CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
416 W. Congress St., Suite 100
Tucson, Arizona 85701
520-770-3500
http://www.azgs.az.gov
inquiries@azgs.az.gov

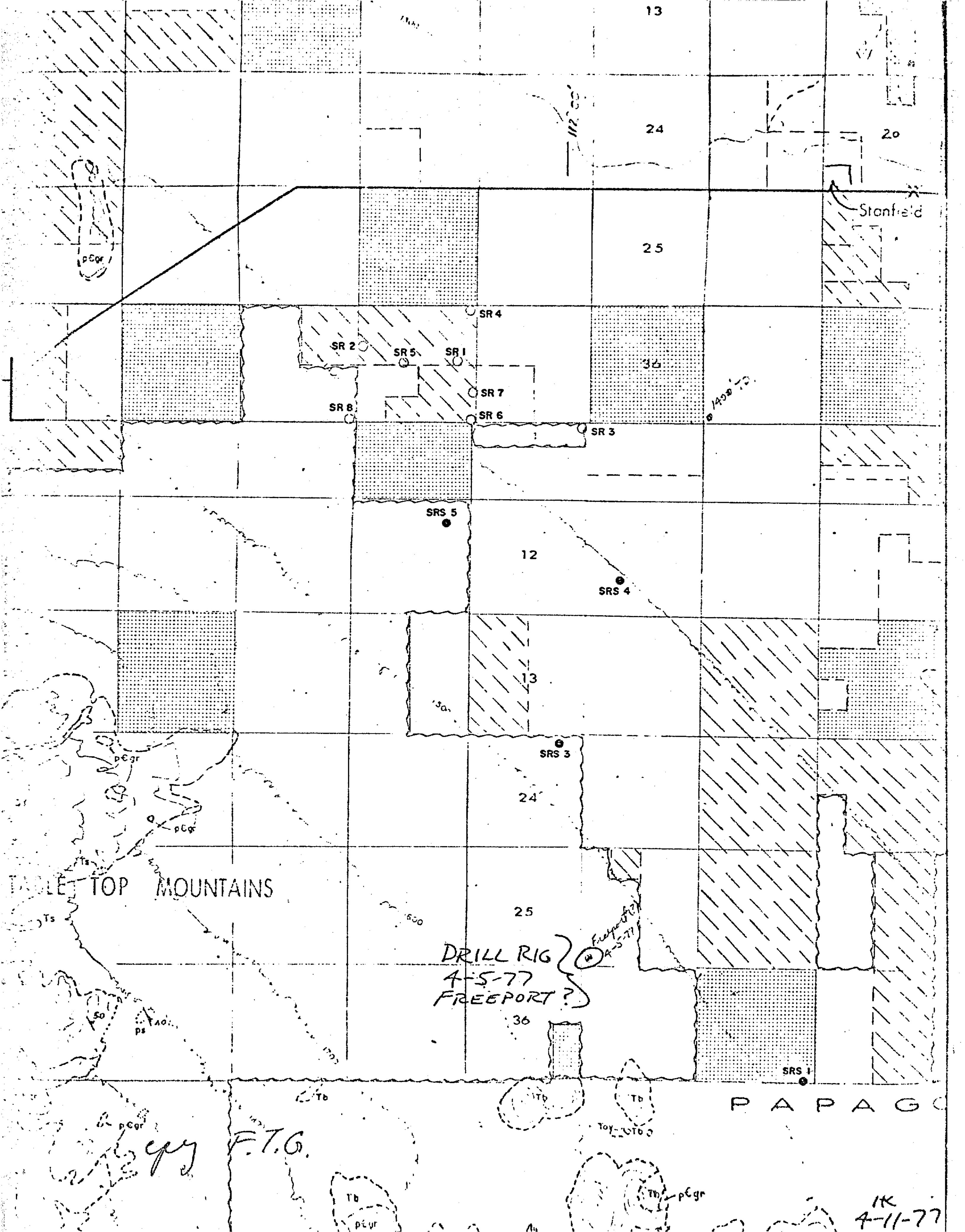
The following file is part of the

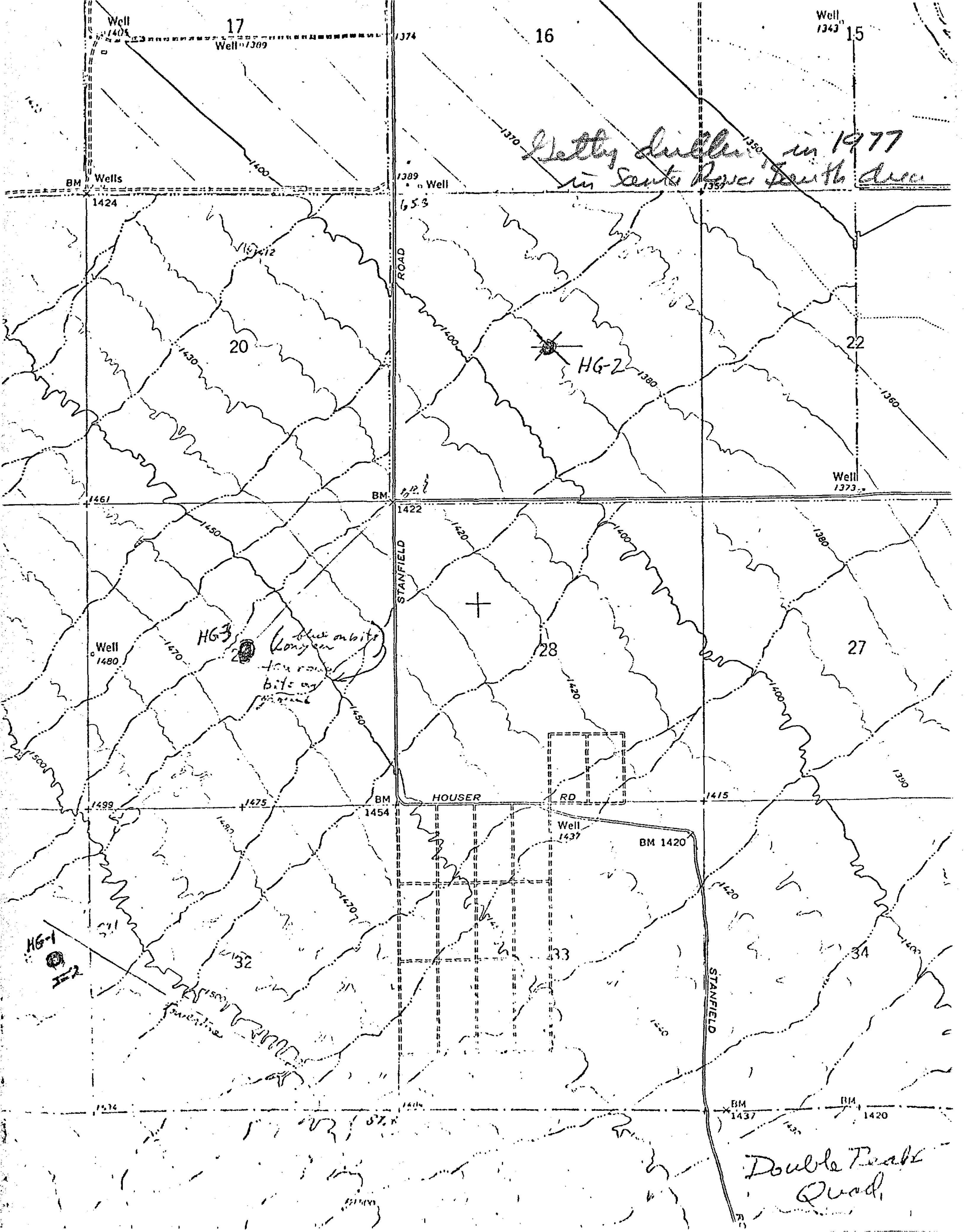
James Doyle Sell Mining Collection

Gila River Indian Field Trip
June 26, 1976

1. Cora Baptisto
2. ~~Clarence Baptisto~~
3 Christine Brown
4 Rhonda Lewis
5. Brenda L. Robertson
6, Harless Pelasiue
7, Velma Pelasiue
8. Rudy Mix
9 Arnold Charles
10 Georgia [illegible]
11. Harry A Cruye Jr.
12. Arnold Kisto
13 Alex Siva
14 Walter Lawrence
15. Hal Lucee
16. Maryann Cruye
17. Permelia D. Kisto
18 MARC SEKAYOUMA
19 ANNE SEKAYOUMA
20 ERIK SEKAYOUMA

