100.00
3. Second extension Period:	4 months
Time sub-total:	9 1/2 months
Sullivan receives:	\$5,000.00
Ground work:	25,000.00
Fund sub-total:	\$63,100.00
4. During option period:	
Sullivan receives:	\$10,000.00
Time period:	4 months
Time sub-total:	13 1/2 months
Fund sub-total:	\$73,100.00

\$12,000 / period on Section 36

\$48,000 Total

or if dropped by assessment

5. Next option period:	4 months
Sullivan receives:	\$10,000.00
Time sub-total:	17 1/2 months
Fund sub-total:	\$83,100.00
6. Next option period:	4 months
Sullivan receives:	\$10,000.00
Time sub-total:	21 1/2 months
Fund sub-total:	\$93,100.00
7. Next option period:	4 months
Sullivan receives:	\$10,000.00
Time sub-total:	25 1/2 months
Fund sub-total:	\$103,100.00

This is plus any additional exploration work that is needed for assessment requirements.

Paragraph #5

The rights to purchase, the amount to be paid, the total in price:

The remainder of the option payments to Sullivan after exercising option to purchase may be paid through escrow under instructions over a yet to be decided time period.

Paragraph #6

Title and the defense to the title:

1. [REDACTED] has one year from agreement date to investigate title,
2. May null for any documents

3. Sullivan has reasonable time to produce documents, not required to furnish title abstract.

4. If [redacted] doesn't call for documents within that years time Sullivan will have no obligation.

5. ^{Written consent} After year if [redacted] finds title unmarketable then Sullivan will cure same.

6. If Sullivan can't remedy title situation then [redacted] must. Sullivan assisting.

7. [redacted] may then deduct expenses of cure from purchase price but not from exploration funds.

8. [redacted] may not pay conflicting claimants and charge Sullivan without written consent.

Paragraph #7

The assessment work:

1. [redacted] performs annual work on claims and furnishes affidavits until agreement expires or is terminated (prior to 60 days of end)

2. labor on claims may not be performed elsewhere even though it may tend to develop the claims.

Paragraphs #8 - #21

General conditions of a contract (boiler plate)

#8. Protection from liens and damages -- [redacted] pays all expenses; permits no liens; indemnifies liabilities. If Sullivan wants "no lien" notice, he must post it.

#9. Taxes & Assessments: [REDACTED] pays all while option to purchase is in effect. No interest provided but it is understood to include interest at 4% per annum.

#10. Inspection of Property: Sullivan can inspect at any time.

#11. Amendment, Relocation & Patent of Claims, Application for Lease: [REDACTED] at his own expense may amend, or relocate. At [REDACTED] request Sullivan shall apply for patent at [REDACTED] expense.

#12. Boundary Protection:

1. other lands within described sections acquired by Sullivan may become part of agreement upon [REDACTED] payment
2. if [REDACTED] acquires additions within defined sections then they will be part of this agreement
3. if [REDACTED] doesn't purchase then he must disclaim any interest as in paragraph c

#13. Escrow:

1. at any time [REDACTED] may appoint an escrow agent acceptable to Sullivan subject to this agreement
2. [REDACTED] prepares instructions approved by Sullivan
3. following escrow instructions Sullivan delivers deed giving [REDACTED] property title
4. escrow agent holds all documents

#14 Memorandum Construction: Contemporaneously with execution of this agreement Sullivan and [REDACTED] will record a memorandum of agreement where real property documents are recorded.

#15. Further Assurances: Sullivan and [REDACTED] agree to provide at each other's request any reasonable information

#16. Notices: must be written and registered in some way and sent to the addresses given.

#17. Changes: This agreement is final, nothing will be changed. It supersedes all others.

#18. Governing Law: are the laws of the State of Arizona

#19. Time of the Essence: it is

#20. Warranty: Absolutely none

#21. Termination: Data: Removal of Property:

1. termination by Sullivan: after 20 days from date of written notice of failure by [REDACTED] Remedy in addition to that of law.

2. termination by [REDACTED] at any time after written notice to Sullivan and submitting simultaneously all data called for and only before exercising of option to purchase. [REDACTED] payments not required after ²⁰~~30~~ day written notice prior to next extended exploration period, subject to obligations after terminating no obligations except due dates prior to the

termination.

3. data: after termination within 20 days [redacted] must deliver to Sullivan all records, maps, etc. supplied to [redacted] by Sullivan. He must deliver all technical reports and all property information.

4. removal of property: 30 days given to [redacted] to remove his equipment except casings and supports. He may not remove any if in default. Sullivan not responsible during 30 days for safe-keeping. [redacted] may have a watchman. If not removed within 30 days then Sullivan may retain.

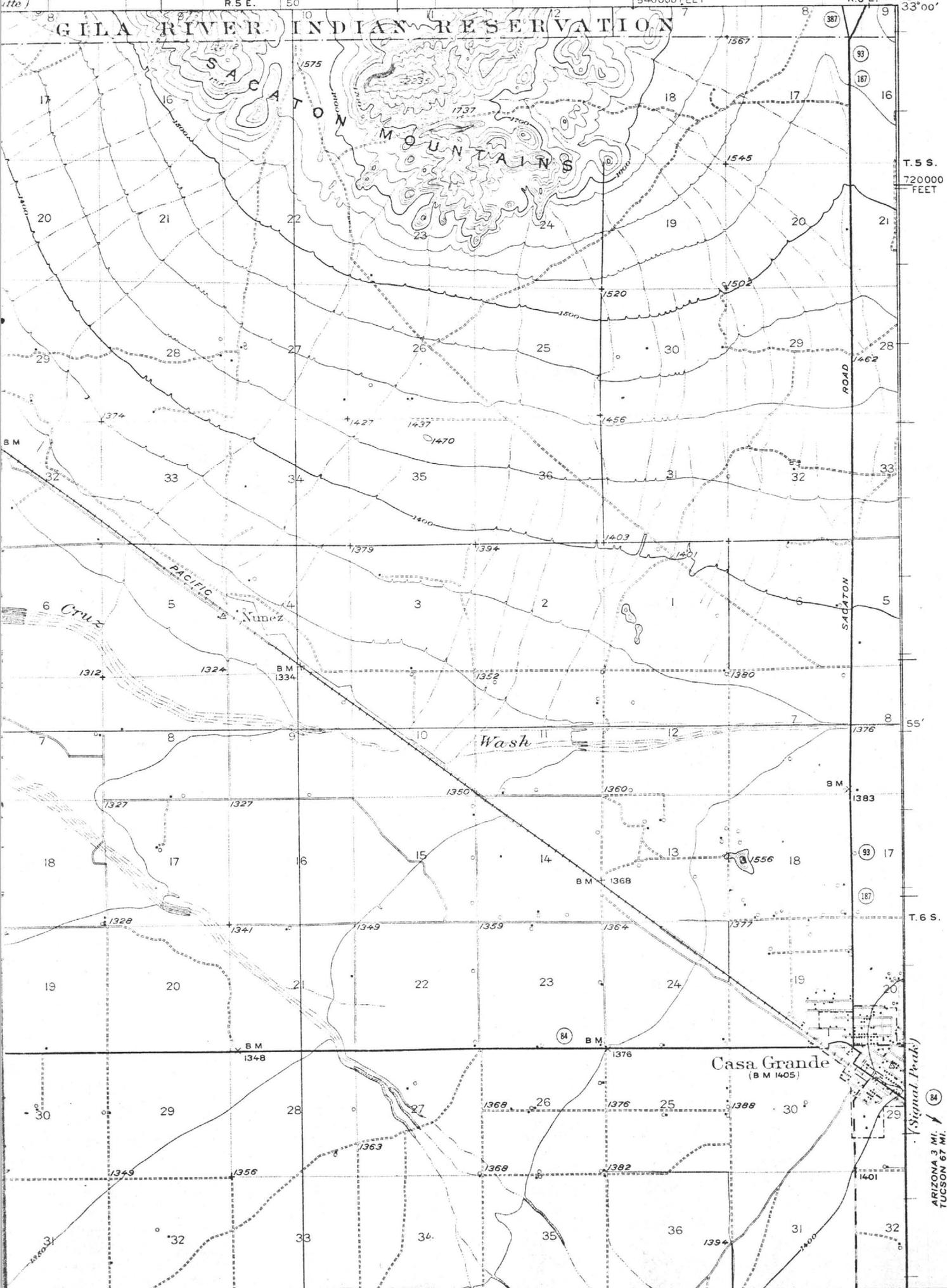
Paragraph #22

Involves assignment and transfer of the property and [redacted] sells the property prior to his exercising of his option to pay then Sullivan benefits in the excess of such sale of the property.

1. freely assignable, binding to successors, heirs, assigns.
2. if selling price exceeds \$2 million then excess (after selling costs) is divided as 80% to [redacted] and 20% to Sullivan
3. assigns must agree to carry out [redacted] obligations; must assume liability for performance of obligations.

540000 FEET R. 5 E. 50' R. 6 E. 111°45' 33'00"

GILA RIVER INDIAN RESERVATION



T. 5 S. 720000 FEET

T. 6 S.

ARIZONA 3 MI. TUCSON 67 MI. (Signal Peak)

James Sullivan
4821 North Scottsdale Road
Suite 9-A
Scottsdale, Arizona 85251

June 14, 1972

Chris Ludwig
Heinrichs Geoexploration Company
806 West Grant Road
Tucson, Arizona 85703

Dear Chris,

Enclosed you will find a map indicating the property and also showing the outline of American Smelter & Refining Company's property boundaries which will encompass the open pit and underground mine, the mill -- concentrating -- rail facilities.

It is my understanding the property to the east was acquired for water rights in which American Smelter & Refining paid \$1,285,000.00. The majority of AS & R's property is being held by a prominent trust company for tax purposes.

A brief explanation of the property and of the billing procedure is as follows:

State leases on 34 and 36. (34 is dark green). 34 is one year old. Cost of exploring \$10.00 per Acre for this year which began February 18, 1972.

Section 36 (dark green) is beginning its third year of exploration and we must expand on the property \$20.00 per Acre.

On Sections 1 & 2 (light green) prospecting permit application. State requires that you pay rents prior to exploring. Cost of rentals are approximately \$1100.00

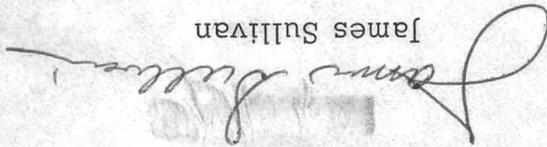
South half Section 1 (brown) Federal Mining claims, mineral and surface in which Alice Smith is involved.

The northwest quarter section of 11 & 12 (yellow) are mineral rights only which is self-explanatory (a person may have - problems with a surface land owner).

In reference to billing procedures, as far as the state property is concerned, by rules and regulations of the State of Arizona relating to a prospecting permit issued, the permittee must expend on the property a specific amount of funds. Consequently, all expenditures, rents paid, etc. must come through my account since I am the permittee. This may be done, as you know, by having [redacted] have funds paid to the order of James Sullivan, in turn James Sullivan pays Heinrichs. This procedure must continue until such time as [redacted] appears on the state records as permittee. Then he may account directly to you.

Accompanied with the draft of an Exploration and Option Agreement, Memorandum Agreement is a copy of an agreement entered into in 1969 with Willis Dees, Smiths and Woolsey which is mentioned in paragraph 2, page 2 of the proposed agreement, and also a simple explanation of the agreement.

Sincerely,


James Sullivan

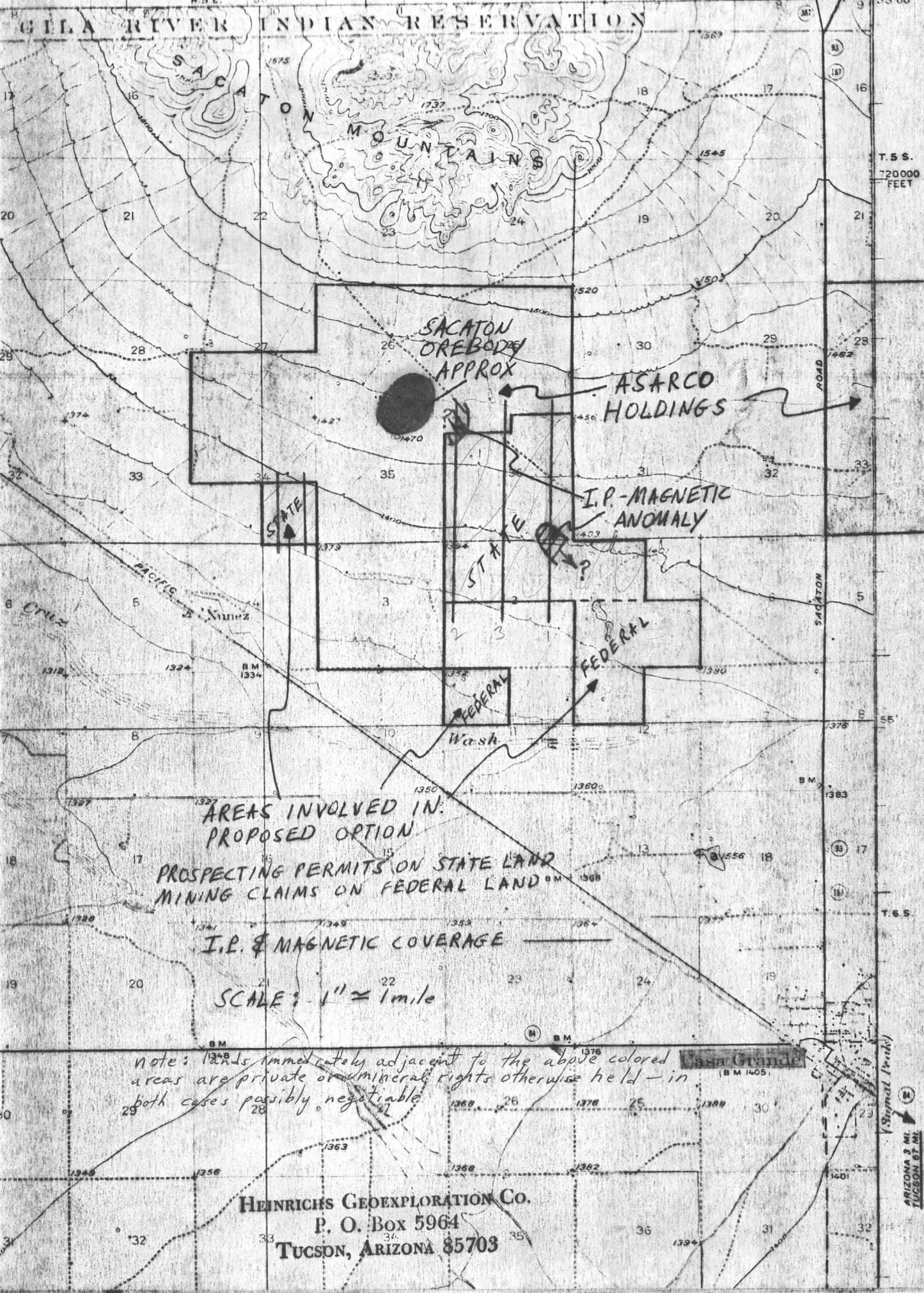
Enclosures
JS/hs

Sketch for ~~the~~

6/8/72

(PINAL COUNTY)
CASA GRANDE QUADRANGLE
54000 FEET

11°45' 33" 00"



AREAS INVOLVED IN:
PROSPECTING PERMITS ON STATE LAND
MINING CLAIMS ON FEDERAL LAND

I.P. & MAGNETIC COVERAGE

SCALE: 1" = 1 mile

note: lands immediately adjacent to the above colored areas are private or mineral rights otherwise held - in both cases possibly negotiable

HEINRICH'S GEOEXPLORATION CO.
P. O. Box 5964
TUCSON, ARIZONA 85703

Signal Point
ARIZONA 3 MI. TUCSON 07 MI.

Sketch for Mr. Shaw 4/6/72

HEINRICH'S GEO EXPLORATION CO.