E J Johnson
Stu Bengson
Bob Crist
JD Sell


13
24
20
Stanfield
25
SR 4
SR 2
SR 5
SR 1
36
SR 7
SR 8
SR 6
SR 3
SRS 5
12
SRS 4
13
SRS 3
24
TABLE TOP MOUNTAINS
25
DRILL RIG
4-5-77
FREEPORT?
36
SRS 1
PAPAG
Copy F.T.G.
IK
4-11-77



Well 1405
17
Well 1309
1374
16
Well 1343
15
BM 1424
Wells
1389 Well
1400
1370
1350
1357
ROAD
20
HG-2
1380
22
1360
1430
Well 1373
BM 1422
1461
1450
1420
STANFIELD
1400
1380
Well 1480
HG-3
1470
28
27
1420
1400
1450
1500
1390
1499
1475
BM 1454
HOUSER
RD
1415
Well 1437
BM 1420
1420
1470
HG-1
32
33
34
STANFIELD
BM 1437
BM 1420
Double Peak Quad.

Start IB-24 or new series?

7/15/74 CGW Good

① Pegg of Balla probably a aplitic mozogranite, equigranular, fine to med grained appears to grade northward into med, weakly porphyritic qz grading with qz zones, grading northward into good large pheno porphyritic qz. Along E-W ridge just south of section line (NE¼, Sec. 24) are alternating fine-med weakly porphyry qz with coarse large pheno porp qz. East fresh with occasional wk hem oxidation along fractures.

Specimen ② N65°W, 75°S shear zone ±10' wide contain hem on shears & offsets a hornblende (½")-feldspar (⅛-¼") porp (20% phenocrysts) set in fine siliceous mafic rich matrix. hb-por dike is 1-3' wide & strike N30°E, near vert. On E is fine-med & coarse qz. on W only coarse qz.

On NE extension of dike is a med-equig white granitoid w/ hornblende. may be a small, laramide-type unit (tpm?) Near saddle, south another hem coated shear zone offset dike again N75°W, 55°S a similar distance of 50' to NW in each case.

3rd offset to S is +20' with N side curved into hem zone.

Note: in third offset block a second hb-fd dike appears as a less continuous unit. Cutting off this third block is a more complex zone and at least one segment (to east) strike N75°E & dips more steeply to south - maybe up to 6' wide, abund hem & silica-ser addition, enhanced Kspar in feldspar & this structure terminates or offsets a strong, wide (3-6') of hn-fd dike along crest of E hill which strike N15°E, dips steep. On the S, next block is offset by a number of N75°W fault-shears & the W (original) dike appears to get lost & the E dike continues to S being offset. ~~Less hem on offsetting structures to south~~ (Not quite as many) Main dike resumes N30°E trend on south.

On Send is a short cutting pit (100'?) not drill hole (validation?) in fine-med aplitic mozogranite. Several narrow (1') bull qtz segments strike N80E about 50'N of saddle.

The laramide(?) hn-fld dike appears to finger out on the south in the saddle. Few hem shears go there but could see no offset. The dike dies out in fine aplitic mozogranite on both walls.

Stain Blanks (TS sample CGW-1 coarse pf Oracle Granite, fresh. } center of low hill

CGW-2 fine to med grained "aplitic" mozogranite, fresh } center of NE¼ Sec. 24 T5S, R5E.

There seems little doubt that Balla's aplite is a fine border phase (chilled) of the Oracle Granite. Ck JCB's description.

Note: Proj the dike on N & S, the total offset is around 1100 feet! in exposed portion.

Specimen ③ Isolated pods & short segments of a dike rock, dark porphyry w/ ⅛-¼" pale orange glassy qtz eyes (10%? 10) sanidine feldspars (~~70%~~ 50%) up to ¼", & ⅛" equant book biotite (20%? 30%) (pheno 40-50% of rk) set in fine granular glassy matrix, like Three Peaks Mz (internal phase).

Specimen ④ Three Peaks monzonite (intermediate phase) from peak 1733, NW¼NE¼ Sec. 24, T5S, R5E

Equigranular qz (clear) 10%? feldspar clear to cloudy 45%, & shiny book biotite 45%, all doubtless 2-4 mm. oc. tend to be subrounded blocks of double fist to head size blocks. Some fine phase & coarser phase but similar texture (finer has less mafic). Few fractures N30°E with hematite stain, rare copper oxide (1 spec.) & more rare epidot.

Stain Blank {T.S. Sample CGW-3 Coarse pf qz, weak iron addition from N75°W offsetting structure. NW¼NE¼ Sec. 24, T5S, R5E.

(Continued)

7/10/76 Continued 1.

⑤ SPECIMEN. Three Peaks qtz monzonite (coarse facies) somewhat coarser in grain size (4-5 mm 1/4" biotite) of very similar equigranular qtz-feldspar-biotite as in intermediate facies) SW1/4SE1/4 Sec. 13, T5S, R5E.

Note: N75-80W shear zone which offset hbl-feldsp dike in p€og continues over into Ltpm OC in SW1/4SE1/4 Sec. 13 as strong epidote coated shears.

⑥ EW, 70S 2-3' hem zone & 10-15' low zone, more mafic darker. further west (sealed) discrete 6"-1" hem zones in fresh weakly plag w/ wh sass of mafics, some clay-seri? destruction fine Fe addit to mafic.

T.S. T.S. CGW-4 coarse fresh p€-og. slight Fe add to biot, some still bright.

T.S. CGW-5, coarse, slightly Fe add to biot, ?clay-seri destruction AGB zone

AGB zone nebulous. Some Fe (hem) in area (see note 6 above). Spreads out to 5 below) to west. On east & south side, the fresh og assumes a "weak gneissic" look which trend N10°W into ?AGB zone about 50-75' from contact.

7/14/76. ⑦ Fi-ching biot p€-og to SW in wash w/ N-S aplite (1'). becoming "darker & streaker" with Fe addit to biot, to north into AGB zone. hem appear as zone boundary (reddish). Fe addit also incr. as mag? lemon point & random? fracture paint. Some N75-80E control in discrete narrow zones as hem zone expands to south & east, becoming EW to S80E to far south of o.c.

AGB zone is nebulous. in general has darker-streaker appearance, some hem, bigger aplite dikes ranging from N40E, N-S, to N50W. Best color development on west slope & flat & may represent a N30W zone w/ the mineralized cross fractures.

⑧ A sheeted zone w/ best develop of N45-50W, 45°SW with hematite on slickenside direction of fracture N20W, N50W, N20E, NS EW etc. Becomes discrete colored fracture in dirty gr to west obsg drainage

⑨ N20W, N40E very good blk hem & dispersed hem on ridge line in og. Fringe out to SW along N40E trend some 30' wide.

Note: along p€og-op contact w/ Ltpm, a weak biotite sheeting parallel to contact is developed in both unit.

Specimen Crest of peak 1194, Center SE1/4 Sec. 13, T5S, R5E occupied by lenses mass of qtz, feldsp., biotite hbde porphyr similar to Specimen 3 dike rock in tpm at peak 1733 to south. This is slightly coarser & similar is not as apparent, the feldspars present. The dike trends into the p€-op-og & og but does not appear to cross the contact into it. Suggest (?) lateral movement along p€-L contact ???

Note entire p€ complex in SE1/4 Sec. 13. has variable hematite addition as stain, soaking & discrete zones, esp in NE part of SE1/4.

—— important criteria

—— important rock types

FTG 7/1/76

TABLE 17. Classification of Igneous Rocks / **TABLE 17. Classification of Igneous Rocks (Continued)**

		OLIVINE ABSENT	OLIVINE ABSENT		OLIVINE PRESENT	
		Quartz 5–67% of felsic minerals (*Most classifications now use +10% quartz rather than +5%)	Less than 5% quartz Less than 5% feldspathoids	Feldspathoids 5–67% of felsic minerals	Feldspathoids absent	Feldspathoids present
Silicic feldspar 67–100% total feldspar (plag < 33% of total feldspar)	over 80% felsic	GRANITE Qtz., Qtz.-Feldsp., Rhyolite, Granite Porphyries *Rhyolite, Obsidian*	SYENITE Feldsp., Syenite, Trachyte Porphyries *Trachyte, Obsidian, Pitchstone*	NEPHELINE SYENITE Phonolite porphyry, Tinguaite *Phonolite*	Rare SYENITES	Rare SYENITES
	over 20% mafic	HYBRID GRANITES, MELAGRANITE	SHONKINITE, MELASYENITE	MALIGNITE (in part)		MALIGNITE (in part)
Silicic feldspar 33–67% total feldspar, rest intermediate (plag 33–67% of total feldspar)	over 60% felsic	QUARTZ MONZONITE Qtz., Qtz.-Feldsp., Qtz. Monz. Porphyries *Quartz Latite*	MONZONITE Feldspar, Monz., Latite Porphyries *Latite* (~~*Trachyandesite*~~)	Rare	Rare	Rare
	over 40% mafic	HYBRID MONZONITES	HYBRID MONZONITES		Rare	Rare
Intermediate plagioclase over 67% total feldspar and less than 95% (plag is 67–95% of total feldspar)	over 60% felsic	GRANODIORITE Qtz., Qtz.-Feldsp., Granodi. Porphyries *Rhyodacite*	ORTHOCLASE DIORITE (SYENODIORITE) Feldsp. Porphyry *Trachyandesite*	Rare	Rare	Rare
	over 40% mafic	HYBRID GRANODIORITE	HYBRID ORTHOCLASE DIORITE	—	—	—
	over 90% felsic	QUARTZ ANORTHOSITE	ANORTHOSITE	—	Rare	—
Intermediate plagioclase over 95% total feldspar	over 60% felsic	QUARTZ DIORITE Qtz., Qtz.-Feldsp., Qtz. di., Dacite Porphyries *Dacite*	DIORITE Feldsp., Diorite, Andesite Porphyries, Porphyrite *Andesite*	ESSEXITE (in part)	OLIVINE DIORITE	ESSEXITE (in part)
	over 40% mafic	HYBRID QUARTZ DIORITE	HYBRID DIORITE			
Silicic feldspar with 67–95% basic plagioclase		GRANOPHYRE GABBRO	ORTHOCLASE GABBRO (SYENOGABBRO)	ESSEXITE (in part)		
	over 90% felsic	QUARTZ ANORTHOSITE	ANORTHOSITE		OLIVINE ANORTHOSITE	
Basic plagioclase over 95% total feldspar	40–90% mafic	QUARTZ GABBRO, QUARTZ DIABASE, QUARTZ NORITE Trap; Gabbro, Basalt, Augite, Feldsp. Porphyries *Quartz Basalt*	GABBRO, DIABASE, NORITE Trap; Gabbro, Basalt, Augite, Feldspar Porphyries *Basalt*	ANALCITE GABBRO (TESCHENITE) NEPHELINE GABBRO (THERALITE) *Nepheline, Analcite Basalt (Tephrite)*	OLIVINE GABBRO, OLIVINE DIABASE, OLIVINE NORITE (TROCTOLITE) *Olivine Basalt*	OLIVINE-NEPHELINE GABBRO (THERALITE) *Olivine-Nepheline (Leucite) Basalt (Basanite)*
	over 90% mafic		PERKNITE, including HORNBLENDITE, PYROXENITE		PERIDOTITE, DUNITE, SERPENTINE	

NOTE: Plutonic holocrystalline rocks are represented in capital letters, porphyritic types in lower case letters, and aphanites in lower case italic letters. Silicic feldspar includes orthoclase, microcline, perthite, etc., and albite and sodic oligoclase to An_{20}. Intermediate plagioclase includes calcic oligoclase and andesine (An_{20}—An_{50}) and basic feldspar refers to plagioclase with anorthite content An_{50} and over.

Moorehouse – The Study of Rocks in Th

SA-51 BR 51
biot gr. ≈ "Coolidge" Gr ≈ thea peaks.
T.D. 143.

SA-52 BR ± 2000' (1860')
T.D. 2046 fresh pЄ gr.

SA-57 BR 800-820
v. wholt biot gr.
T.D. 951

RBCam has Parnassus Company Drill Hole logs (3/20/75).

SA-74 BR 763

gr bx — top of interval / thickness of interval / grade of interval

1142-82'-0.62 Ant & Chrys.

1653-53'-0.95 cc

partly leached 1706-1766 base cc.

1766-2042 - 0.39 py, cpy fine diss

SF 2045

TD 2078.

SA-76 BR 805

alt gr w/lim to flt zone at 939'

high angled shears in gr to 1206'

No indications of former sulfides

1206-1754 alt gr, flt zone

1754-1926 gr & porphyry, py, cpy, wh.

SF 1926, Pz below

T.D. 1962

SA-78 BR 1628

Cu silic 1700-1710

TD 1710 in alt qtz porp w/ sparse Cu stain

SA-79 BR 1058

Gr soaked w/ hem.

Tr lim after py

supergene alt strong

T.D. 1344

~~[illegible]~~

SA-85. BR 2015

gr bx & diorite & dk. wh kaolin-seri.

T.D. 2316

Union Oil (Sullivan) DDH's.

DDH #1. Sec. 1, T6S, R5E
300' in valley cgl.

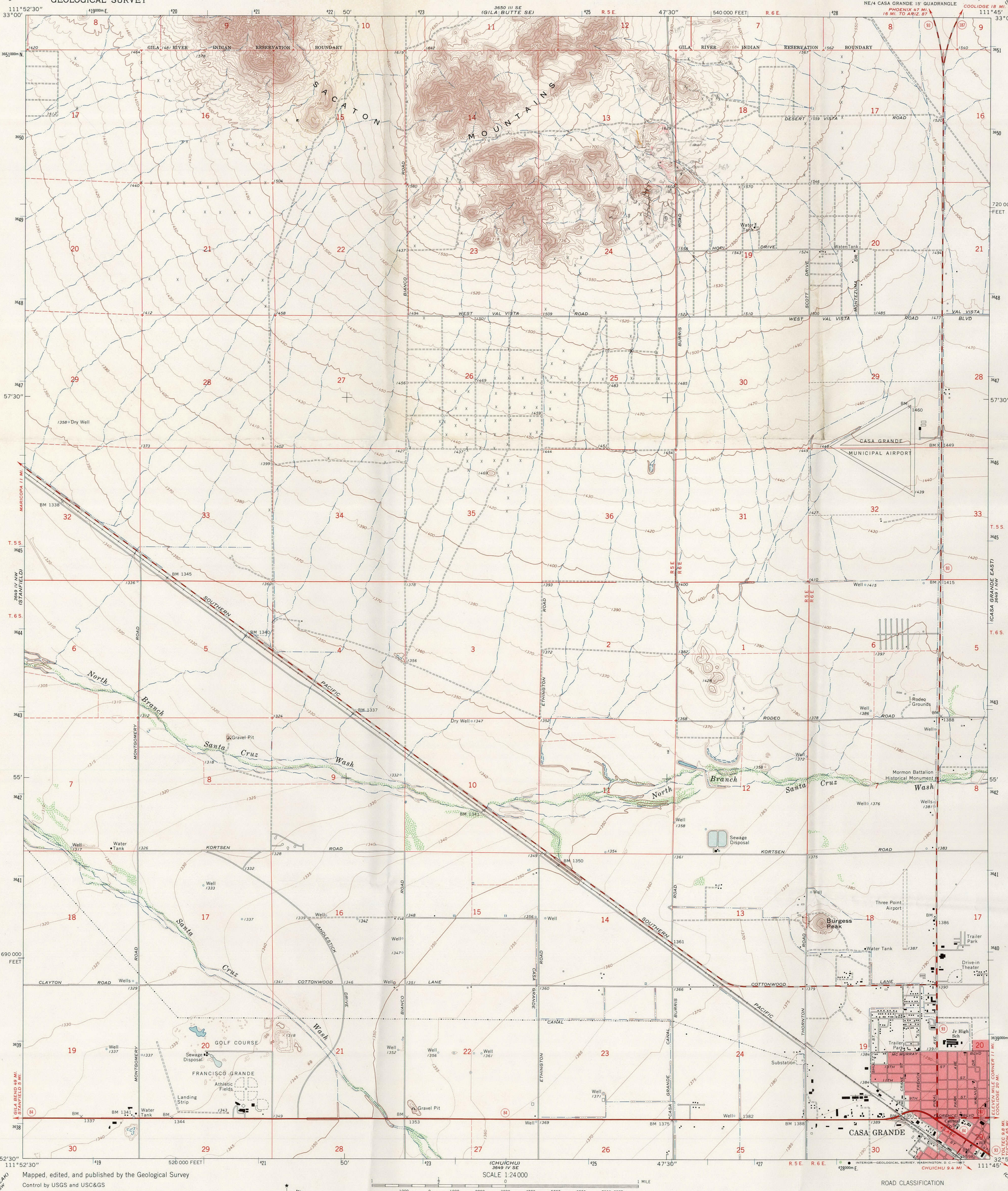
DDH #2. SE 1/4 SW 1/4 Sec. 24, T5S, R5E
BR ±650' (?), hem soaked bx, qtz gr: with some qtz porphyry. Hi angled shear w/ exotic chrysocolla. 1034-1076 = 1.34 % Cu.
T.D. 1455