P. O. Box 5964

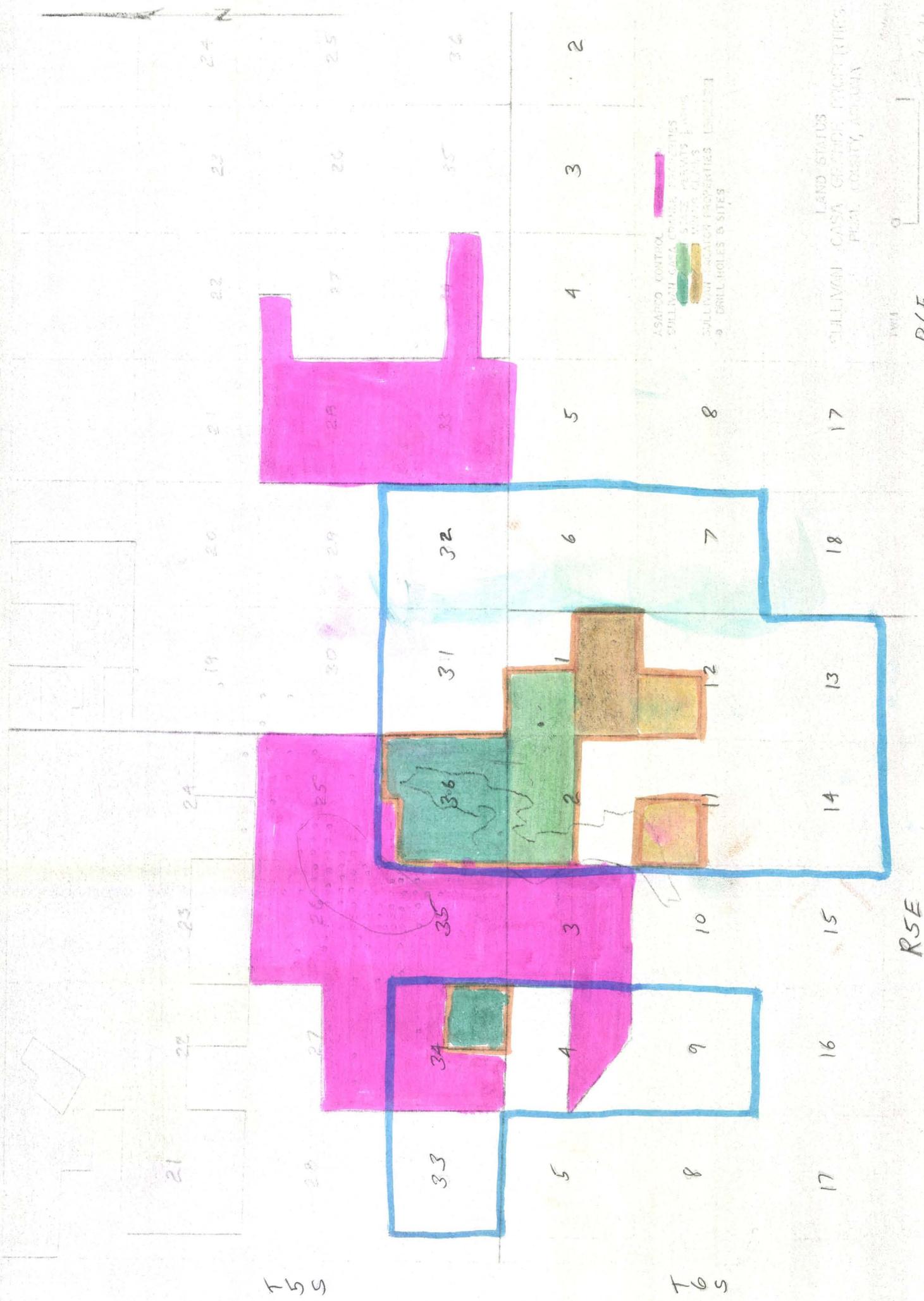
Tucson, Arizona 85703

WESTERN UNITED STATES 1:50,000

1/4" = 1 mile



GILA RIVER INDIAN RESERVATION



Outline of Property



Exhibit "A"

Federal Mining Claims Surface & Minerals



Exhibit "B"

Federal Mining Claims Minerals Only



Exhibit "C" (I)

State Prospecting Permits



Exhibit "C" (II)

State Prospecting Permit Application



Boundary Protection

ASARCO CONTROL
 SULLIVAN, CASA GRANDE, PUGNAC RIFES
 STATE PROSPECTING PERMITS
 FEDERAL MINING CLAIMS
 FEDERAL MINING CLAIMS MINERALS ONLY
 SULLIVAN, CASA GRANDE, PUGNAC RIFES
 DRILL HOLES & SITES

LAND STATUS
 SULLIVAN, CASA GRANDE, PUGNAC RIFES,
 PIMA COUNTY, ARIZONA

0 1 2
 MILES
 R6E

R5E

T 15 S

T 16 S

EXPLORATION AND OPTION AGREEMENT

THIS EXPLORATION AND OPTION AGREEMENT, herein designated "Agreement," is made by and between JAMES P. L. SULLIVAN and FLORENCE M. SULLIVAN, husband and wife, of Scottsdale, Arizona, herein designated "Sullivan," and [REDACTED] herein designated [REDACTED]

WITNESSETH:

WHEREAS, Sullivan owns certain unpatented lode mining claims in the Blackwater Mining District, Pinal County, Arizona, more particularly described in Exhibit A & B hereto, and either holds or has applied for prospecting permits from the State of Arizona covering portions of Sections 34 and 36, Township 5 South, Range 5 East, and Sections 1 and 2, Township 6 South, Range 5 East, G&SRM, Pinal County, Arizona, more particularly described in Exhibit C attached hereto, all mining claims and prospecting permits collectively referred to herein as the "Property"; and

WHEREAS, Sullivan and [REDACTED] desire to enter into this Agreement whereby Sullivan shall grant to [REDACTED] the sole and exclusive right to explore the Property and an exclusive option to purchase the Property or acquire an undivided interest therein;

NOW, THEREFORE, in consideration of Ten Dollars (\$10.00) paid to Sullivan by [REDACTED] the receipt of which is hereby acknowledged, and in consideration of the covenants herein contained, the parties agree as follows:

1. Representations

Sullivan represents to [REDACTED] that Sullivan owns by virtue of locating the lode mining claims, subject to the paramount title of the United States, and has exclusive rights to State of Arizona Prospecting Permits Nos. 17677 and 18962 and has applied for prospecting permits on state land as described in Exhibit C; and located mining claims on Sections 11, 12 in Township 6 South, Range 5 East; that title to the Property, excepting only the permits and the applications for permits, is free and clear of all liens and encumbrances and of all claims and rights whatsoever with the exception of the interest described in Section 2 hereof; that Sullivan has the full right, power and capacity to enter into this Agreement upon the terms set forth herein; that Sullivan has

recorded affidavits of assessment work for the year ending September 1, 1971; and that all required expenditures and payment of rents have been made under the prospecting permits 17677 and 18962 and the same were extended for an additional year effective February 18, 1972.

2. Interest of Others

Sullivan represents that Sullivan's rights in the White #59 through White #78 claims, more particularly described in Exhibit A hereto, are subject to a retained royalty interest of one-half of one percent (0.5%) of net smelter returns from production from the said claims until there has been paid the sum of \$50,000.00.

3. Exploration Period

Sullivan hereby grants to [REDACTED] the sole and exclusive right for a period of six (6) weeks from the effective date hereof to enter upon the Property, with the right

- a) to explore the property by means of geological, geophysical and geochemical methods,

and will be designated as the initial exploration period and

- Any extended period thereafter [REDACTED] will have
b) ~~with~~ a right to drill and excavate such holes, pits, shafts and other excavations and to conduct such surveys, exploration, sampling, assaying, investigations and other operations in such manner and to the extent as [REDACTED] in his judgment and discretion may deem advisable, for the purpose of ascertaining any and all facts relating to the occurrence of the ores and minerals in and under the Property ^{this} ~~which~~ period, together with any extension thereof, is designated as the "Exploration Period", and ~~that all of~~ the exploration work ^{with the exception of the initial exploration period} of the type above mentioned shall be applicable to assessment and state requirements.

The Exploration Period may, at [REDACTED] election, be extended for an additional period of four (4) months by payment to Sullivan of the sum of Five Thousand Dollars (\$5,000.00) on or before six (6) weeks from the effective date of this Agreement.

The Exploration Period may, at [REDACTED] election, be extended for a second additional period of four (4) months by payment to Sullivan of the additional sum of Five Thousand Dollars (\$5,000.00) at any time, but at least thirty (30) days prior to the expiration of the first four (4) month extended exploration period.

4. Work Requirements insert

Also that if this agreement terminates prior to September 1, 1972 [REDACTED] will have locations placed upon the ground covering all the area more particularly described in Exhibits A and B of this agreement, old stakes may be adapted but stakes will be replaced where needed, location notices will be recorded and [REDACTED] shall deed all of those locations covering the area of A and B to Sullivan. From this point on [REDACTED] will be relieved of any and all obligations, liabilities and responsibility with reference to these locations.

4. Work Requirements

During the initial six (6) weeks of the Exploration Period, ██████ shall expend no less than Two Thousand Dollars (\$2,000.00) on the Property in work of the nature described in Paragraph 3, Subparagraph a of this Agreement, and shall cause to be paid upon the execution of this Agreement the rentals due on the state prospecting permit applications more particularly described on Exhibit C, Part II. See attached insert

Should ██████ elect to extend the Exploration Period, ██████ shall expend not less than Twenty-Five Thousand Dollars (\$25,000.00) on the Property during each such extension in work of the nature described in Paragraph 3 a and b of this Agreement of which amount, at least Twelve Thousand Five Hundred Dollars (\$12,500.00) shall be spent on drilling.

If ██████ elects to extend its option to purchase the Property beyond the Exploration Period as provided in Section 5, ██████ shall have no obligation to perform any work on the Property with the exception of the assessment work specified in Section 8.

5. Option to Purchase

At any time during the Exploration Period and any extension thereof, ██████ shall have the exclusive option to purchase all of Sullivan's rights in the Property by giving written notice to Sullivan ^{thirty (30) days prior to the end of an exploration period.} This option to purchase may, at ██████ selection, be extended four (4) months beyond the Exploration Period by the payment of Ten Thousand Dollars (\$10,000.00) on or before the expiration date of the Exploration Period. This Agreement may be further extended for three (3) additional successive four (4) month extensions upon making a payment of Ten Thousand Dollars (\$10,000.00) to Sullivan on or before the expiration date of the previous extension and giving notice to Sullivan as above provided.

If ██████ elects to purchase the Property, the total purchase price shall be the sum of Two Million Dollars (\$2,000,000.00). The said price shall be reduced by all payments therefor made by ██████ to Sullivan under the provisions of Sections 3 and 5.

6. Title; Title Defense

██████ shall have a period of one year after the date of this Agreement to investigate the title of Sullivan. During said period of time, ██████ may call for any and all documents and other evidence reasonably necessary to establish free and clear title to all of the Property. Thereafter, Sullivan shall be given a reasonable time to

produce such documents, but shall not be required to furnish an abstract of title or a title report from a title company. If no documents or other evidence are requested by [REDACTED] within said year's period of time, or the documents and other evidence requested are supplied within a reasonable time after request, then the obligation of this Paragraph 6 to furnish documents and other evidence in connection with the investigation of title will have been discharged by Sullivan. If, during the period of one year after date of this Agreement, [REDACTED] shall notify Sullivan of any defects in the title of the property which, in the opinion of [REDACTED] counsel, render title unmarketable, Sullivan shall, at his own expense and cost, forthwith take such action as may be necessary to cure the same so as to make title marketable in the opinion of [REDACTED] counsel.

If [REDACTED] gives such notice to Sullivan that the title is unmarketable and if Sullivan fails or is unable or unwilling to promptly undertake to correct the defect in the title, then [REDACTED] is required, with reasonable dispatch, to perfect the title. In that event, Sullivan shall execute all documents and shall take such other actions as are reasonably necessary to assist [REDACTED] in his efforts to correct the defects in the title. If [REDACTED] corrects any defects, he may deduct expenses and cost thereof, including reasonable attorney fees, from the amount which may come due Sullivan from the purchase price mentioned in Paragraph 5 but not from any funds paid during the exploration time period or any extensions thereof; provided, however, [REDACTED] shall not have the right to pay conflicting or adverse claimants any sums of money and charge Sullivan without the written consent of Sullivan.

7. Assessment Work

With the exception of the initial exploration period (More part. described in para. 4) [REDACTED] agrees to perform annual work required to maintain the unpatented claims described in Exhibits A and B and Prospecting Permits described in Exhibit C and to record, file or furnish to Sullivan affidavits of such performance for any assessment year or prospecting permit year in which this Agreement has not expired or been terminated prior to sixty (60) days before the end of such year, and all labor performed on the claims or group of claims or the state prospecting permits encompassed in the property to which such labor is to apply, shall not be performed elsewhere, even though such labor performed elsewhere tends to develop the claims or group of claims.

8. Protection from Liens and Damages

██████ agrees to pay all expenses incurred by him in his operations on the property and to permit no liens arising from any act of ██████ to remain upon the property, and to indemnify Sullivan against any liability to third persons and to the State of Arizona resulting from ██████ operations hereunder. If Sullivan desires to post, maintain and record a "no lien" notice, it shall be his obligation to do so.

9. Taxes and Assessments

██████ agrees to pay all taxes, assessments and other governmental charges, if any, imposed upon the property while the option to purchase is in effect, and Sullivan agrees to promptly transmit to ██████ any notices pertaining to such taxes, assessments and charges which Sullivan may receive; provided, however, that, if this Agreement is in effect for only a portion of any tax period, ██████ shall be liable for only the applicable pro rata share of such taxes, assessments and charges.

Although this Agreement does not provide for interest, it is understood by and between the parties hereto that to the extent that any of the foregoing payments referred to under this Agreement shall be treated as sales or purchases of capital assets under applicable rulings, regulations and other promulgations of the Internal Revenue Service, they shall be deemed to include interest at the rate of four percent (4%) per annum.

10. Inspection of Property

At Sullivan's sole risk and expense, Sullivan, or his agents authorized in writing, shall have the right to visit the property during the exploration period and observe the general nature of ██████ operation at reasonable times but in a manner so as not to unduly interfere with ██████ operations hereunder.

11. Location Amendment/ Relocation and Patent of Claims; Application for Lease

██████ shall have the right, at the expense of ██████ to locate, to amend or relocate any of the unpatented claims described in Exhibit A & B which ██████ at his sole discretion, to locate, deems advisable to amend or relocate.

Upon request by ██████ Sullivan shall apply for a patent to any unpatented claims described in Exhibits A and B so designated by ██████. Sullivan shall execute

all necessary applications and documents in connection therewith and shall cooperate fully with [REDACTED] in securing such patents. All expenses incurred or authorized by [REDACTED] in connection with such patent proceedings shall be borne by [REDACTED]. The rights of [REDACTED] under this Agreement shall extend to any of the amended, relocated or patented claims.

Upon request by [REDACTED] Sullivan shall apply to the State of Arizona for a mineral lease to any area or areas designated by [REDACTED] which are encompassed within the prospecting permits described in Exhibit C. Sullivan shall execute all necessary applications and documents in connection therewith and shall cooperate fully with [REDACTED] in securing such mineral leases. All expenses incurred or authorized by [REDACTED] in connection with such application for a mineral lease shall be borne by [REDACTED]. The rights of [REDACTED] under this Agreement shall extend to any mineral lease so acquired.

12. Boundary Protection

All interests in mining claims or other mineral rights, any parts of which are within Sections 33, 34, and 36, T. 5 S., R. 5 E.; Sections 1, 2, 4, 9, 11, 12, 13 and 14, T. 6 S., R. 5 E.; Sections 31 and 32, T. 5 S., R. 6 E.; and Sections 6 and 7, T. 6 S., R. 6 E., G&SRM, Pinal County, Arizona, which Sullivan may hereafter acquire during the term of this Agreement, may, at the election of [REDACTED] become subject to and included with the terms of this Agreement upon the payment by [REDACTED] to Sullivan of Sullivan's fees and cost of acquisition of the interest and assumption by [REDACTED] of the obligations contained in any agreement for such rights and/or mineral rights.