DDH #3. Center of SE 1/4, Sec. 21, T5S, R5E
BR 215' (?) mafic granitoid with considerable magnetite. Prob. diorite or granodiorite. No alt. Hole drilled on edge of mag high.
T.D. 344.

DDH #4. Center of S 1/2 of SW 1/4, Sec. 24, T5S, R5E.
rotary with spot cores to 675' T.D.
Prob. Gila Cgl. Last 50-100' might have been unaltered Coolidge gr (?) ie ∠ tpgm, Poor core recovery & fragments suggest hole did not reach gr bedrock.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

CASA GRANDE WEST QUADRANGLE
ARIZONA—PINAL CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE/4 CASA GRANDE 15' QUADRANGLE



Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1963 and planetable surveys 1965

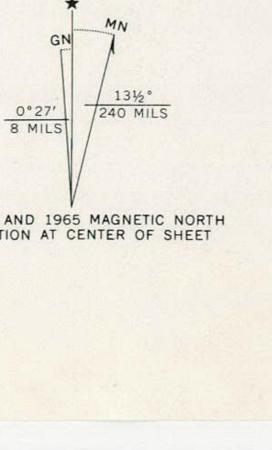
Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue

Red tint indicates areas in which only landmark buildings are shown

Fine red dashed lines indicate selected fence lines

A portion of the southwest quarter of this map lies within a subsidence area

Vertical control based on latest available adjustment



UTM GRID AND 1965 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

1 MILE — 7000 FEET — 1 KILOMETER

CONTOUR INTERVAL 10 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
State Route

CASA GRANDE WEST, ARIZ.
NE/4 CASA GRANDE 15' QUADRANGLE
N3252.5—W11145/7.5

1965

AMS 3649 IV NE—SERIES V898

W. L. K.

JUN 20 1972

JWS

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

May 11, 1972

TO: W. L. Kurtz

FROM: J. C. Balla

Distinguishing Different Age Igneous Rocks in the Field

Introduction

One of the questions I was asked to answer by W. E. Saegart as part of my dissertation work was in regard to distinguishing Laramide age igneous rocks from Precambrian age igneous rocks in the field. The question was whether the criteria used by ASARCO geologists in determining Laramide vs. Precambrian age were valid. Subsequent isotopic dating has shown that, in all but one case, the field determination of age was indeed valid.

Based upon the isotopic dating, it appears possible to distinguish in the field the correct age of each period of magmatic activity in Arizona, with a partial reservation between the Laramide and Mid-Tertiary.

The following criteria listed for each rock are sufficiently diagnostic that, in the vast majority of cases, one can feel reasonably confident that the age designation is correct. As always, poor outcrops or limited outcrops may make any designation questionable.

It should also be mentioned that the depth of erosion is quite important. Whether one is looking at the top of a stock or deep into the interior makes a profound difference between the characteristics of each "level" of the stock.

Attached to the report is a series of maps showing "type localities" for the different age rocks.

Older Precambrian

Madera Diorite and its Equivalents

The isotopic age is approximately 1630 m.y., but the San Tan Quartz Monzonite and Table Top Quartz Monzonite (considered to be equivalent to the Madera) yield isotopic ages of 1341 m.y. and 1329 m.y., respectively.

This rock varies in composition from a quartz monzonite to a diorite. It seems to have gradational contacts between these different rock types, in the same stock. The rock is medium grained, equigranular, non-porphyritic. Epidote is very common, occuring on fracture planes and disseminated (derived from alteration of the mafics). Biotite has been altered (generally) to chlorite and epidote. Commonly the biotite is "clotty" and appears sheared, as opposed to fresh, shiny books.

The rock intrudes only the Pinal Schist, and may contain numerous xenoliths of Pinal Schist. The rock generally has a crude foliation.

These age rocks occur as small (1000-2000 feet) to medium size (5-10 miles) stocks. The stocks are generally quite elongate.

Oracle - Ruin Granites

This rock yields an isotopic age of 1420 m.y., although a sample from the Sacaton Mountains produced a 1240 m.y. age. This rock is normally called a granite, although compositionally it is a quartz monzonite. These granites are coarse grained, and porphyritic. A very diagnostic feature are the phenocrysts, which are very large pink K-feldspar. The K-feldspar occurs up to 3-4 inches in length. Plagioclase occurs as anhedral to subhedral grains. Biotite has been altered to chlorite, and is "clotty" in appearance.

The rock is generally non-foliated. It may or may not contain aplite dikes. It also may or may not contain roof pendants of Pinal Schist.

These granites occur as very large batholithic masses. In some cases an entire mountain range may be composed of this rock. The dimensions of these batholiths are unknown, but the Oracle batholith appears to be at least 50 miles across.

Younger Precambrian

Solitude - Sacaton Granites

These rocks are distinctive, and their Younger Precambrian age is a relatively new discovery. The Sacaton Granite has an isotopic age of 857 m.y., and the Solitude Granite has an apparent isotopic age of 800-900 m.y.

These rocks are fine to medium grained, equigranular, non-porphyritic granites. Particularly diagnostic is the presence of muscovite. Biotite may also be present, making a "Two-Mica Granite". So far as known, the rock has never been found intruding the Apache Group sediments.

The rock occurs as small stocks, with the average dimensions being about a mile in diameter.

Laramide

The Laramide rocks are broken into two general categories, the Granitic stocks and the Quartz Diorite-Diorite stocks.

Granitic Stocks

These rocks range in isotopic age from about 70 m.y. to 52 m.y., with the older stocks being in the western part of the State. These rocks range in composition from a granodiorite to a granite, with most falling in the quartz monzonite-granodiorite range.

These granitic stocks are elongate, composite, epizonal plutons. They may have one, two, or three different facies present. The presence or absence of these different facies is due to the "level" or depth position of the stock that we presently observe, and the magmatic history of the rock. The contact zone between these different facies may be sharp (perhaps 10 feet or less) or gradational (hundreds of feet). It should be emphasized that different Laramide rocks which are adjacent to each other may only represent different facies of the same stock, and that these different facies should be mapped.

These stocks range in size from small stocks (several thousand feet in diameter) to very large stocks, occupying 20 square miles or more.

The Laramide age granitic stocks have the widest range of characteristics. There does not appear to be any single characteristic that distinguishes these rocks from other age rocks.