If [REDACTED] on its own behalf acquires additional property within the sections defined above, such property will be considered as encompassed within the terms of this Agreement.

If the option to purchase under this Agreement is not exercised, [REDACTED] shall execute conveyances and/or disclaimers to Sullivan of any interest acquired pursuant to the provisions of this paragraph 12.

13. Escrow

At any time during the term hereof, [REDACTED] may designate an escrow agent acceptable to Sullivan to serve the parties subject to all the terms and conditions of

this Agreement. If an escrow agent is so designated, the parties shall promptly execute and deliver to the escrow agent instructions to be prepared by [REDACTED] and approved by Sullivan, setting forth the duties of the escrow agent and the terms of the escrow, consistent with the terms and conditions of this Agreement.

Upon execution of the escrow instructions, Sullivan shall immediately make, execute and deliver to the escrow agent a deed, deeds or assignments, in recordable form, conveying to [REDACTED] title to the property. [REDACTED] thereupon shall make, execute and deliver to the escrow agent acceptable assignments of state prospecting permits, and acceptable relinquishments, in recordable form, stating that [REDACTED] holds no interest in the property described in said deeds and assignments. The escrow agent shall hold all documents and instruments and all sums and payments delivered to it by the parties and shall deliver the same to the parties upon the terms and conditions of the escrow instructions.

14. Memorandum; Construction

Contemporaneously with the execution of this Agreement, Sullivan and [REDACTED] shall execute a Memorandum of Agreement which [REDACTED] may record where instruments affecting real property are recorded, or elsewhere. The headings used in this Agreement are for convenience only and shall be disregarded in construing this Agreement.

15. Further Assurances

Each party agrees, upon the request of the other, to execute, acknowledge and deliver such other documents as may reasonably be required or deemed advisable by the other to carry out or give full effect to the provisions of this Agreement.

16. Notices

Any notice, request, consent, waiver, offer, approval, demand, direction or other communication herein required or permitted to be given shall be in writing and shall be deemed sufficiently given if it is delivered in person or sent by telegram, cable or telex confirmed by certified or registered mail, postage prepaid, return receipt requested, addressed to the intended recipient, or if it is sent by certified or registered

mail, postage prepaid, return receipt requested, addressed to the intended recipient as follows:

To Sullivan:

Mr. James P. L. Sullivan
P. O. Box 3241
Scottsdale, Arizona 85257

To Badgett:

[REDACTED]

[REDACTED]

With a copy to:

Heinrich's Geo Exploration
806 West Grant Road
Tucson, Arizona 85703

or to such other address as the intended recipient may have theretofore specified in a notice given to the sender as provided in this paragraph. If such communication is sent by mail, the act and time of posting such communication in the United States mail shall be deemed the act and time of giving the same.

17. Changes

This Agreement constitutes the entire understanding of the parties relating to the subject matter hereof and supersedes all prior agreements and understandings, whether oral or written, and all contemporaneous oral agreements, relating to any of the subject matters of this Agreement. No term of this Agreement shall be changed, waived or released orally.

18. Governing Law

The validity, interpretation and performance of this Agreement and each of its provisions shall be determined and governed by the laws of the State of Arizona.

19. Time of the Essence

Time is of the essence of this Agreement and of every part hereof.

20. Warranty

Sullivan does not warrant (either expressly or implied) nor does he undertake to defend the title to the mining property, any part thereof, or the mineral contained therein.

21. Termination: Data: Removal of Property

a) Termination by Sullivan

If [REDACTED] defaults in the performance of any of his obligations under this Agreement and if said nonfulfillment or nonperformance shall continue for a period of twenty (20) days after written notice has been given to him by Sullivan, then, upon the expiration of said twenty (20) day period, all rights of [REDACTED] shall terminate. The remedy of termination pursuant to this paragraph is in addition and supplemental to the remedies of damages, specific performance and any other remedy Sullivan may have at law.

b) Termination by [REDACTED]

[REDACTED] shall have the right to terminate this Agreement at any time upon written notice to Sullivan and by submitting simultaneously with that notice all data called for in sub-paragraphs i, ii, and iii below, and only prior to the exercise of the option to purchase the property.

[REDACTED] shall not be required to make any further payments upon giving Sullivan a written ^{twenty (20)} ~~thirty (30)~~ day notice prior to the next, ensuing extended exploration time period, subject to the obligations set forth in Paragraph 7 to perform annual assessment work and subject to the obligations of [REDACTED] to furnish data to Sullivan as set forth in this paragraph and in sub-paragraph c) below. Upon termination, [REDACTED] shall be relieved of all further obligations set forth in this Agreement except obligations, if any, the due dates for which occur prior to such termination.

c) Data

Upon the termination of this Agreement ^{by or otherwise} ~~for default~~ / [REDACTED] shall, within a reasonable time, not to exceed twenty (20) days after such termination:

- i) Deliver to Sullivan all records, reports, maps, surveys, and other data supplied to [REDACTED] by Sullivan.



ii) Deliver to Sullivan all drill cores, samples, and rejects, and copies of all drilling logs, assay results, and metallurgical, geological, geophysical, and other technical reports obtained by [REDACTED] with respect to the property.

iii) Deliver to Sullivan copies of all maps and other information which [REDACTED] has obtained with respect to the property.

d) Removal of Property

Upon any valid termination or expiration of this Agreement, [REDACTED] shall have a period of thirty (30) days from and after the effective date of termination in which to remove from the property all of its machinery, buildings, structures, facilities, equipment and other property of every nature and description erected, placed or situated thereon, except drill hole casings, underground pipe, wire, track, timber in place, supports placed in shafts, drifts, or openings in the property. No property shall be removed by [REDACTED] at any time when it is in default of any duties or obligations imposed by this Agreement. Sullivan shall not be responsible for any property of [REDACTED] remaining on the property during the thirty (30) day or default period. [REDACTED] may have a watchman on the property during said period. If the property is not removed by [REDACTED] within said thirty (30) day period, Sullivan may, at his option, retain said property free of any claims on the part of [REDACTED]

22. Assignment and Transfer and Assumptions by Assignees

a) This Agreement shall be freely assignable and shall be binding upon and extend to the successors, heirs and assigns of the parties hereto. It is further agreed that if [REDACTED] assigns this Agreement prior to [REDACTED] exercising his option to purchase the property as called for in Agreement and under terms and conditions whereby the selling price exceeds Two Million Dollars (\$2,000,000.00), [REDACTED] and Sullivan shall share such excess, after deducting selling costs, in the proportion of eighty percent (80%) to [REDACTED] and twenty percent (20%) to Sullivan.

b) No assignment by [REDACTED] or its successors or assigns, of this Agreement or rights hereunder shall be valid unless the assignees assume and agree in writing for the express benefit of Sullivan, his executors, administrators, heirs and assigns, to perform all of the obligations of [REDACTED] contained in this Agreement. Such assignment shall not relieve [REDACTED], its successors or any previous assignees, from liability for performance of said obligations.

IN WITNESS WHEREOF, the parties have duly executed this Agreement as of the date first above written.

James P. L. Sullivan

Florence M. Sullivan

[REDACTED]

[REDACTED]

State of Arizona)
) ss.
County of _____)

The foregoing instrument was acknowledged before me this _____ day of June, 1972 by James P. L. Sullivan and Florence M. Sullivan, husband and wife.

Notary Public

My commission expires:

)
) ss.

The foregoing instrument was acknowledged before me this _____ day of June, 1972 by _____

Notary Public

My commission expires:

EXHIBIT A

The following unpatented lode mining claims are situated in the Blackwater Mining District, Pinal County, Arizona and are of record in the office of the Pinal County Recorder as follows:

<u>Name of Claim</u>	<u>Docket</u>	<u>Page</u>
White #59	547	796
White #60	547	797
White #61	547	798
White #62	547	799
White #63	547	800
White #64	547	801
White #65	547	802
White #66	547	803
White #67	547	804
White #68	547	805
White #69	547	806
White #70	547	807
White #71	547	808
White #72	547	809
White #73	547	810
White #74	547	811
White #75	547	812
White #76	547	813
White #77	547	814
White #78	547	815

EXHIBIT B

The following unpatented lode mining claims are situated in the Blackwater Mining District, Pinal County, Arizona and are of record in the office of the Pinal County Recorder as follows:

<u>Name of Claim</u>	<u>Docket</u>	<u>Page</u>
Red 290	549	780
Red 291	549	781
Red 292	549	782
Red 293	549	783
Red 294	549	784
Red 295	549	785
Red 296	549	786
Red 297	549	787
Red 298	549	788
Red 299	549	789
Red 300	549	790
Red 301	549	791
Red 302	549	792
Red 303	549	793
Red 304	549	794
Red 305	549	795
Red 306	549	796
Red 307	549	797
Red 308	549	798
Red 309	549	799

EXHIBIT C

(I)

<u>State of Arizona Prospecting Permit No.</u>	<u>Date of Issue</u>	<u>Description</u>
17677	<u>February 18, 1970</u>	NE; S2; S2N2NW; S2NW Sec. 36, T 5S, R 5E, G&SRM, Pinal County, Arizona
18962	<u>February 18, 1971</u>	N2SE; SESE; N2SWSE; N2SWSWSE; SESWSWSE Sec. 34, T 5S, R 5E, G&SRM, Pinal County, Arizona

(II)

Application for State of Arizona
Prospecting Permit

Description

Lots 1-4, S2N2, Sec. 2
T 6S, R 5E, G&SRM,
Pinal County, Arizona

Lots 3 and 4, S2, NW4,
Section 1 T 6S, R 5E,
G&SRM, Pinal County,
Arizona

THOMAS W. MITCHAM

6644 N. Amahl Place

Tucson, Arizona 85704

mining geologist

phone: (602) 297-4070

February 7, 1972

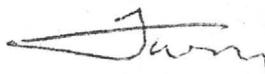
Mr. James Sullivan
P. O. Box 3241
Scottsdale, Arizona 85257

Dear Jim:

Two 1:65000-scale maps covering the area of your mineral-right holdings south of the Gila River Indian Reservation in the Casa Grande area, Pinal County, Arizona, are attached. The maps are the result of a reconnaissance survey and, thus, are not necessarily complete or at the level of accuracy provided by detailed surveys. One map is a photogeologic map, and the other is a generalized land status map.

A possible ore target south of ASARCO's main orebody is outlined in red pencil on the geologic map. Its definition is based on the complexity of indicated fault patterns in soil cover and on the (reasonable) assumption that these patterns reflect recurrent movement on preore bedrock faults which may have controlled both intrusive and ore localization. I have no information on depths of penetration or geologic results of the 4 old drill holes shown within the target area.

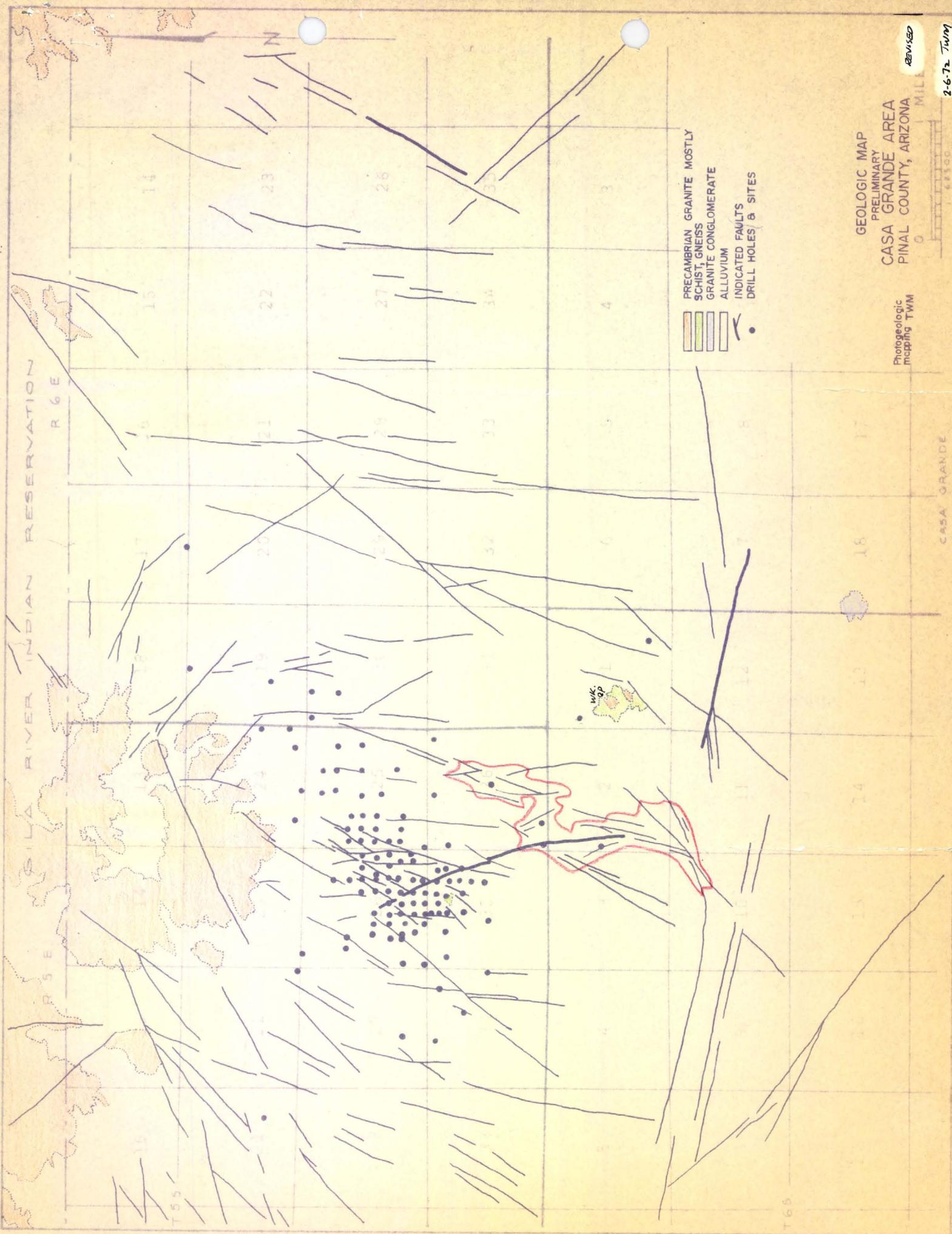
Very truly yours,



Thomas W. Mitcham

TWM/mcc

Attachments: 2



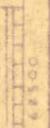
- PRECAMBRIAN GRANITE MOSTLY SCHIST, GNEISS
- GRANITE CONGLOMERATE
- ALLOUVIUM
- INDICATED FAULTS
- DRILL HOLES & SITES

GEOLOGIC MAP
PRELIMINARY
CASA GRANDE AREA
PINAL COUNTY, ARIZONA

Photogeologic Mapping TWM

REVISED

2-6-72 TWM



CASA GRANDE

INDIAN RESERVATION

GILA RIVER

RIDGE

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T. 65

T. 55

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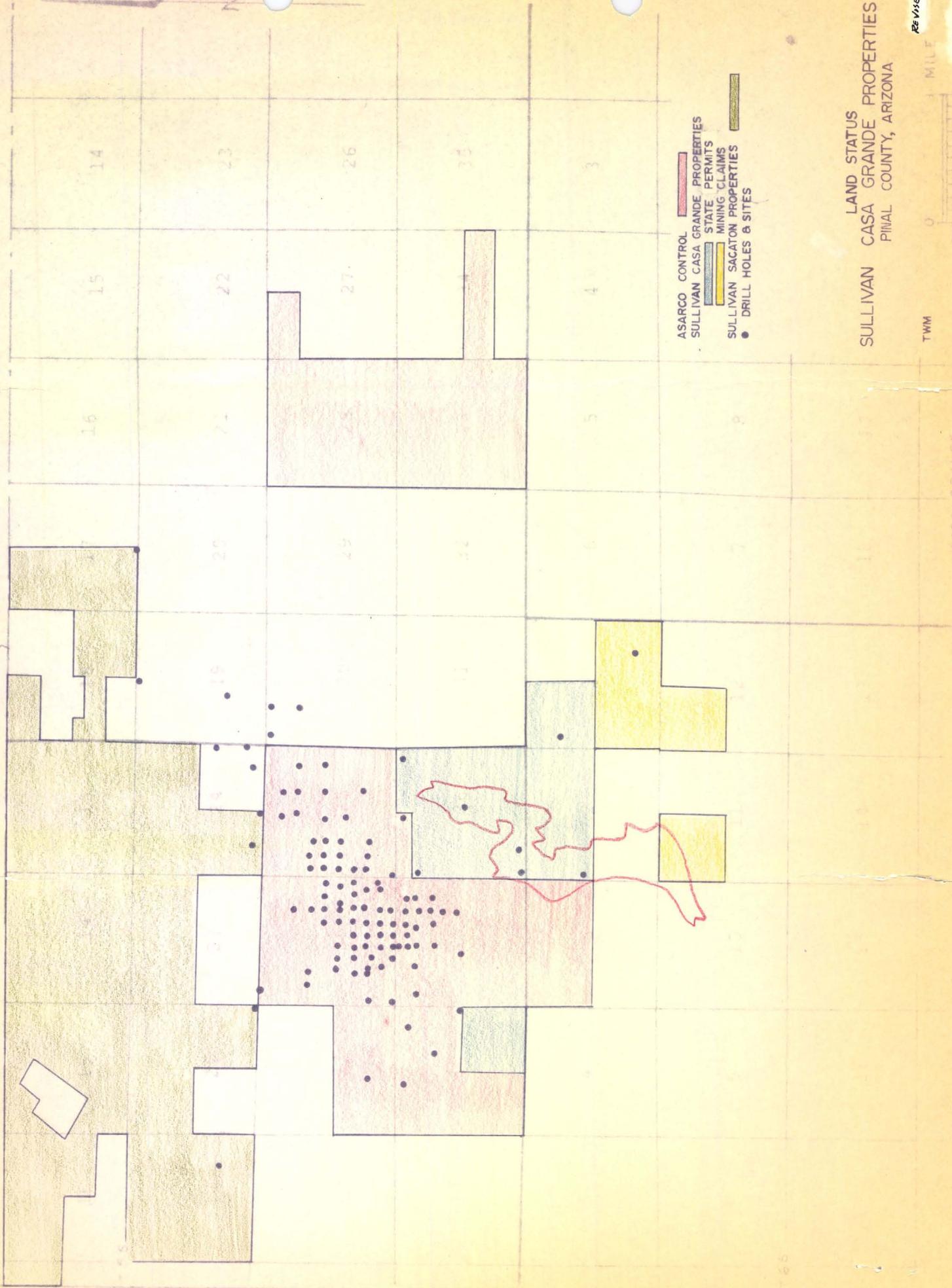
WK. MAP

GILG RIVER INDIAN RESERVATION

R 5 E

R 6 E

N



- ASARCO CONTROL
- SULLIVAN CASA GRANDE PROPERTIES
- STATE PERMITS
- MINING CLAIMS
- SULLIVAN SACATON PROPERTIES
- DRILL HOLES & SITES

LAND STATUS
 SULLIVAN CASA GRANDE PROPERTIES
 PINAL COUNTY, ARIZONA

REVISED
 2-6-72
 TWM

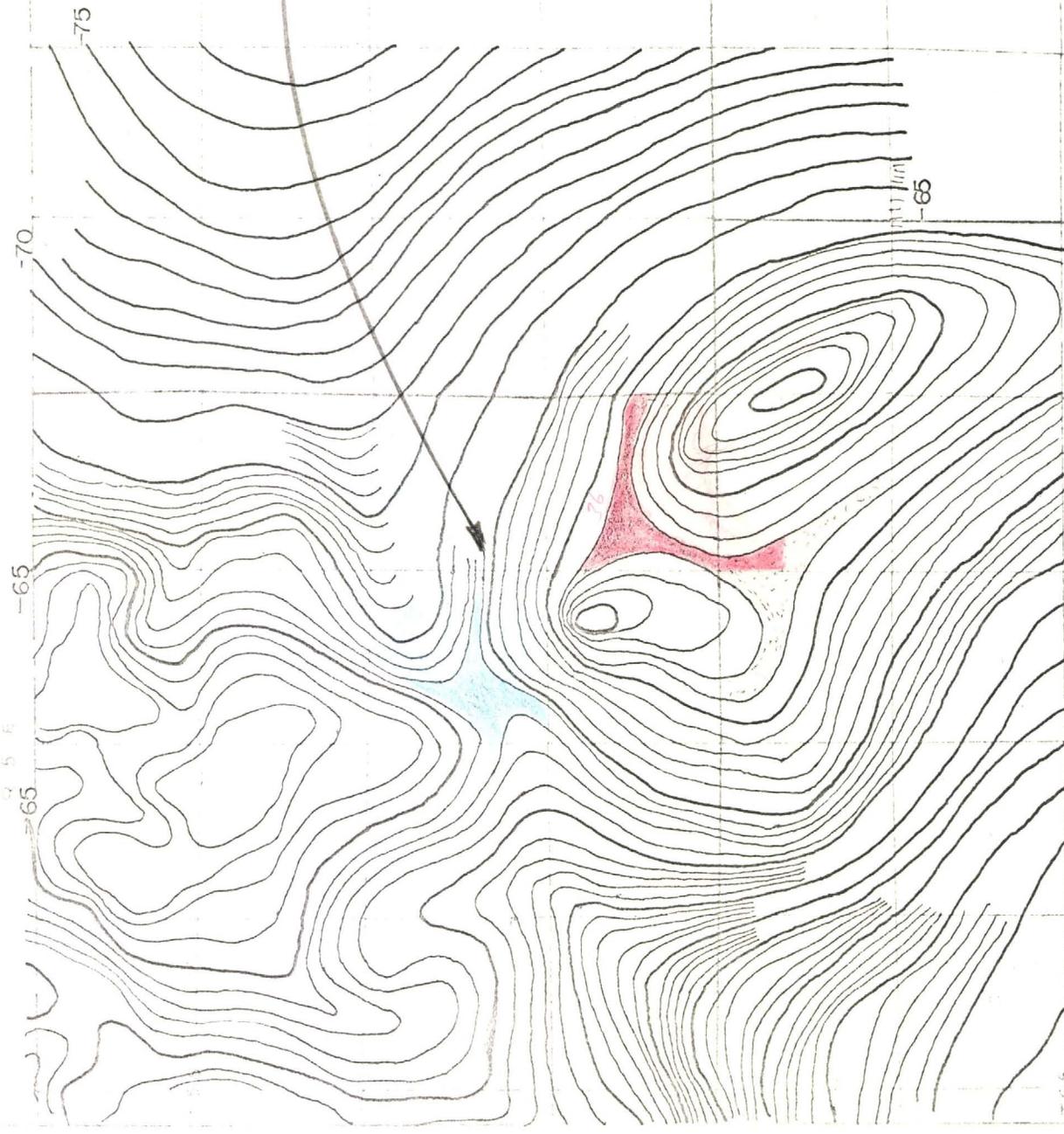


CASA GRANDE

SULLIVAN'S REASONABLE ASSUMPTION

R 6 E

T 5 S



ASARCO'S
ORE BODY

SULLIVAN'S
REASONABLE ASSUMPTION

GRAVITY MAP
CASA GRANDE AREA
PINAL COUNTY, ARIZONA

6-15-71
MILE
SWT-71-145

CASA GRANDE

CSL ①

① Jim Sullivan called

9/28/77

Called re:

Rein Zong's personnel "statements" being made(?)
adverse(?) "legalities" (?)

could said personnel be ex GEOEX (?)

Conceivable, but NAME necessary to ascertain.

Jim reluctant to name names yet. Will quiz

Zong further first, he said.

Zong did work for Calif expl. co on
Javis(?) "reservation ground", he said.

"How's Chris?", etc., "OK", etc., we said.

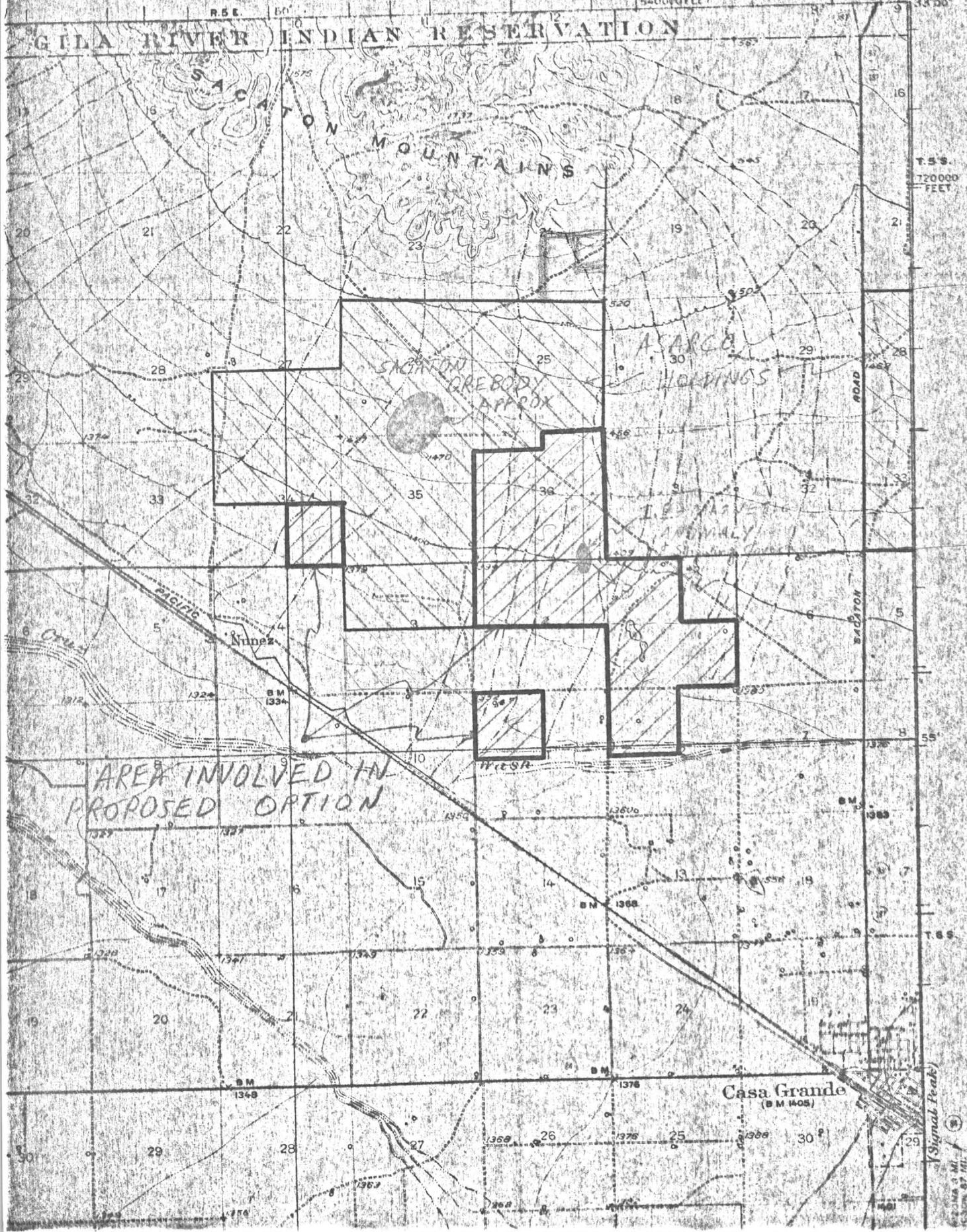
W.

Sketch for Mr. Shaw 4/6/72

HEINRICH'S GEOEXPLORATION CO.
P. O. Box 5964
TUCSON, ARIZONA 85703

1" = 1 mile

ARIZONA
(PINAL COUNTY)
CASA GRANDE QUADRANGLE
54000 FEET
R.S.E. 11" AS
33" 00"



Signal Peak
54000 FEET
R.S.E. 11" AS
33" 00"



ASARCO'S

ORE BODY

SULLIVAN'S

REASONABLE ASSUMPTION

GRAVITY MAP
CASA GRANDE AREA
PINAL COUNTY, ARIZONA

6-15-71

1 INCH = 1 MILE

SPEED LETTER®

TO Mr. James Sullivan
J. Sullivan & Co., Inc.
4821 North Scottsdale Road
Suite A-9
Scottsdale, Arizona 85251

FROM Heinrichs GEOEXploration Company
P.O. Box 5964
Tucson, Arizona 85703

SUBJECT _____

—No. 9 & 10 FOLD

MESSAGE

DATE Feb. 22, 19 72

Dear Mr. Sullivan:

Enclosed please find copies of the Sacaton drill logs you requested last week.

Keep us posted on the Sec. 26 developments.

Sincerely yours,
Heinrichs GEOEXploration Co.

SIGNED

Chris S. Ludwig

REPLY

DATE _____ 19 _____

—No. 9 FOLD

—No. 10 FOLD

SIGNED _____

Job

STATEMENT

February 22, 1972

Mr. James Sullivan
J. Sullivan & Co., Inc.
4821 North Scottsdale Road
Suite A-9
Scottsdale, Arizona 85251

Re: GEOEX Job # 684

One (1) copy Sacaton Drill Logs

Time and Material----- \$15.00

Total Amount Due This Statement----- \$15.00

(305)

S T A T E M E N T

February 4, 1972

Mr. James Sullivan
J. Sullivan & Company, Inc.
4821 N. Scottsdale Road
Suite A-9
Scottsdale, Arizona 85251

Re: GEOEX Job # 684
Statement
Casa Grande, Arizona

Professional Fees & Services

Weeks Ending January 29 and February 5, 1972

W.E. Heinrichs - Conference & Supervision - 3 hours-	N/C
C.S. Ludwig - Report preparation & Interpretation	
1 day @ \$150.00/day-----	\$ 150.00
Data computation - 6 hours @ \$10.00/hr	60.00
I.P. Crew - 3 men 4 days @ \$250.00/day-----	1,000.00
Living expenses - 3 men 2 1/2 days	
@ \$51.00/day-----	127.50
1 Vehicle - 4 days @ \$15.00/day-----	60.00
234 Miles @ \$0.15/mile-----	35.10
Miscellaneous Expenses-----	24.58
Drafting - 7 hours @ \$10.00/hour-----	<u>70.00</u>
Total-----	\$1,527.18
Advance on Account-----	<u>750.00</u>
Total Amount Due This Statement-----	<u><u>\$ 777.18</u></u>

February 4, 1972

Mr. James Sullivan
J. Sullivan & Company, Inc.
4821 North Scottsdale Road
Suite A-9
Scottsdale, Arizona 85251

Re: GEOEX Job # 684
I.P. & Magnetics
near Casa Grande,
Arizona

Dear Jim:

Enclosed please find an original and two copies of our report "Induced Polarization and Magnetic Survey, Casa Grande - Sacaton Area, Pinal County, Arizona." Reproducible sepias are being submitted under separate cover for the diagrams.

Correlation between previous pole-dipole pulse I.P. data and our dipole-dipole dual frequency data is actually quite good both in I.P. response and apparent resistivity. The pole-dipole information was taken on only a 500 foot dipole spacing and didn't penetrate as deep and therefore didn't define the northern very weak I.P. anomaly as well.

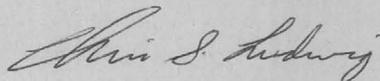
Pole-dipole Line 12 is equivalent to our Line 1 and their station 11S is our ON/S point. Their Line 11 was about 250 feet east of our Line 3. The weakly anomalous I.P. response on the south end of Line 12 correlates with the northern fringe of the stronger effects we found centered near our 25S. In that Line 12 shows anomalous effects before reaching the grounded fence near our station 25S, the probability of our anomaly not being fence caused is further enhanced.

I inspected the U.S.G.S. Aeromagnetic map of the area and there is an elongate NW trending high roughly centered on the south 1/4 corner of Section 36. This doesn't agree with the ground work very well and may be due to a misplotting of the aerial data or perhaps our Line 1 magnetic feature is very local and essentially ignored by the aerial coverage. The aerial work

was about 1,000 feet above terrain in this area and on a one mile flight line separation and therefore is not detailed coverage.