The rocks are generally equigranular, non-porphyritic. However, in the core zone, or observing a deeply eroded stock (Schultze Granite), large (3"-4" in length) phenocrysts of K-feldspar or plagioclase may occur. The phenocrysts are generally white, compared to the Precambrian pink K-feldspar phenocrysts. Quartz may occur as rounded phenocrysts, or as interstitial material.

Biotite has long been used by ASARCO geologists as a diagnostic mineral. If the biotite occurred as euhedral, black to blackish green books, it was considered to be diagnostic of a Laramide stock. In general, this criterion is valid. However, in the core zone of the Laramide stocks, biotite has almost always been altered to chlorite. Also, fresh, unaltered biotite has been found in the Older Precambrian quartz monzonite in the Table Top Mountains. Thus, this particular characteristic must be used with discretion.

The Laramide rocks are generally non-foliated. However, near the contacts with other rocks, the rock may become distinctly foliated. Flow structures appear to be limited to the Laramide rocks, but occur so infrequently that their absence means nothing.

Quartz Diorite - Diorite Stocks

These rocks vary in composition from a diorite to a quartz diorite. They vary in isotopic age from 70 m.y. to 62 m.y. These rocks are medium grained, equigranular, non-porphyritic. They are not composite stocks.

These rocks seem to generally contain a little sulfide mineralization. The mineralization consists of pyrite, which occurs on fractures and/or disseminated. The pyrite appears to be a late magmatic feature, as opposed to a hydrothermal feature.

Copper, as chalcopyrite, is associated with the pyrite. Copper values are generally quite low, around 500 ppm ± 200 ppm. Only two of these stocks approach being an ore deposit (Chilito, Christmas). The overall sulfide content is low, less than 2%.

The stocks are generally small, being less than 5000 feet in diameter.

Mid-Tertiary Granitic Stocks

The Mid-Tertiary stocks range from granites to quartz monzonites. They seem to fall into two general "types", those associated with ash flows and ash falls and calderas, and those not spatially associated with volcanic features. In all probability, the two different types are merely different erosion levels of the same magmatic events.

The stocks associated with volcanic rocks are quite distinctive. These rocks, like the Wood Camp Canyon Quartz Monzonite, are generally quartz monzonite in composition. They are very fine grained, equigranular. They may or may not be porphyritic. Phenocrysts, if present, are quartz. Sanidine may be present, and is diagnostic. Rock may be deuterically altered to clay. Disseminated grains of magnetite and/or pyrite may be common. Mafic mineral, if present, is dark, euhedral, fresh biotite. Miarolitic cavities may be present. The stocks, which are small (2-3 miles in long dimension) may or may not intrude the volcanic pile.

In contrasts to the above are large stocks which have a granitic texture. These stocks, such as the Stronghold Granite (K-Ar age 22 m.y.) are identical to the Laramide granitic stocks. The only way of determining the age of these rocks is by radiometric methods.

Jim

John C. Balla

JCB:lad
Attach.

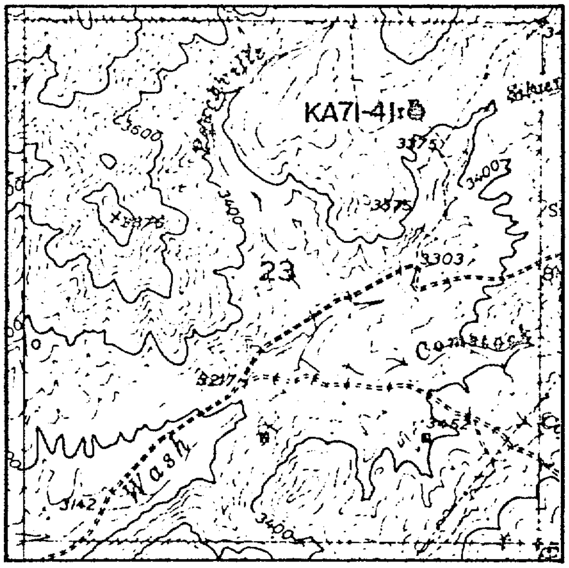
APPENDIX 1

The following is a list of "type localities" for various rock units. The figures are from my dissertation. Thin sections for the rocks are available from George Stathis. Hand specimens are stored in the basement in a box labeled "John Balla Dissertation Rocks".

Age of Rock	Name of Rock	Reference
Older Precambrian	Madera Diorite	USGS P.P. 342
" "	San Tan Quartz Monzonite	Figure A-5
" "	Table Top Quartz Monzonite	Figure A-6
" "	Oracle Granite	USGS P.P. 471
" "	Ruin Granite	USGS P.P. 342
Younger "	Solitude Granite	USGS P.P. 342
" "	Sacaton Granite	Figure A-11
Laramide	Schultze Granite	USGS P.P. 342
"	Core Facies-Granitic Stock	Figure A-10
"	Intermediate Facies-Granitic Stock	Figures A-9, A-14
"	Border Facies-Granitic Stock	Figure A-13, sec. 29, T5S, R7E
"	Quartz Diorite-Diorite Stocks	USGS GQ-1021 Schmidt, E., Dissertation, Tortilla Mountains
Mid-Tertiary	Wood Camp Quartz Monzonite	Figure A-2; USGS GQ-128
" "	Stronghold Granite	USGS P.P. 281