If you have any questions on the report or data, please let us know.

Sincerely,
Heinrichs GEOEXploration Company



Chris S. Ludwig
Senior Geophysicist

Enclosures
CSL:dm

INSTRUMENTATION

Direct current, pulse-type induced polarization equipment was used to carry out the survey. The transmitter is the Scintrex I.P.C.-7 with an output rating of 15 K.V.A., powered by a four cylinder, four cycle Volkswagen industrial engine. The receiver is the Newmont-type I.P.R.-7 also manufactured by Scintrex.

The transmitter has a timing cycle of 2:2:2:2 - on - off reversed - off, in seconds. The receiver operates in a remote triggering sense. The commencement of the measurement of the secondary voltage is delayed by 0.45 seconds after the transmitter turns off to avoid coupling and other transient effects. The integration takes place from $T=0.45$ seconds after the transmitter turns off to avoid coupling and other transient effects. The integration takes place from $T - 0.45$ seconds to $T - 1.10$ seconds after the cessation of the current. To conform to a standard presentation, the integral time constant of the instrument is adjusted to give induced polarization readings equivalent to those obtained with a transmitter cycle of 3.0 seconds "on" and 3.0 seconds "off", with the secondary voltage being integrated during the first second of the "off" period.

The instrument normalizes the area under the decay curve by dividing by the primary voltage V_p , which is the voltage between the receiver electrodes when the power is on. The apparent chargeability value - M_a - which is plotted at each station is in millivolt seconds per volt or milliseconds for one complete cycle.

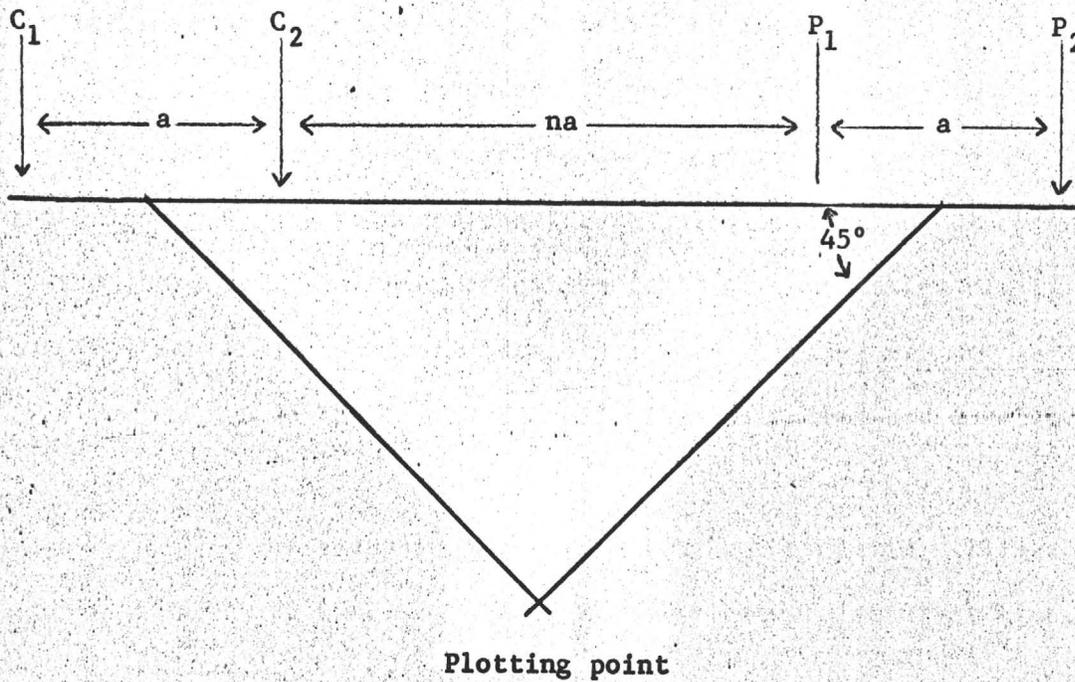
The primary voltage, and the applied current into the ground are also noted to permit an apparent resistivity measurement - ρ_a - at each station.

Additional equipment consists of two-way radios for communication, aluminum foil for current electrodes, and non-polarizing porous pots for receiver contacts. Portable reels are used to carry the number 16 all copper current wire. A dummy load is used to balance the power drain on the engine generator when the transmitter relays are in the "off" position. Two three-quarter ton, four wheel drive trucks provided transportation to the survey area and along the lines.

*
* *
*

SURVEY PROCEDURE

Normally a pole-dipole electrode configuration would be employed for the present type of survey. However surface observations strongly indicated the presence of widespread polarizable material, and topography was such as to make movement along the lines by vehicle almost impossible. For these reasons it was decided to employ the dipole-dipole electrode configuration. Under the present field conditions, multiple spacings could be obtained as quickly with this method, as a single spacing with the pole-dipole array. An additional advantage of the system is that it minimizes coupling effects which may become bothersome in low resistivity areas. The following diagram illustrates the relative electrode positions and plotting point:



The two current electrodes C_1 and C_2 are placed a fixed distance ' a ' apart. The two receiver electrodes P_1 and P_2 are separated by the same distance ' a '. The distance between the inner current and potential is some multiple ' n ' of ' a '. The effective depth of penetration of the system is directly proportional to the size of ' n ' and ' a '. For one particular survey ' a ' is usually kept constant, and readings are obtained for several values of ' n '. The plotting point for any particular set up is the intersection of the 45° lines drawn from the mid-points of the dipoles.

For the present survey ' a ' was 800 feet, and readings were taken for $n = 1, 2, 3, 4, 5$ and 6 . This type of coverage can be obtained efficiently in the field by preparing seven current positions in advance. From one set up of the receive system, as many as six readings may be obtained without moving the potential electrodes. Under an ideal no-resistivity-contrast condition the present electrode configuration would yield an effective depth of penetration of approximately 1800 feet.

The measurements obtained for increasing ' n ' values are plotted below one another and the results are contoured to yield a kind of pseudo section. It must be noted that depth calculations can not be made directly from these sections. The effective depth of penetration of the system is a function of several variables other than the size of ' n ' and ' a '.

In the field the following parameters are measured at each station:

M_a - apparent chargeability per cycle in milliseconds

V_p (ΔV) - voltage in volts between receiver electrodes when power is on.

I_a - the applied current into the ground in amperes.

From these values an apparent resistivity may be calculated by the following relationship:

$$\rho_a = K \frac{V_p}{I_a}$$

Here a is the apparent resistivity in ohm-meters, and K is a constant depending on the electrode configuration. For the dipole-dipole array the constant is:

$$K = \pi n (n+1)(n+2)^2$$

where ' a ' must be expressed in meters.

The results of the survey are presented on two plates accompanying this report. PLATE I shows the pseudo sections for all lines. Chargeability, resistivity and metal factor have been presented separately for each line such that anomaly evolution from line to line may easily be observed. Calculating and plotting the metal factor - $MF = \frac{Ma}{\rho_a}$ - is a useful operation to illustrate the relationship between the variations in chargeability and resistivity. In addition, causative material at depths exceeding 1000 feet is expected to exhibit a very subtle signature, and the metal factor may enhance the response from such bodies. PLATE II is a plan contour map of the $n = 4$ level. This map does not represent a true and complete picture of the subsurface distribution of polarizable material, but the $n = 4$ level is probably the most representative of the major anomalous zones.

*
* *

Job 684, Line 1, Spread 1, 5 1/2, 1/24/72

1000.

Second Half
Currents - changed

D.P. 48



Electrade 4 is OMS = 115 L12
 HEINRICHS GEOEXPLORATION CO.
 I.P. RECEIVER NOTES

1 2 3 4 5 6
 x x x x x x
 41 30 0

PROJECT Casa Grande - 68A
 LINE 1 HALF 5 SP. 1 DATE 1/29/72

SEND	CAL	3-4	4-5	5-6	4-5	5-6	5-6	2-3	3-4	4-5	
RECEIVE	3-4	1-2	→	→	2-3	→	3-4	30-40S	→	→	
RANGE	10	10	1	1	10	1	1	10	1	1	
DC 1	1	-0.1	0.6	1.7	2.3	1.0	1.5	1.0	1.4	1.9	3.0
DC 2	.3	-0.2									
DC 3	.1	-0.11									
DC 4	Par	8	7	6	7	6	6	9	8	7	
DC 5	#	1	2	3	4	5	6	7	8	9	
DC 6	0	1	2	3	1	2	1	1	2	3	
DC 7											
DC 8											
DC AVG.											
AC 1	202	194.5	45.3	14.8	131.	33.85	79.5	163.5	41.05	13.85	
AC 2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
AC AVG.											
S.P.								+15.9			
AC NOISE											
POT RES.		O.K.			O.K.		O.K.	10K			



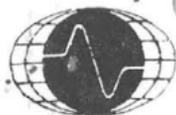
HEINRICH'S GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Cara Grande 68A
LINE 1 HALF 5 SP. 1 DATE 1/29/72

PAGE

2

SEND	5-6	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	→	40-50S	→	→	→	→	50-60S	→	→	→
RANGE	0.1	10	1	1	0.1	0.1	1	1	0.1	0.1
DC 1	3.3	1.0	2.3	3.0	3.9	4.3	1.3	2.2	3.1	5.1
DC 2										
DC 3										
DC 4 <i>cur</i>	6	9	9	8	7	6	9	9	8	7
DC 5 #	10	11	12	13	14	15	16	17	18	19
DC 6 <i>n</i>	4	1	2	3	4	5	2	3	4	5
DC 7										
DC 8										
DC AVG.										
AC 1	5.01	190.5	63.2	22.1	8.92	3.54	44.8	19.8	9.46	3.56
AC 2	-0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
AC AVG.										
S.P.		+2.4					-10.1			
AC NOISE										
POT RES.		2K					10K			



HEINRICH'S GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT Casa Grande 684
LINE 1 HALF 5 SP. 1 DATE 1/29/70

SEND	5-6	1-2	2-3	3-4	4-5	1-2	2-3	3-4		CAL
RECEIVE	→	60-705	→	→	→	70-805	→	→		3-4
RANGE	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1		10
DC 1	5.4	1.9	2.9	3.3	5.5	2.4	3.5	3.7		0.0
DC 2										
DC 3 3	14.7									
DC 4 1	5.4									
DC 5 .3	8.4									
DC 6 .1	11.2 ^(0.0)									
DC 7 <u>lin</u>	6	9	9	8	7	9	9	8		2
DC 8 <u>#</u>	20	21	22	23	24	25	26	27		1
DC AVG?	6	3	4	5	6	4	5	6		
AC 1	1.55	16.35	8.21	4.60	1.755	9.50	5.28	3.255		202.
AC 2	0.0	0.2	0.0	0.0	0.0	0.1	0.10	0.10		0.0
AC AVG.										
S.P.	El Paso	+23.3				-6.0				1.0
AC NOISE	Gas Line									0.1
POT RES.	@52.95	5K				3.5K				

Job 684, Line 1, Spr end 1, N $\frac{1}{2}$, 1/25/72

1000.



HEINRICH'S GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT 684 Casa Grande
LINE 1 HALF N SP. 1 DATE 1-25-72

SEND	1-5	3-4	2-3	1-2	5-6	4-5	3-4	2-3	1-2	5-6
RECEIVE	20-30W	—————	—————	—————→	30-40W	—————	—————	—————	—————→	40-50W
RANGE	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.1	1.0
DC 1	1.3	1.5	1.8	2.2	1.6	1.3	1.7	2.0	3.0	1.5
DC 2										
DC 3										
DC 4 <i>len</i>	76	8	9	9/10	6	76	8	9	9/10	6
DC 5 <i>#</i>	1	2	3	4	5	6	7	8	9	10
DC 6 <i>n</i>	1	2	3	4	1	2	3	4	5	2
DC 7										
DC 8										
DC AVG.										
AC 1	51.0	33.8	21.1	11.2	30.0	17.5	15.2	10.9	6.18	11.2
AC 2	-	-	-	-	-	-	-	-	-	-
AC AVG.										
S.P.	+3.9				-8.8					-4.2
AC NOISE										
POT RES.					5K					



HEINRICH'S GEOEXPLORATION CO.
I. P. SENDER NOTES

PROJECT 684 CRESA GRANDE
LINE 1 HALF S SP. 1 DATE 1-24-72

SEND	⁺⁵ C4L	3-4	4-5	5-6	4-5	5-6	5-6	2-3	3-4	4-5
RECEIVE	4-5	1-2	—————→	—————→	2-3	—————→	3-4	30-40S	—————→	—————→
RANGE	200x10	400x20	350x20	300x20	350x20	300x20	300x20	450x20	400x20	350x20
VOLTAGE	160	950 450	920 460	920 ⁴⁶⁰	920 ⁴⁶⁰	920 ⁴⁶⁰	920 460	900 450	920 ⁴⁶⁰	920 ⁴⁵⁰
CURRENT	2	8	7	6	7	6	6	9	8	7
SEND	5-6	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5
RECEIVE	30-40S	40-50S	—————→	—————→	—————→	—————→	50-60S	—————→	—————→	—————→
RANGE	300x20	450x20	450x20	400x20	350x20	300x20	450x20	450x20	400x20	350x20
VOLTAGE	900 ⁴⁵⁰	350	450	460	450	440	340	440	450	350 ⁴⁵⁰
CURRENT	6	9	9	8	7	6	9	9	8	7

FREQUENCIES 1.0 0.1

SENDER NO. 23706

OPERATOR JPM

RECEIVER NO. 20693 DD

OPERATOR CSL

COMMENTS: 1-2 2-3 3-4 4-5 5-6
9 9 8 7 6
450x20 450x20 400x20 350x20 300x20



HEINRICH'S GEOEXPLORATION CO.
I. P. SENDER NOTES

PROJECT 684 CASA GRANDE
LINE 1 HALF S SP. 1 DATE 1-24-72

PAGE
2

SEND	5-6	1-2	2-3	3-4	4-5	1-2	2-3	3-4		
RECEIVE	50-60s	60-70s	—————→			70-80s	—————→			
RANGE	300x20	450x20	450x20	400x20	350x20	450x20	450x20	400x70		
VOLTAGE	450	350	450	460	450	330	440	450		
CURRENT	6	9	9	8	7	9	9	8		
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES _____

SENDER NO.

OPERATOR

RECEIVER NO.

OPERATOR

COMMENTS :



HEINRICH'S GEOEXPLORATION CO.
I. P. SENDER NOTES

N

PROJECT 684
LINE 1 HALF N¹/₂ SP. 1 DATE 1/25

PAGE
1

SEND	4-5	3-4	2-3	1-2	5-6	4-5	3-4	2-3	1-2	5-6
RECEIVE	20-30 ^N				30-40 ^N					40-50
RANGE	Ref ^t									
VOLTAGE	420	470	440	360	460	420	470	440	360	460
CURRENT	6.0	8.0	9.0	10.0	6.0	6.0	8.0	9.0	10.0	6.0
SEND	4-5	3-4	2-3	1-2	5-6	4-5	3-4	2-3		
RECEIVE					30-40					
RANGE										
VOLTAGE	470	470	440	360	460	420	460	460		
CURRENT	7.0	8.0	9.0	10.0	6.0	6.0	8.0	9.0		

FREQUENCIES 1.0 0.1
SENDER NO. 23706
OPERATOR
RECEIVER NO.
OPERATOR

COMMENTS:



HEINRICHS GEOEXPLORATION CO.
I. P. SENDER NOTES

PROJECT 684
LINE 1 HALF N 1/2 SP. DATE

SEND	5-6	4-5	4-3							
RECEIVE	66-70	—	—							
RANGE										
VOLTAGE	460	460	460							
CURRENT	6.0	7.0	8.0							
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES 1 0.1

SENDER NO. _____

OPERATOR _____

RECEIVER NO. _____

OPERATOR _____

COMMENTS :

HEINRICHS GEOEXPLORATION CO.
 POST OFFICE BOX 5964
 TUCSON, ARIZONA (85703)
 PHONE 623-0578

JOB 684 LINE 1 SPREAD 1 SOUTH 1/2 1/24/72
 CAL GROUP NO. 1

1000 FEET=DIPOLE LENGTH

COMPUTED DATA									FIELD DATA					
CAL CUR	PFE	AC1	AC2	AC FREQ	DC FREQ	PFE CAL	RHO CAL							
2.000	0.00	202.000	0.00	1.00	.10	0.0000	.9901							
POINT NO.	N	RHO	PFE	MCF	CCPFE	CCMCF	CPFE		PFE	CUR	PT.	N	AC1	AC2
1	1	72.65	.60	8.3	.60	8.3	0.00	**	.60	8.00	1	1	194.500	0.00
2	2	78.20	1.70	21.7	1.62	20.7	.08	**	1.70	7.00	2	2	45.300	0.00
3	3	74.95	2.30	30.7	2.09	27.9	.21	**	2.30	6.00	3	3	14.800	0.00
4	1	56.14	1.00	17.8	1.00	17.8	0.00	**	1.00	7.00	4	1	131.000	0.00
5	2	68.04	1.50	22.0	1.40	20.6	.10	**	1.50	6.00	5	2	33.850	0.00
6	1	39.75	1.00	25.2	1.00	25.2	0.00	**	1.00	6.00	6	1	79.500	0.00
7	1	54.72	1.40	25.6	1.40	25.6	0.00	**	1.40	9.00	7	1	163.500	0.00
8	2	62.12	1.90	30.6	1.79	28.7	.11	**	1.90	8.00	8	2	41.050	0.00
9	3	60.53	3.00	49.6	2.72	44.9	.28	**	3.00	7.00	9	3	13.850	0.00
10	4	51.24	3.40	66.4	2.74	53.5	.66	**	3.30	6.00	10	4	5.010	-.20
11	1	63.50	.90	14.2	.90	14.2	0.00	**	1.00	9.00	11	1	190.500	.20
12	2	85.35	2.30	26.9	2.23	26.1	.07	**	2.30	9.00	12	2	63.200	0.00
13	3	84.52	3.00	35.5	2.82	33.4	.18	**	3.00	8.00	13	3	22.100	0.00
14	4	78.65	3.90	49.6	3.53	44.9	.37	**	3.90	7.00	14	4	8.920	0.00
15	5	63.97	4.30	67.2	3.49	54.6	.81	**	4.30	6.00	15	5	3.540	0.00
16	2	59.91	1.20	20.0	1.08	18.0	.12	**	1.30	9.00	16	2	44.800	.20
17	3	66.78	2.20	32.9	1.96	29.3	.24	**	2.20	9.00	17	3	19.800	0.00
18	4	72.43	3.10	42.8	2.69	37.1	.41	**	3.10	8.00	18	4	9.460	0.00
19	5	55.57	5.10	91.8	4.12	74.2	.98	**	5.10	7.00	19	5	3.560	0.00
20	6	45.29	5.40	119.2	3.47	76.7	1.93	**	5.40	6.00	20	6	1.550	0.00
21	3	54.99	1.80	32.7	1.48	26.9	.32	**	1.90	9.00	21	3	16.350	.20
22	4	55.76	2.90	52.0	2.31	41.4	.59	**	2.90	9.00	22	4	8.210	0.00
23	5	61.75	3.30	53.4	2.45	39.7	.85	**	3.30	8.00	23	5	4.600	0.00
24	6	44.00	5.50	125.0	3.50	79.6	2.00	**	5.50	7.00	24	6	1.755	0.00
25	4	64.21	2.35	36.6	1.86	29.0	.49	**	2.40	9.00	25	4	9.500	.10
26	5	63.12	3.50	55.4	2.68	42.4	.82	**	3.50	9.00	26	5	5.280	0.00
27	6	70.18	3.70	52.7	2.61	37.2	1.09	**	3.70	8.00	27	6	3.255	0.00

Moore Business Forms, Inc. 1

HEINRICHS GEOEXPLORATION CO.
 POST OFFICE BOX 5964
 TUCSON, ARIZONA (85703)
 PHONE 623-0578

JOB 684 LINE 1 SPREAD 1 NORTH 1/2 1/25/72
 CAL GROUP NO. 2

1000 FEET=DIPOLE LENGTH

CAL CUR 2.000 PFE .10 AC1 203.000 AC2 0.00 AC FREQ 1.00 DC FREQ .10 PFE CAL .1000 RHO CAL .9852

COMPUTED DATA

FIELD DATA

POINT NO.	N	RHO	PFE	MCF	CCPFE	CCMCF	CPFE		PFE	CUR	PT.	N	AC1	AC2
1	1	21.79 ²⁵	1.20	47 55.1	1.06	48.8	.14	**	1.30	7.00 ⁶	1	1	51.000	0.00
2	2	50.65	1.40	27.6	1.25	24.6	.15	**	1.50	8.00	2	2	33.800	0.00
3	3	70.47	1.70	24.1	1.47	20.9	.23	**	1.80	9.00	3	3	21.100	0.00
4	4	75.11 ⁶⁸	2.10	31 28.0	1.71	22.7	.39	**	2.20	9.00 ¹⁰	4	4	11.200	0.00
5	1	15.00	1.50	100.0	1.27	84.8	.23	**	1.60	6.00	5	1	30.000	0.00
6	2	29.91 ³⁵	1.20	34 40.1	.88	29.5	.32	**	1.30	7.00 ⁶	6	2	17.500	0.00
7	3	57.06	1.60	28.0	1.30	22.7	.30	**	1.70	8.00	7	3	15.200	0.00
8	4	72.95	1.90	26.0	1.49	20.4	.41	**	2.00	9.00	8	4	10.900	0.00
9	5	73.09 ⁶⁶	2.90	44 39.7	2.22	30.4	.68	**	3.00	9.00 ¹⁰	9	5	6.180	0.00
10	2	22.38	1.40	62.6	.93	41.5	.47	**	1.50	6.00	10	2	11.200	0.00
11	3	45.00	1.50	33.3	1.08	24.0	.42	**	1.60	7.00	11	3	10.500	0.00
12	4	66.73	1.70	25.5	1.24	18.6	.46	**	1.80	8.00	12	4	8.880	0.00
13	5	79.14	2.30	29.1	1.69	21.4	.61	**	2.40	9.00	13	5	6.730	0.00
14	6	75.43 ⁶⁸	2.80	41 37.1	1.81	24.0	.99	**	2.90	9.00 ¹⁰	14	6	3.990	0.00
15	3	24.67	1.80	73.0	.86	34.7	.94	**	1.90	6.00	15	3	4.920	0.00
16	4	45.44 ⁵³	1.90	36 41.8	1.12	24.7	.78	**	2.00	7.00 ⁶	16	4	5.280	0.00
17	5	63.43	2.20	34.7	1.38	21.8	.82	**	2.30	8.00	17	5	4.800	0.00
18	6	71.68	2.30	32.1	1.24	17.4	1.06	**	2.40	9.00	18	6	3.810	0.00
19	4	26.86	2.10	78.2	.55	20.3	1.55	**	2.20	6.00	19	4	2.670	0.00
20	5	47.02	2.30	48.9	1.08	23.0	1.22	**	2.40	7.00	20	5	3.110	0.00
21	6	62.35	2.50	40.1	1.23	19.7	1.27	**	2.60	8.00	21	6	2.940	0.00

Job 684, LINE 2, Spread 1, STN $\frac{1}{2}$, 1/25/72 1000.

DP 48



HEINRICH'S GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT 684
LINE 2 HALF N SP. 1 DATE 1-26

PAGE
4

SEND	4-5	3-4	2-3	1-2	5-6	4-5	3-4	2-3	1-2	5-6
RECEIVE	20-30W	→	→	→	30-40W	→	→	→	→	40-50W
RANGE	1.0	1.0	1.0	0.1	1.0	1.0	1.0	0.1	0.1	1.0
DC 1										
DC 2	1.4	1.6	1.6	1.6	1.8	2.0	2.0	2.2	2.3	1.9
DC 3										
DC 4										
DC 5 <i>cur</i>	8	10	8	9	8	8	10	9	9	8
DC 6 <i>#</i>	28	29	30	31	32	33	34	35	36	37
DC 7 <i>n</i>	1	2	3	4	1	2	3	4	5	2
DC 8										
DC AVG.										
AC 1	65.5	32.6	12.6	7.37	62.4	17.8	12.4	5.98	3.32	15.3
AC 2	-	-	-	-	-	-	-	-	-	-
AC AVG.										
S.P.										
AC NOISE										
POT RES.					4K					



HEINRICHS GEOEXPLORATION CO.
I. P. SENDER NOTES

PROJECT 687
LINE 2 HALF S¹/₂ SP. 1 DATE 1/25

SEND	5-6	4-5	5-5	3-4	4-5	5-4	2-3	3-4	4-5	5-6
RECEIVE	3-4	2-3	—	1-2	—	—	30-405			
RANGE										
VOLTAGE	440	450	440	380	450	440	400	440	440	470
CURRENT	7.0	7.0	7.0	8.0	7.0	7.0	7.0	9.0	7.0	8.0
SEND	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5	5-6
RECEIVE	40-50					50-60				
RANGE										
VOLTAGE	410	420	420	480	470	410	420	420	480	470
CURRENT	8.0	9.0	9.0	8.0	8.0	8.0	9.0	9.0	8.0	8.0

FREQUENCIES 1 0.1
 SENDER NO. 237065
 OPERATOR BJS
 RECEIVER NO.
 OPERATOR

COMMENTS: CAL
2+3
2.0 AMP



HEINRICHS GEOEXPLORATION CO.
I. P. SENDER NOTES

PAGE
2

PROJECT 684
LINE 2 HALF S SP. 1 DATE 1/25

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4			
RECEIVE	60-70				70-80		PMP			
RANGE										
VOLTAGE	410	420	410	470	410	410	380			
CURRENT	8.0	9.0	9.0	8.0	8.0	9.0	10			
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES 1 1

SENDER NO.

OPERATOR

RECEIVER NO.

OPERATOR

COMMENTS :



HEINRICHS GEOEXPLORATION CO.
I. P. SENDER NOTES

PROJECT 684
LINE 2 HALF N SP. 1 DATE 1/26

PAGE

SEND	4-5	3-4	2-3	1-2	5-6	4-5	3-4	2-3	1-2	5-6
RECEIVE	20-30				30-40					40-50
RANGE										
VOLTAGE	440	390	380	440	470	440	390	420	450	460
CURRENT	8.0	10.0	8.0	9.0	8.0	8.0	10.0	9.0	9.0	8.0
SEND	4-5	3-4	2-3	1-2	5-6	4-5	3-4	2-3	5-6	4-5 3-4
RECEIVE					50-60				10-70	
RANGE						Rept		Rept		
VOLTAGE	430	360	420	450	460	430	380	410	460	430 380
CURRENT	8.0	9.0	9.0	9.0	8.0	8.0	10.0	9.0	8.0	8.0 10.0

FREQUENCIES 1 .1

SENDER NO. 237065

OPERATOR PQH

RECEIVER NO.

OPERATOR

COMMENTS :

HEINRICHS GEOEXPLORATION CO.
 POST OFFICE BOX 5964
 TUCSON, ARIZONA (85703)
 PHONE 623-0578

JOB 684 LINE 2 SPREAD 1 S + N 1/2 1/25/72
 CAL GROUP NO. 1

1000 FEET=DIPOLE LENGTH

COMPUTED DATA									FIELD DATA					
CAL CUR	PFE	AC1	AC2	AC FREQ	DC FREQ	PFE CAL	RHO CAL							
2.000	.10	203.000	0.00	1.00	.10	.1000	.9852							
POINT NO.	N	RHO	PFE	MCF	CCPFE	CCMCF	CPFE		PFE	CUR	PT.	N	AC1	AC2
1	1	25.45	.80	31.4	.69	27.2	.11	**	.90	7.00	1	1	59.800	0.00
2	1	19.19	1.00	52.1	.84	43.7	.16	**	1.10	7.00	2	1	45.000	0.00
3	2	36.54	1.10	30.1	.86	23.5	.24	**	1.20	7.00	3	2	21.400	0.00
4	1	16.27	.80	49.2	.60	36.6	.20	**	.90	8.00	4	1	43.700	0.00
5	2	26.22	.80	30.5	.42	16.0	.38	**	.90	7.00	5	2	15.400	0.00
6	3	43.59	1.20	27.5	.76	17.5	.44	**	1.30	7.00	6	3	10.200	0.00
7	1	11.87	.80	67.4	.48	40.8	.32	**	.90	7.00	7	1	27.900	0.00
8	2	18.54	.80	43.2	.19	10.3	.61	**	.90	9.00	8	2	14.000	0.00
9	3	28.11	.70	24.9	-.09	-3.3	.79	**	.80	7.00	9	3	6.610	0.00
10	4	43.06	1.00	23.2	.17	3.9	.83	**	1.10	8.00	10	4	5.770	0.00
11	1	12.59	1.10	87.4	.81	64.3	.29	**	1.20	8.00	11	1	33.700	0.00
12	2	16.55	.80	48.3	.09	5.4	.71	**	.90	9.00	12	2	12.500	0.00
13	3	26.97	.90	33.4	.06	2.3	.84	**	1.00	9.00	13	3	8.140	0.00
14	4	38.77	1.30	33.5	.34	8.8	.96	**	1.40	8.00	14	4	5.180	0.00
15	5	55.76	1.70	30.5	.73	13.1	.97	**	1.80	8.00	15	5	4.240	0.00
16	2	16.00	1.20	75.0	.46	28.6	.74	**	1.30	8.00	16	2	10.700	0.00
17	3	23.65	1.30	55.0	.30	12.7	1.00	**	1.40	9.00	17	3	7.110	0.00
18	4	37.03	1.40	37.8	.38	10.3	1.02	**	1.50	9.00	18	4	5.560	0.00
19	5	49.97	1.70	34.0	.58	11.5	1.12	**	1.80	8.00	19	5	3.800	0.00
20	6	67.96	1.70	25.0	.57	8.3	1.13	**	1.80	8.00	20	6	3.230	0.00
21	3	22.42	1.50	66.9	.43	19.1	1.07	**	1.60	8.00	21	3	5.980	0.00
22	4	32.83	1.40	42.6	.21	6.3	1.19	**	1.50	9.00	22	4	4.930	0.00
23	5	49.21	1.70	34.5	.55	11.2	1.15	**	1.80	9.00	23	5	4.210	0.00
24	6	63.67	1.90	29.8	.67	10.4	1.23	**	2.00	8.00	24	6	3.020	0.00
25	4	29.57	1.30	44.0	-.07	-2.4	1.37	**	1.40	8.00	25	4	3.950	0.00
26	5	42.08	1.40	33.3	-.01	-.2	1.41	**	1.50	9.00	26	5	3.610	0.00
27	6	60.77	1.70	28.0	.39	6.4	1.31	**	1.80	10.00	27	6	3.610	0.00
28	1	24.51	1.30	53.0	1.19	48.3	.11	**	1.40	8.00	28	1	65.500	0.00
29	2	39.12	1.50	38.3	1.28	32.7	.22	**	1.60	10.00	29	2	32.600	0.00
30	3	47.25	1.50	31.7	1.11	23.4	.39	**	1.60	8.00	30	3	12.600	0.00
31	4	61.13	1.50	30.5	.80	16.3	.70	**	1.60	9.00	31	4	7.370	0.00
32	1	23.45	1.70	72.5	1.58	67.3	.12	**	1.80	8.00	32	1	62.400	0.00
33	2	26.81	1.90	70.9	1.53	57.1	.37	**	2.00	8.00	33	2	17.800	0.00
34	3	37.35	1.90	50.9	1.36	36.4	.54	**	2.00	10.00	34	3	12.400	0.00
35	4	40.10	2.10	52.4	1.18	29.5	.92	**	2.20	9.00	35	4	5.980	0.00
36	5	39.00	2.20	56.4	.64	16.5	1.56	**	2.30	9.00	36	5	3.320	0.00
37	2	23.02	1.80	78.2	1.35	58.4	.45	**	1.90	8.00	37	2	15.300	0.00
38	3	27.00	1.80	66.7	.96	35.6	.84	**	1.90	8.00	38	3	7.180	0.00
39	4	35.01	2.30	65.7	1.20	34.3	1.10	**	2.40	9.00	39	4	5.210	0.00
40	5	36.15	2.10	58.1	.38	10.6	1.72	**	2.20	9.00	40	5	3.080	0.00
41	6	35.84	1.50	41.9	-1.10	-30.7	2.60	**	1.60	9.00	41	6	1.920	0.00
42	3	30.80	2.30	74.7	1.60	51.9	.70	**	2.40	8.00	42	3	8.150	0.00
43	4	35.65	3.10	86.9	2.03	56.9	1.07	**	3.20	8.00	43	4	4.680	0.00
44	5	43.45	2.20	50.6	.85	19.5	1.35	**	2.30	10.00	44	5	4.110	0.00
45	6	43.84	2.30	52.5	.29	6.6	2.01	**	2.40	9.00	45	6	2.330	0.00
46	4	37.79	2.50	66.1	1.51	39.9	.99	**	2.60	8.00	46	4	4.990	0.00
47	5	41.70	2.70	64.7	1.27	30.6	1.43	**	2.80	8.00	47	5	3.140	0.00
48	6	49.20	2.50	50.8	.77	15.7	1.73	**	2.60	10.00	48	6	2.900	0.00

Moore Business Forms, Inc. 1

Job 684, Line 3, Spread 1, S+N $\frac{1}{2}$, 1/27/72

1000.