R. 12 E.

T. 1 S.

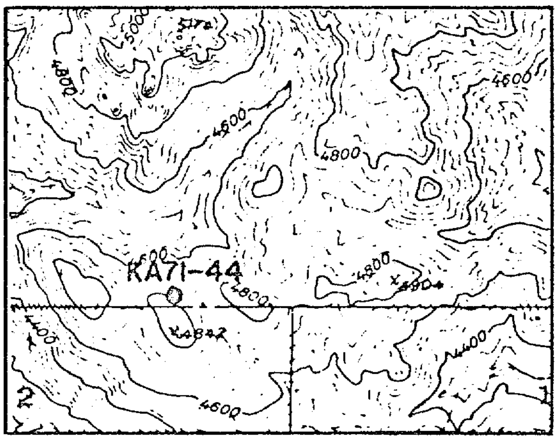


Silver King qtz diorite hornblende K-Ar 20.0 ± 1.5 21.8 ± 0.8

Figure A-1. Location of Sample KA 71-41

R. 12 E.

T. 1 S.



Wood Camp Canyon qtz monzonite biotite + chlorite 19.6 ± 0.6 21.6 ± 1.0

Figure A-2. Location of Sample KA 71-44

R. 7 E.

T. 3 S.

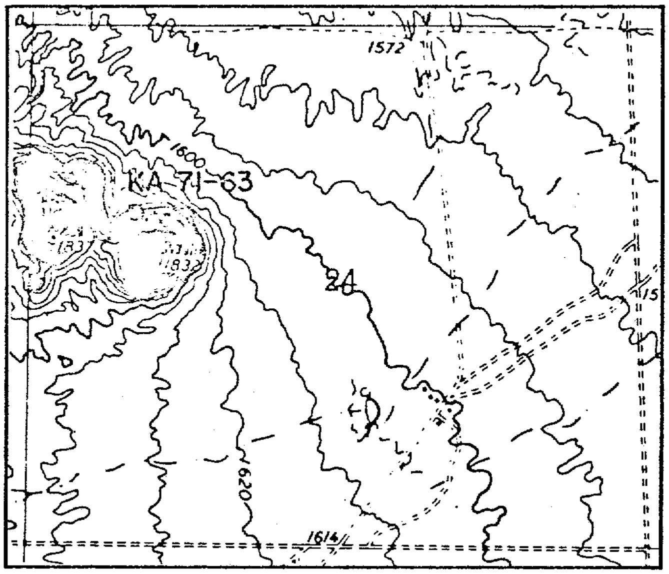


Figure A-5. Location of Sample KA 71-63

San Tan
qtz monzonite
biotite
1376 ± 28
1317 ± 26
1330 ± 27

R. 2 E.

T. 6 S.

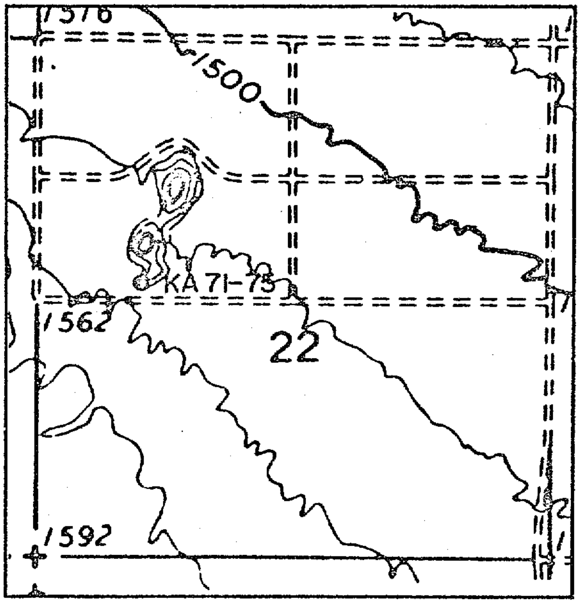
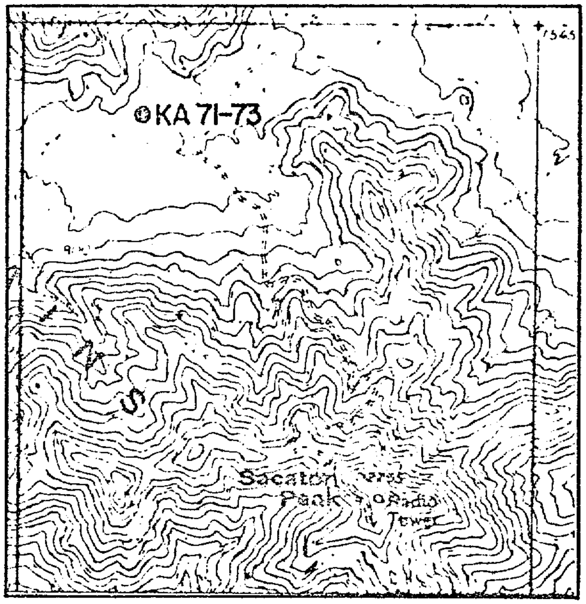


Figure A-6. Location of Sample KA 71-75

Table Top
qtz monzonite
biotite:
1334 ± 40
1324 ± 40

R. 7 E.

T. 5 S.

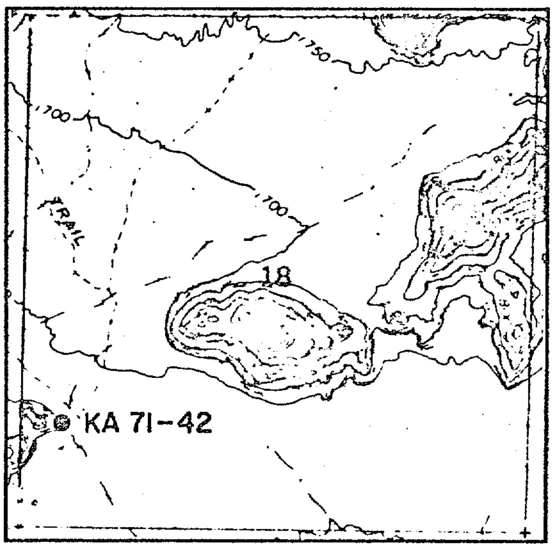


Sacaton Peak granite
biotite 61.4 ± 1.8
62.0 ± 1.9

Figure A-9. Location of Sample KA 71-73

R. 6 E.

T. 5 S.

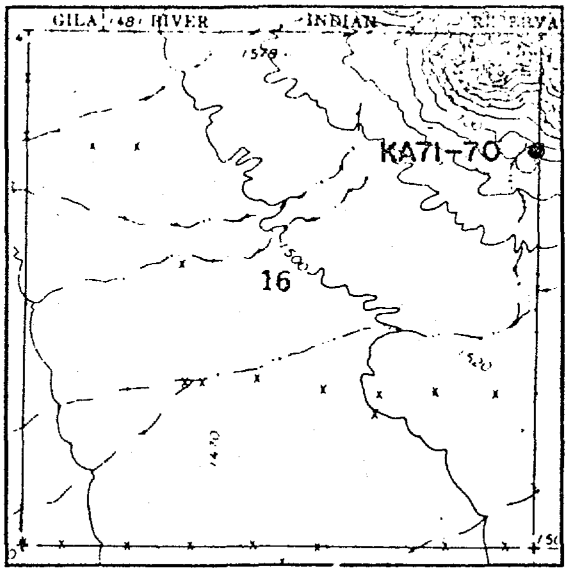


Sacaton Peak granite
biotite:
49.3 ± 1.0
48.8 ± 1.0

Figure A-10. Location of Sample KA 71-42

R. 5 E.

T. 5 S.



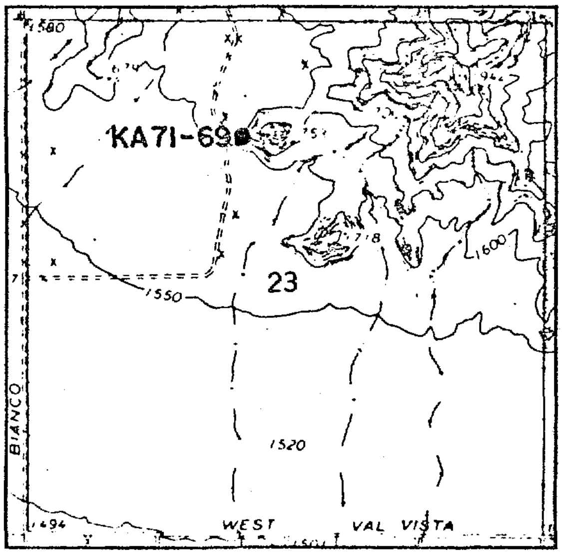
Sacaton microgranite

muscovite
853 ± 26
841 ± 26

Figure A-11. Location of Sample KA 71-70

R. 5 E.

T. 5 S.



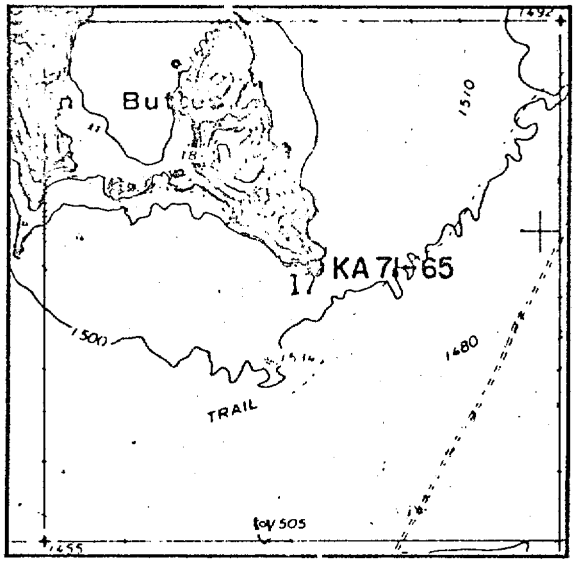
Three Peaks monzonite

biotite:
70.9 ± 2
71.7 ± 2

Figure A-12. Location of Sample KA 71-69

R. 8 E.

T.
4
S.



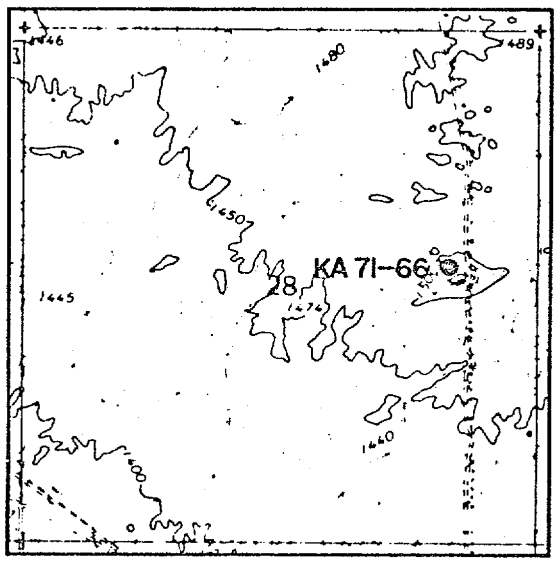
Twin Buttes
qtz monzonite
biotite.

62.4 ± 1.3
65.2 ± 1.3

Figure A-13. Location of Sample KA 71-65

R. 8 E.

T.
4
S.



Walker Butte
granite
hornblende
6[illegible].2 ± 1.8
63.2 ± 1.8

Figure A-14. Location of Sample KA 71-66

Figure B-1 ANALYTICAL DATA ON DATED SAMPLES

Rock Name / mineral dated	Location	Isotopes, Inc. Number	Isotopic Age (m.y.)	scc Ar^{40} Rad/gm x 10^{-6}	% Ar^{40} Rad	% K
Silver King Quartz Diorite hornblende NE 1/4 Sec 23, T1S, R12E.	See Figure A-1	KA 71-41	20.0 ± 1.5 21.8 ± 0.8	1.50 1.63	.14 .28	1.86 1.85
Wood Camp Canyon Quartz Monzonite biotite & chlorite Unsuv. SW 1/4 Sec. 35, T1N, R12E	See Figure A-2	KA 71-44	19.6 ± 0.6 21.6 ± 1.0	1.353 1.490	33 22	1.69 1.74
San Tan Dacite phlogopite SE 1/4 Sec. 6, T4S, R7E	See Figure A-8	KA 71-74	25.3 ± .76 25.5 ± .76	.65 .64	54.7 51.5	6.37 6.31
Sacaton Peak Granite (core facies) biotite SW 1/4 Sec. 18, T5S, R6E	See Figure A-10	KA 71-42	49.3 ± 1.0 48.8 ± 1.0	12.15 12.02	56 62	6.16 6.02
Sacaton Peak Granite (intermediate facies) biotite Center Sec. 17, T4S, R8E	See Figure A-13	KA 71-65	63.4 ± 1.3 65.2 ± 1.3	18.12 18.65	85 85	7.01 7.07
Sacaton Peak Granite (intermediate facies) biotite NW 1/4 Sec. 7, T5S, R7E	See Figure A-9	KA 71-73	60.4 ± 1.8 62.0 ± 1.9	1.83 1.89	89.6 90.2	7.45 7.49
Sacaton Peak Granite (border facies) hornblende NE 1/4, Sec. 28, T4S, R8E	See Figure A-14	KA 71-66	61.2 ± 1.8 63.2 ± 1.8	1.136 1.174	35 35	0.462 0.453
Mineral Butte Quartz Monzonite biotite NE 1/4, Sec. 1, T4S, R7E	See Figure A-7	KA 71-64	70.3 ± 1.4 70.3 ± 1.4	14.37 14.37	86 86	5.03 5.02
Arnett Creek Quartz Diorite biotite NW 1/4 Sec. 7, T2S, R12E	See Figure A-3	KA 71-43	70.2 ± 1.4 73.3 ± 1.5	18.7 19.6	71.1 88.0	6.55 6.57
Three Peaks Monzonite biotite NW 1/4 Sec. 23, T5S, R5E	See Figure A-12	KA 71-69	70.9 ± 2 71.7 ± 2	1.982 1.995	93 93	6.85 6.82
Mineral Mountain Quartz Monzonite biotite NE 1/4 Sec. 29, T3S, R11E	See Figure A-4	KA 71-72	156.39 ± 4.7 157.6 ± 4.7	3.29 3.35	93.5 93.7	5.04 5.09
Diabase whole rock NW 1/4 Sec. 33, T4S, R5E	See Figure A-15	KA 71-71	875 ± 26 806 ± 26	3.300 2.860	86 90	0.74 0.71
Sacaton Granite muscovite NE 1/4 Sec. 16, T5S, R5E	See Figure A-11	KA 71-70	853 ± 26 861 ± 26	34.75 35.01	100 100	8.05 8.01
Oracle Granite biotite SW 1/4 Sec. 4, T5S, R5E	See Figure A-15	KA 71-68	1247.3 ± 37 1233.7 ± 37	51.39 50.49	100 100	7.26 7.24
Table Top Quartz Monzonite biotite NW 1/4 Sec. 22, T6S, R2E	See Figure A-6	KA 71-75	1334 ± 40 1324 ± 40	53.8 53.75	100 100	6.92 6.99
Santon Quartz Monzonite biotite NW 1/4 Se. 24, T3S, R7E	See Figure A-5	KA 71-63	1376 ± 28 1317 ± 26 1330 ± 27	608.5 527.4 580.5	99 99 99	7.47 7.57

John C Balla

11/9/76

~~FTG~~ ~~WLK~~ - JDS

Paul Cook (attempting to call Bill Kurtz)
Former Metallurgist - Red Hills
721 E. Mitchell Dr.
Phx 85012 Ph: 274-3331

Would you be interested in Reviewing
Daisy May - Group of 20 cls.
Antelope Quad - W. of Table Top
E. " Antelope Pk.

- RBC

Claim map - Cook will forward.
Lacy Report - " " "

Very interested - forward all to JDS for review.

FTG.

To
- MR R. B CRIST
- P.O. BOX 5747
- TUCSON, AZ 85703

FROM

PAUL E COOK
721 E MITCHELL DR
PHOENIX AZ 85014
602-274-3331

Subject ROUTE TO DAISY MAY MINING CLAIMS PER TELEPHONE TODAY Date 11/9/76

MESSAGE: WEST FROM CASA GRANDE ON I-8 TO MARICOPA-PINAL COUNTY LINE SIGN, CROSS MEDIAN TO DOUBLE GATES ON SOUTH SIDE OPEN WEST GATE (BROKEN PAD LOCK) TAKE SHORT LEFT THEN RIGHT TURN SOUTH TO STOCK TANK. CROSS STOCK TANK DAM TAKING EAST FORK OF RD. FOLLOW TO DRIFT FENCE SHOWN ON CLAIMS PLAT FOLLOW ON EAST TO MAIN EXPOSURES AT END OF ROAD.

WE HAVE SHIPPED SEVERAL THOUSAND TONS OF COPPER ORE (OXIDES) FOR BUILDING STONE THE DUMPS ARE RESULT OF SORTING OPERATION.

LOOK FORWARD TO HEARING FROM YOU OR BILL ELSING.

RECEIVED
NOV 10 1976
EXPLORATION DEPT.

Signed Paul E Cook

Rediform 4S 468
Poly Pak (50 sets) 4P468

☐ NO REPLY NECESSARY ☐ REPLY REQUESTED — USE REVERSE SIDE

To

FROM

REPLY:

Date / /

Signed

WILLARD C. LACY 326-6305 Home
4034 East Burns Street
Tucson, Arizona 85711
June 6, 1970 884-2147 University

Antelope Peak, Arizona
Diasy Mae Claim Group

1) It was a real pleasure last Saturday to have your company in the field in the visit to the Elsing-Cook "Daisy Mae" group of claims -- south of Antelope Peak, Arizona.

2) Although there are widespread showings of copper in the Pinal Precambrian Schist in the area, that would deserve investigation should an operation be established in the locality, most of the copper shows were concentrated in a northwest-trending zone about 3000 feet long and about 300 feet wide. This lies near the bottom of the valley. The following observations are pertinent:

a) Copper values occur in oxides or silicates as chrysacolla, malachite, cuprite and tenorite -- all of which can be decomposed and the copper values extracted by acid leach.

b) The Pinal Schist is free of carbonate, except for minor "caliche" which is deposited as cementing of talus or penetrated the rock to shallow depths along fractures. The host rock is generally non-reactive and acid consumption would not be excessive.

c) Relict pseudomorphs after sulphide minerals with the copper values indicate that these values have not migrated far. Also, associated with the copper mineralization in the Schist there has been strong silicification and feldspathization along a network of veinlets. This altered rock becomes almost aplitic in character.

d) There does not appear to have been much pyrite present with the primary sulphides -- the primary sulphides are probably chalcopyrite and bornite and in insufficient quantities to produce much of an induced polarization response.

e) Copper values, and the alteration, are restricted to the vicinity of steep shears -- generally 4 to 8 feet wide, but possibly locally considerably wider. The areas between these shear zones are essentially barren. The shears do not appear to be parallel, but exposures are not adequate to obtain a clear structural pattern.