DP 49



a = 1000

HEINRICH'S GEOEXPLORATION CO.
I.P. RECEIVER NOTES

PROJECT 684
LINE 3 HALF S SP. 1 DATE 1-27

SEND	5-6	4-5	5-6	3-4	4-5	5-6	2-3	3-4	4-5	5-6
RECEIVE	3-4	2-3	→	1-2	→	→	30-105	→	→	→
RANGE	1.0	1.0	1.0	1.0	1.0	0.1	1.0	1.0	1.0	0.1
DC 1										
DC 2	1.4	1.2	1.4	1.2	1.2	1.2	1.3	1.3	1.4	1.4
DC 3										
DC 4							Ground fence runs east west midway between electrodes			
DC 5 <i>lar</i>	6	6	6	6	6	6	1-26 and 8700'	north of electrode 9	9	9
DC 6 <i>#</i>	1	2	3	4	5	6	7	8	9	10
DC 7 <i>n</i>	1	1	2	1	2	3	1	2	3	4
DC 8										
DC AVG.										
AC 1	77.1	83.6	22.6	68.5	25.7	9.87	50.9	26.6	16.1	6.48
AC 2	-	-	-	-	-	-	-	-	-	-
AC AVG.										
S.P.										
AC NOISE										
POT RES.							5K			



HEINRICH'S GEOEXPLORATION CO.
I. P. SENDER NOTES

PROJECT 684
LINE 3 HALF 5 SP. _____ DATE 1/27

SEND	5-6	4-5	5-6	3-4	4-5	5-6	2-3	3-4	4-5	5-6
RECEIVE	3-4	2-3	_____	1-2	_____	_____	30-90s	_____	_____	_____
RANGE	121	12	12	112				Rept		
VOLTAGE	300	300	330	320	300	340	450	400	450	460
CURRENT	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	10.0	9.0
SEND	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5	5-6
RECEIVE	40-50	_____	_____	_____	_____	50-60	_____	_____	_____	_____
RANGE										
VOLTAGE	410	450	450	450	460	420	450	450	450	460
CURRENT	8.0	8.0	9.0	10.0	9.0	8.0	8.0	9.0	10.0	9.0

FREQUENCIES <u>1</u> <u>0.1</u>	COMMENTS: CAL 2-3 2.0
SENDER NO. <u>237065</u>	
OPERATOR <u>BAK</u>	
RECEIVER NO.	
OPERATOR	



HEINRICHS GEOEXPLORATION CO.
I. P. SENDER NOTES

PROJECT 684
LINE 3 HALF 5 SP. 1 DATE 1/27

PAGE
2

SEND	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
RECEIVE	60-70	<hr/>			70-80	<hr/>				
RANGE										
VOLTAGE	410	450	440	450	420	450	440			
CURRENT	8.0	8.0	9.0	10.0	8.0	8.0	9.0			
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES 1 0.1

COMMENTS :

SENDER NO.

OPERATOR B.H.K.

RECEIVER NO.

OPERATOR



HEINRICH'S GEOEXPLORATION CO.
I. P. SENDER NOTES

PROJECT 684
LINE 3 HALF N SP. 1 DATE 1/27

PAGE
1

SEND	4-5	3-4	2-3	1-2	5-6	4-5	3-4	2-3	1-2	5-6	
RECEIVE	20-30M	<hr/>			30-40					40-50	
RANGE											
VOLTAGE	450	450	450	460	450	450	440	450	460	450	
CURRENT	10.0	9.0	8.0	9.0	9.0	10.0	9.0	8.0	9.0	9.0	
SEND	4-5	4-3	2-3	1-2	5-6	4-5	3-4	2-3	5-6	4-5	3-4
RECEIVE	<hr/>				50-60	<hr/>			60-70	<hr/>	
RANGE											
VOLTAGE	450	440	450	410	450	440	430	450	450	440	430
CURRENT	10.0	9.0	8.0	8.0	9.0	10.0	9.0	8.0	9.0	10	9.0

FREQUENCIES 1 0.1

SENDER NO. 23706

OPERATOR 89K

RECEIVER NO.

OPERATOR

COMMENTS :

2-3

440
8.0

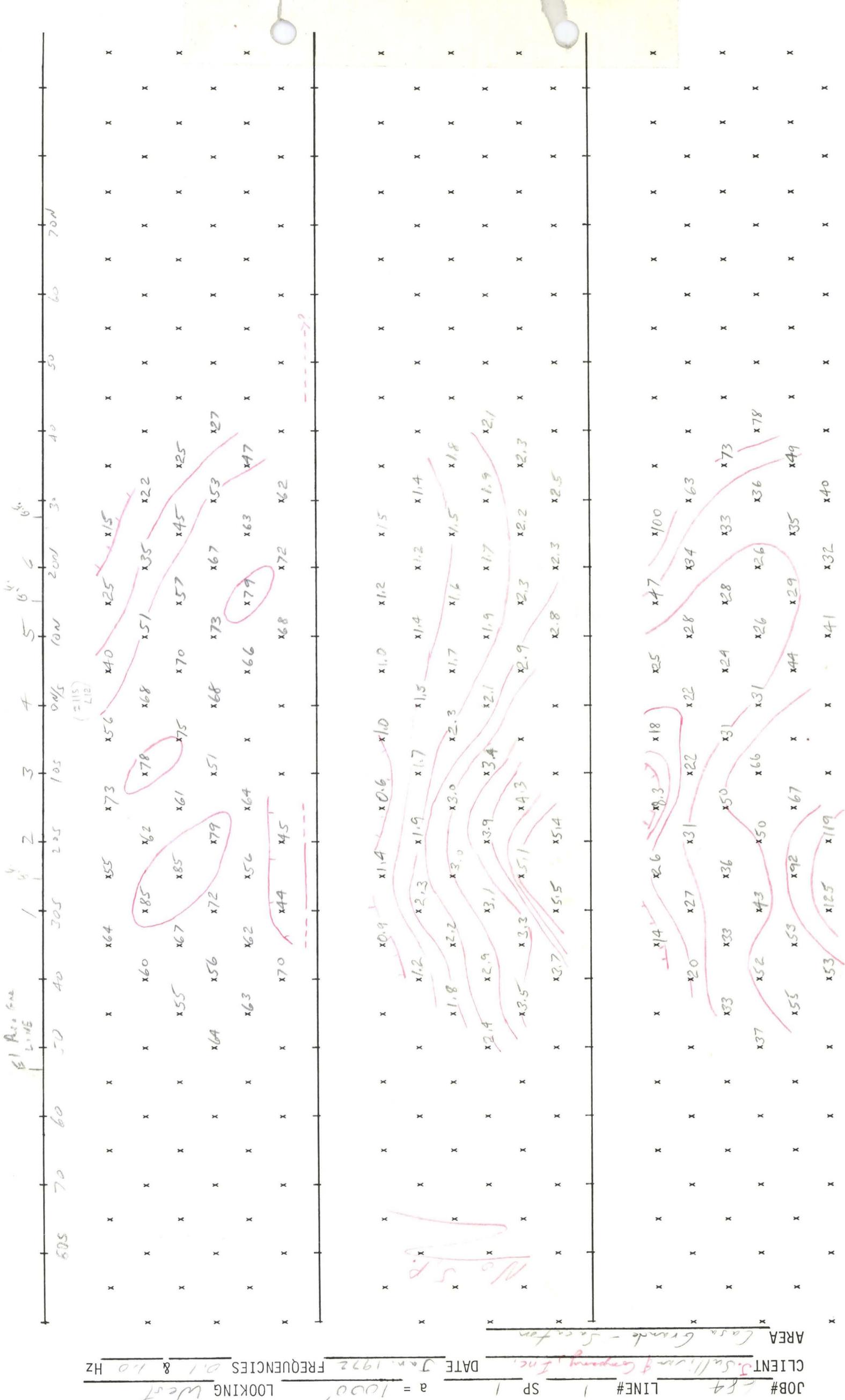
HEINRICH'S GEOEXPLORATION CO.
 POST OFFICE BOX 5964
 TUCSON, ARIZONA (85703)
 PHONE 623-0578

JOB 684 LINE 3 SPREAD 1 S + N 1/2 1/27/72
 CAL GROUP NO. 1

1000 FEET=DIPOLE LENGTH

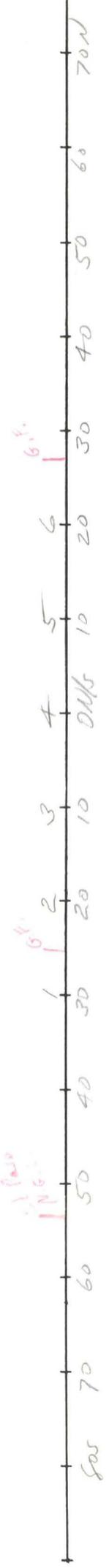
COMPUTED DATA								FIELD DATA						
CAL CUR	PFE	AC1	AC2	AC FREQ	DC FREQ	PFE CAL	RHO CAL							
2.000	.10	201.000	0.00	1.00	.10	.1000	.9950							
POINT NO.	N	RHO	PFE	MCF	CCPFE	CCMCF	CPFE		PFE	CUR	PT.	N	AC1	AC2
1	1	38.86	1.30	33.5	1.30	33.5	0.00	**	1.40	6.00	1	1	77.100	0.00
2	1	42.05	1.10	26.2	1.10	26.2	0.00	**	1.20	6.00	2	1	83.600	0.00
3	2	45.56	1.30	28.5	1.12	24.6	.18	**	1.40	6.00	3	2	22.600	0.00
4	1	34.45	1.10	31.9	1.03	29.9	.07	**	1.20	6.00	4	1	68.500	0.00
5	2	51.71	1.10	21.3	.95	18.4	.15	**	1.20	6.00	5	2	25.700	0.00
6	3	49.64	1.10	22.2	.73	14.8	.37	**	1.20	6.00	6	3	9.870	0.00
7	1	19.22	1.20	62.4	1.04	54.0	.16	**	1.30	8.00	7	1	50.900	0.00
8	2	40.18	1.20	29.9	.99	24.6	.21	**	1.30	8.00	8	2	26.600	0.00
9	3	48.68	1.30	26.7	.92	19.0	.38	**	1.40	10.00	9	3	16.100	0.00
10	4	43.54	1.30	29.9	.48	11.0	.82	**	1.40	9.00	10	4	6.480	0.00
11	1	14.62	1.00	68.4	.76	52.2	.24	**	1.10	8.00	11	1	38.800	0.00
12	2	28.37	1.10	38.8	.76	26.7	.34	**	1.20	8.00	12	2	18.800	0.00
13	3	52.47	1.40	26.7	1.06	20.2	.34	**	1.50	9.00	13	3	15.600	0.00
14	4	57.21	1.40	24.5	.83	14.5	.57	**	1.50	10.00	14	4	9.450	0.00
15	5	49.94	1.70	34.0	.58	11.5	1.12	**	1.80	9.00	15	5	4.230	0.00
16	2	23.94	.90	37.6	.47	19.6	.43	**	1.00	8.00	16	2	15.900	0.00
17	3	42.04	1.50	35.7	1.04	24.7	.46	**	1.60	8.00	17	3	11.100	0.00
18	4	72.04	1.50	20.8	1.08	15.1	.42	**	1.60	9.00	18	4	10.700	0.00
19	5	75.27	1.90	25.2	1.25	16.6	.65	**	2.00	10.00	19	5	7.070	0.00
20	6	63.16	1.50	23.8	.25	4.0	1.25	**	1.60	9.00	20	6	3.350	0.00
21	3	27.87	1.20	43.1	.40	14.2	.80	**	1.30	8.00	21	3	7.380	0.00
22	4	45.18	1.40	31.0	.62	13.7	.78	**	1.50	8.00	22	4	5.970	0.00
23	5	74.30	1.60	21.5	.94	12.6	.66	**	1.70	9.00	23	5	6.300	0.00
24	6	76.31	1.90	24.9	.93	12.2	.97	**	2.00	10.00	24	6	4.480	0.00
25	4	36.63	1.20	32.8	.17	4.5	1.03	**	1.30	8.00	25	4	4.850	0.00
26	5	56.24	1.80	32.0	.84	14.9	.96	**	1.90	8.00	26	5	4.230	0.00
27	6	89.89	2.10	23.4	1.32	14.7	.78	**	2.20	9.00	27	6	4.740	0.00
28	1	25.95	1.10	42.4	.99	38.3	.11	**	1.20	10.00	28	1	86.000	0.00
29	2	51.07	1.30	25.5	1.15	22.5	.15	**	1.40	9.00	29	2	38.000	0.00
30	3	52.64	1.40	26.6	1.06	20.2	.34	**	1.60	8.00	30	3	13.900	.20
31	4	4.66	1.10	20.1	.50	9.1	.60	**	1.20	9.00	31	4	8.150	0.00
32	1	20.74	1.20	57.8	1.05	50.8	.15	**	1.30	9.00	32	1	61.800	0.00
33	2	38.95	1.30	33.4	1.08	27.7	.22	**	1.40	10.00	33	2	32.200	0.00
34	3	63.56	1.40	22.0	1.14	17.9	.26	**	1.50	9.00	34	3	18.900	0.00
35	4	60.22	1.50	24.9	.97	16.1	.53	**	1.60	8.00	35	4	7.950	0.00
36	5	59.33	1.40	23.6	.51	8.5	.89	**	1.50	9.00	36	5	5.040	0.00
37	2	22.13	1.70	76.8	1.22	55.1	.48	**	1.80	9.00	37	2	16.400	0.00
38	3	36.81	1.90	51.6	1.35	36.6	.55	**	2.00	10.00	38	3	12.100	0.00
39	4	54.74	2.00	36.5	1.40	25.5	.60	**	2.10	9.00	39	4	8.090	0.00
40	5	49.92	2.20	44.1	1.07	21.5	1.13	**	2.30	8.00	40	5	3.740	0.00
41	6	47.22	1.80	38.1	-.02	-.5	1.82	**	1.90	8.00	41	6	2.220	0.00
42	3	24.86	2.10	84.5	1.16	46.8	.94	**	2.20	9.00	42	3	7.340	0.00
43	4	39.67	2.70	68.1	1.77	44.6	.93	**	2.80	10.00	43	4	6.470	0.00
44	5	57.15	3.00	52.5	2.06	36.0	.94	**	3.10	9.00	44	5	4.780	0.00
45	6	51.11	3.20	62.6	1.55	30.4	1.65	**	3.30	8.00	45	6	2.370	0.00
46	4	31.38	2.50	79.7	1.23	39.3	1.27	**	2.70	9.00	46	4	4.610	.20
47	5	48.21	3.00	62.2	1.82	37.8	1.18	**	3.10	10.00	47	5	4.480	0.00
48	6	66.77	3.30	49.4	2.14	32.1	1.16	**	3.40	9.00	48	6	3.480	0.00
49	7	57.42	3.50	61.0	1.49	25.9	2.01	**	3.60	8.00	49	7	1.770	0.00