3) I would suspect that:

a) Oxidation would extend to a depth of +200 feet with the encountering of some chalcocite (also leachable) at depths below 100 feet.

b) The area of greatest concentration of mineralized shears might overlie the top of an igneous cupola which could contain disseminated copper mineralization.

c) There is a potential for leachable oxide copper material of between one and five million tons that might contain 1.0 to 1.5% copper. This could be mined selectively by open pit methods, crushed and dump-leached.

4) Possibilities for the property lie in the following:

a) Development of a primative copper oxide leach operation (1 to 5 Million tons of 1-1.5% Cu) to establish a source of income and a base of operations.

b) There are possibilities for a disseminated copper sulphide deposit in a buried cupola beneath the area of most intensive copper mineralization. This is porphyry copper country. Such a deposit might carry a large tonnage mineable by block-caving methods. Depth is unknown, but test drilling should extend to 3,000 feet.

5) I would suggest the following steps:

a) Collect representative samples of the oxide material and have leach tests run by the Arizona Bureau of Mines. (I will take care of this step.)

b) Carry out a rock-chip geochemical survey over the area of most intense mineralization on a 50-foot grid, and a 200-foot grid over the remainder of the claims.

c) Using a wagon drill, drill 50-foot holes on 50-foot centers in the area of the maximum copper anomaly.

d) Obtain trench samples across the major axis of the copper anomalous area.

e) Evaluate results to see if a leach operation still appears to be feasible.

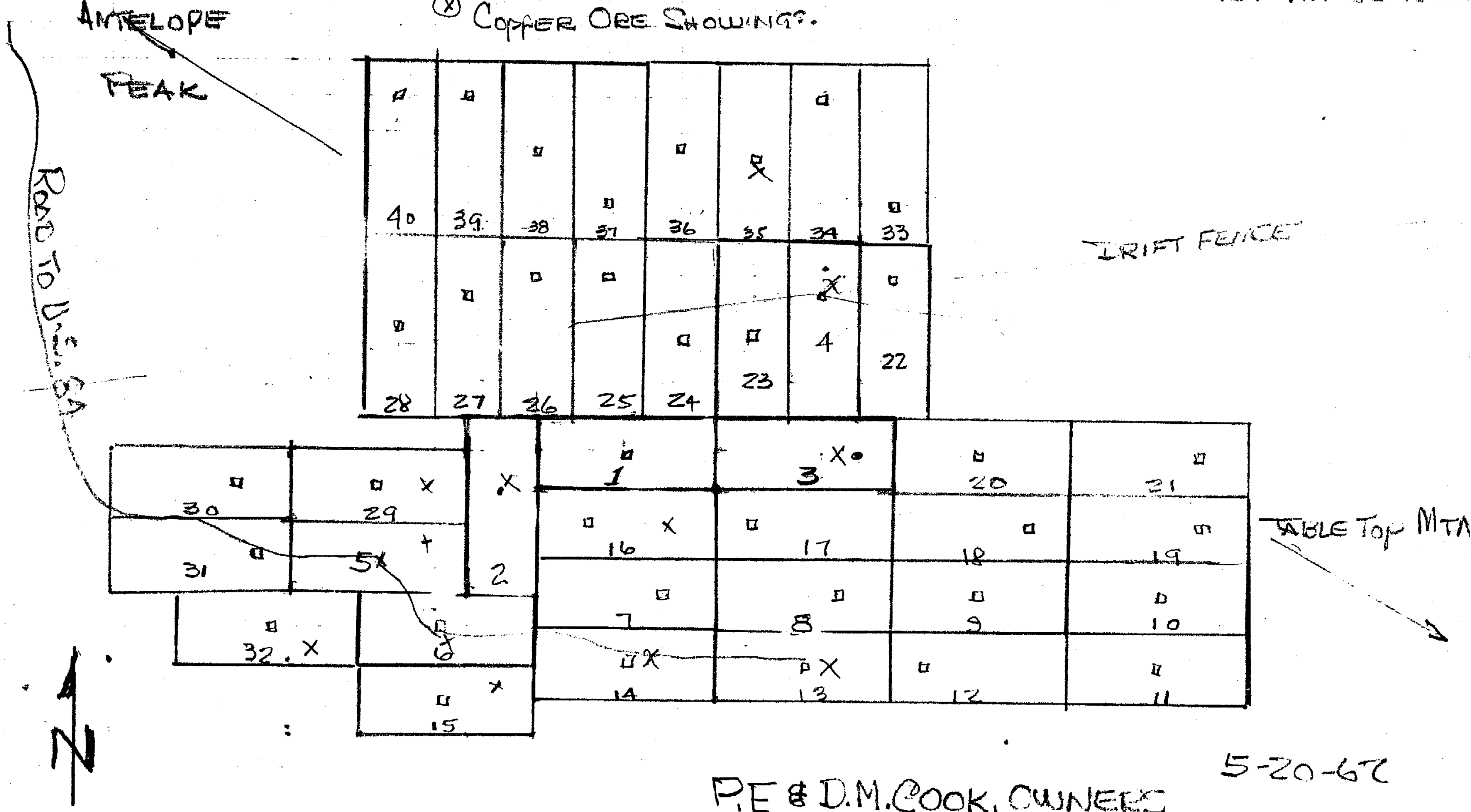
6) A small leach operation is very attractive at the present time because of low capital investment required, low operating costs, the abundance of cheap sulphuric acid (± \$5/T at the smelter), and prospects for higher copper prices in view of environmental restrictions placed on the smelters.

Sincerely,
Bill

Willard C. Lacy
Geological Consultant

FILE COPY DO NOT REMOVE

PLAT DAISY MAY MINING CLAIMS OF RECORD.
CASA GRANDE MINING DIST. PINAL CO. ARIZ. UNSURVEYED AREA TWP 8 S-12 E
ⓧ Copper Ore Showing?.



5-20-67

P.E & D.M. COOK, OWNERS
721 MITCHELL ST. PHOENIX ARIZ 85014

PAUL E COOK II
721 E MITCHELL DR
PHOENIZ AZ 85014

Sample No.	% Cu	% Cu Ox	% M_oS_2	Oz/ton Au	Oz/ton Ag	Location
1	0.027	0.014	0.0008	Trace	0.05	Arroyo, south end of area - rock sample.
2	0.032	0.014	0.0010	Trace	0.05	Arroyo, south end of area - rock sample.
3	0.010	0.004	0.0008	Nil	Nil	Southeast end of area ± 3500 feet S 45°E of stone building.
4	0.468	0.408	0.0008	Trace	0.03	Southeast most pit, rock sample.
5	1.584	1.580	0.0015	Trace	0.07	Southeast most pit, "ore" sample.
6	0.162	0.132	0.0008	Trace	0.04	Location pit west of Pts. 4 & 5.
7	1.596	1.580	0.0023	0.005	0.02	Pit (quarry cut) about 400 feet S 70° E of stone building.
8	0.036	0.022	0.0008	Trace	0.04	Rock sample from sample site 7.
9	0.008	0.008	0.0010	Trace	0.02	Rock sample from wash about 400 feet N 30°E of stone building.
10	1.107	1.012	0.0008	Trace	Trace	Ore in siliceous schist ± 900 feet N 60° E of stone building.
11	2.940	2.900	0.0015	0.005	0.12	Ore sample from shear zone in trench & incline shaft.
12	0.088	0.076	0.0005	Nil	0.04	HW & FW rock samples adjacent to ore at sample site 11.
13	0.008	0.002	0.0008	Trace	0.08	Location Pit on ridge about 1600 Feet N 10° E of stone building.
14						

Table 1 - Assay tabulation from Mr. Paul Cook's property sec. 32 & 33 T. 7 S., R. 2 E. and sec. 4 & 5 T. 8 S., R. 2 E, Pinal County, Arizona