JOB# 884 LINE# 1 SP 1 a = 1000' LOOKING West
 CLIENT: Sullivan & Company, Inc. DATE: Jan. 1972 FREQUENCIES 0.1 & 1.0 HZ
 AREA: Casa Grande - Section

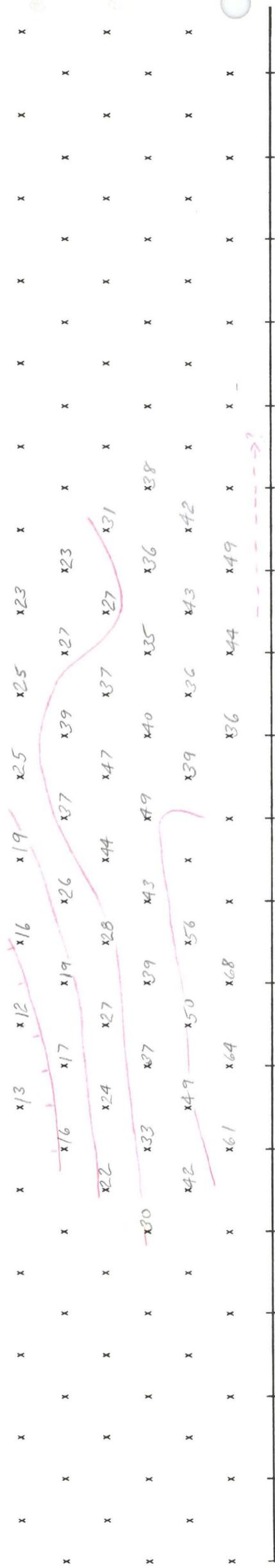


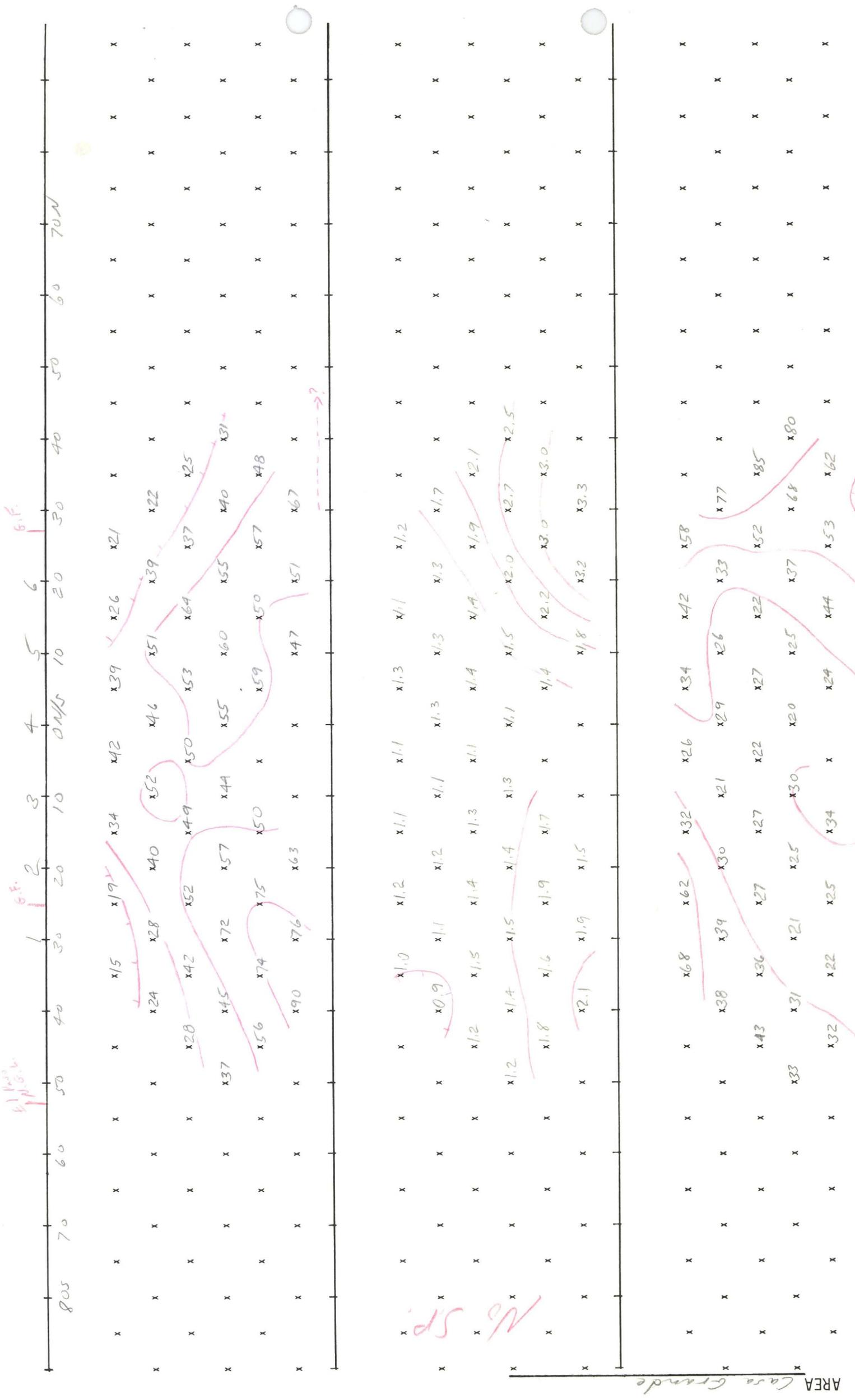
1. Power
IN 6.5

6.5



JOB# 684 LINE# 2 SP 1 a = 1000' DATE Jan. 1972 FREQUENCIES 1.0 & 0.1 HZ CLIENT Sullivan AREA Cay Grande





3500
5000

1/26/22
Job 684

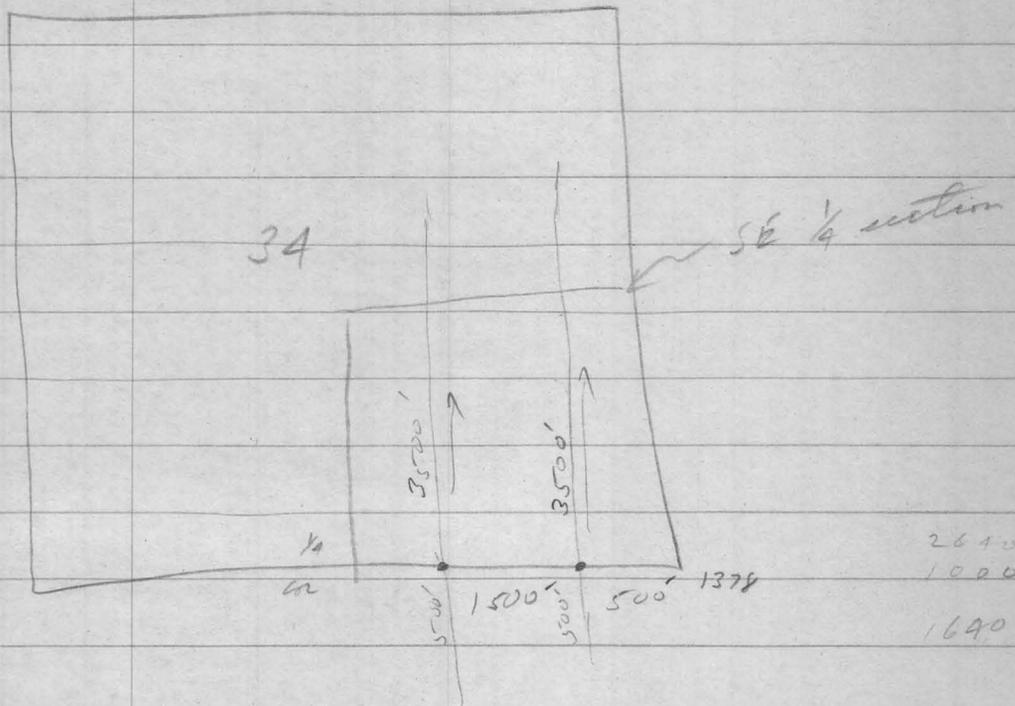
Sullivan Driller
Al Wilson

1100 N Antor

Case Grande

PA P36-5158

Put on Hole as recommended



N-S 250' Dia

4000' long

3500' N & 500' S of $\frac{34}{4}$

Jim Sullivan

\$ 750⁰⁰

Ph 947-3386

Residence

9:00 AM Snows Inns

947-8075 Office

Rear Drive Shaft bent on Blue Dodge
unit go over 50-55 MPH without bad vibes.

New shaft being done

OFFICE
259
1687
133

\$ 500
TOTAL

AGREEMENT

AGREEMENT made as of January _____, 1972, between HEINRICHS GEOEXPLORATION COMPANY, 806 West Grant Road, Tucson, Arizona 85703 (hereinafter referred to as "Heinrichs"), and J. SULLIVAN & COMPANY, INC., 4821 North Scottsdale Road, Suite A-9, Scottsdale, Arizona 85251 (hereinafter referred to as "Sullivan").

WITNESSETH:

WHEREAS "Sullivan" has an acceptable application for an exclusive prospecting permit on the Gila Indian Reservation, Number GRMPP-71-1, the area more particularly described in "Exhibit A" attached hereto; and

WHEREAS "Heinrichs" and "Sullivan" are both desirous to combine efforts on developing the property, as set forth in "Exhibit A" on the terms and conditions hereinafter set forth; and

NOW, THEREFORE, in consideration of the premises and the mutual agreement hereinafter set forth, the parties hereto agree as follows:

1. APPOINTMENT AND RESPONSIBILITY. "Heinrichs" hereby is appointed "Sullivan's" nonexclusive geophysical agent and "Heinrichs" will provide the following geophysical service and groundwork on the lands covered in "Exhibit A":

a. Induced polarization (hereinafter referred to as I. P.).

being applicable to ^{Heinrichs} GEOEX equipment ^{personnel} provided as specified by ^{Heinrichs} ~~Geo~~ ^{Disc} ~~order~~, according to customary industry practice and as results and circumstances dictate or indicate, and warrant, Sixteen line miles, more or less, of I.P. coverage using a 1000 foot dipole spacing and "n" intervals ranging from 1 through 6 will be provided at customary rates.

delete
b. Mobile magnetometer survey.

b. Hand magnetometer survey.

*Hand Magnetometer I. a (I.P.) done,
except coverage will be 16 line miles, more or less, on a station
interval of 250 feet along the 16 lines.*

d. Geochemistry. *Ditto done, except*

*Coverage provided will be sample collection only (no analyses)
along the T.P. line on a station interval of from 250 to 500 feet to total 16 line miles, more
or less.*

e. Gravity. *Ditto except*

*Gravity coverage may prove valuable in future
extensions to this agreement. None will be done under the
initial \$5,000.00 of work.*

f. Computing, drafting and clerical.

*As necessary to prepare a final report
and interpretation with appropriate illustrations at
customary rates.*

g. Billing to Sullivan. "Heinrichs" will invoice "Sullivan"

for the complete competitive geophysical service rendered, by billing
an amount not less than \$5,000.00 (Five Thousand Dollars), and "Heinrichs"
will receipt said invoice or billing by marking it "paid in full" upon demand
by "Sullivan," *when said work has been essentially completed.*

2. SERVICES RENDERED. For the services rendered by "Heinrichs" to "Sullivan," "Sullivan" agrees to remit to "Heinrichs" out of proceeds from a sale, lease, or option transaction, funds equal to twice the amount of the total profit due "Heinrichs" (the profit being \$1,500.00--formula: $\$1,500.00 \times 2 = \$3,000.00$). This amount paid to "Heinrichs" from "Sullivan" shall not be less than 10% of the funds, and as "Sullivan" receives said funds. That is to say: (Example: "Heinrichs" will perform not less than \$5,000.00 (Five Thousand Dollars) worth of geophysical services and "Sullivan" will pay to "Heinrichs" \$3,500.00 (Three Thousand Five Hundred Dollars) in the form of a cashier's check in two (2) equal installments, \$1,750.00 (One Thousand Seven Hundred Fifty Dollars) prior to the starting of the geophysical services and \$1,750.00 (One Thousand Seven Hundred Fifty Dollars) on the ~~acceptable~~ completion of the geophysical services. When said service is paid in full by "Sullivan" (not less than \$3,500.00 (Three Thousand Five Hundred Dollars), "Heinrichs" will invoice "Sullivan" for an amount not less than \$5,000.00 (see lg above). *Robert*

If "Sullivan" receives installment payment of \$10,000.00 (Ten Thousand Dollars), "Heinrichs" is to receive \$1,000.00 (One Thousand Dollars), leaving a balance of \$2,000.00 (Two Thousand Dollars) to be paid through subsequent installments. Upon completion of payments to "Heinrichs" of any balance, "Sullivan" has then fulfilled his obligations and this agreement with "Heinrichs" automatically terminates. *done*

3. INFORMATION TO "HEINRICHS." It is further agreed that "Sullivan" will keep "Heinrichs" informed as to all progress and will provide "Heinrichs" with copies of any and all information (at cost to, and upon written request by, "Heinrichs") relating to the sale or lease or option of the property.

4. TERMINATION OF AGREEMENT. It is hereby acknowledged that this is a speculative venture and, upon such time as "Sullivan" no

*upon written notice to Sullivan,
Heinrichs desires to no longer be involved
in the venture and has otherwise effectively completed
the work equivalent to funds advanced by Sullivan*

longer has an interest in, or is not in control of, Prospecting Permit No. GRMPP-71-1 by virtue of termination by the Gila River Indian Community or the Bureau of Indian Affairs, then this agreement shall terminate and the obligation of "Sullivan" to "Heinrichs" and that of "Heinrichs" to "Sullivan" thereby becomes null and void.

5. AUTHORITY AND BENEFIT. It is further agreed that both parties hereto are authorized to enter into and have the authority to make such an agreement and that this agreement shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, personal representatives and successors.

6. TIME IS OF THE ESSENCE. It is further agreed that time is of the essence of this agreement and every part thereof.

7. INTERPRETATIVE LAWS. It is further agreed that this agreement shall be applied and interpreted in accordance with the laws of the State of Arizona.

8. MEMORANDUM OR NOTICE. It is further agreed that this agreement shall not be recorded by either party, but a short memorandum or notice thereof may be recorded upon the request of "Sullivan," or "Heinrichs".

9. DOCUMENTS. It is further agreed that either party, on notice from the other, will execute such further documents as may be necessary to effectuate the purposes of this agreement.

IN WITNESS WHEREOF, the below signed have caused these presents to be executed on this _____ day of January, 1972, by their officers thereunto duly authorized and by their respective corporate seals.

Attest:

J. SULLIVAN & COMPANY, INC.

Florence Sullivan, Secretary

By: _____
J. Sullivan, President

(SEAL)

Attest:

HEINRICHS GEOEXPLORATION
COMPANY

(SEAL)

By: _____
Walter E. Heinrich, Jr.

STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

This instrument was acknowledged before me this _____ day of
January, 1972, by J. SULLIVAN, the President of J. Sullivan & Company,
Inc., as the free act and deed of said corporation.

In witness whereof, I have hereunto set my hand and seal as of said
date.

(SEAL)

Notary Public
My commission expires: _____

STATE OF ARIZONA)
) ss.
COUNTY OF PIMA)

The foregoing instrument was acknowledged before me this _____
day of January, 1972, by WALTER E. HEINRICH, JR., as President of
Heinrichs Geoexploration Company, as the free act and deed of said cor-
poration.

(SEAL)

Notary Public
My commission expires: _____

"EXHIBIT A"

The tract of land covered under Prospecting Permit Number GRMPP-71-1 is more particularly described as Sections 35 and 36, Township 4 South, Range 5 East, G&SRB&M, Pinal County, Arizona, containing 1,280.00 acres more or less; Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12, Township 5 South, Range 5 East, G&SRB&M, Pinal County, Arizona, containing 9,205.51 acres, more or less; Sections 5, 6, 7, 8, Township 5 South, Range 6 East, G&SRB&M, Pinal County, Arizona, containing 3,011.61 acres, more or less, for an aggregate of 13,497.12 acres, more or less, in this tract.