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Name of Mine or Prospect:	Township	Range	Section	Priority
Kabba Mine	20N	14W	26 aad	B

Principal Minerals:	1:250,000 Quad	7.5' - 15' Quad
Gold, Lead Vanadate	Prescott	Bottleneck Wash

Associated Minerals:	District	Principal Product
Quartz, Hematite	Maynard	Gold, Vanadium

Type of Operation:	County	State	Type of Deposit
Two main shafts, exploration shaft, and several adits.[2]	Mohave	Arizona	Vein ?

Ownership or Controlling Interest:
Kabba Mining & Milling Company (No Date)[1]

Access: From intersection of I-40 and Peacock Mtn. Road, (Truck stop & Cafe), 16 mi. east of Kingman, travel 10.5 mi. south on improved gravel road. Turn east on jeep road (through corrals); travel 6 mi. east down Kabba Wash. Turn south and proceed 0.6 mi. west up a tributary wash to the Kabba mine.

Structural Control or Geological Association:
"Older Precambrian Age, Granite gneiss".[3]

The Precambrian basement has been intruded locally by rhyolitic to latitic hypabyssal rocks of probable Tertiary age. Gold mineralization exposed in surface workings occurs as siliceous vein systems associated with faults that strike NNW to NNE and dip 30° to 40° easterly. Altered and mineralized rock in mine dumps as well as assay values from mine dumps and surface outcrops suggest that precious metals mineralization is associated with quartz vein systems and silicified host rock.[4]

Age of Mineralization: Late Tertiary (?)

Production History

125 ton/day flotation mill[1]

Patented claim Bk #204
Ms #4220

Geochemical Analyses

Sample #	Au oz/ton	Ag oz/ton
81RH3017A	0.285	0.1
3017B	0.015	None
3017C	0.010	None
3017E	Tr	None
3017G	Tr	None
3017H	None	None
3048E	0.030	0.1
3048-I	0.055	None
3048-II	None	0.1

References

1) Mallach (1977).
2) CETA map file Rack #10, underground map.
3) Wilson & Moore (1959) Geologic map.
4) Exploration Research Associates Incorporated, Field Reconnaissance and Geochemical Sampling, 25 & 31 July, 1981.

STERLING EXPLORATION
Metals Exploration Consultants
3007 Louisiana, N.E.
Albuquerque, New Mexico 87110
(505) 884-7262

TO: Fred Jenkins, Jr.

FROM: Philip J. Sterling

DATE: August 3, 1991

SUBJECT: A Summary of the Porphyry Cu-Mo Potential of the Kabba Mine Breccia Area, Mohave County, Arizona

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INTRODUCTION:

The Kabba Mine Breccia Area is located in the eastern pediment of the northern Hualapai Mountains approximately 20 airline miles ESE of Kingman, Arizona and two miles southeast of the McGarrys Wash Porphyry Cu-Mo Prospect Area. This prospect area consists of Sections 23, 24, 25 and 26, T20N, R14W. SFP Minerals consist of the W/2 and the NE/4 Section 23 and all but the NW/4, NW/4 Section 25, T20N, R14W.

ECONOMIC GEOLOGY:

The Kabba Mine Breccia Area is an inlier composed of large fragments (measured in 100's of feet) of silicified PEC granite and argillized volcanics completely surrounded by fanglomerate. This breccia is poorly exposed in an area of approximately one square mile. The Section 9 breccias in the McGarrys Wash Area (See Summary of the Porphyry Cu-Mo Potential in the McGarrys Wash Area report) are very similar to the Kabba Breccias and since they are only separated by two miles of fanglomerate cover, it seems probable that they are of the same origin and could connect in the subsurface.

Geochemically, the Kabba Breccia is similar to the breccias in the McGarrys Wash area in that it contains very erratic values in Au, Ag, Cu, Mo, Pb and W.

Exactly what was produced at the Kabba Mine is, at present, unknown. No records of the mine were found but, to judge by the size of the dumps, it had to be one of the larger mines in the northern Hualapai Mountains area. No evidence of veins are found at the Kabba Mine; the rock that was mined was a hematite stained, silicified PEC granite that sampling shows t be anomalous in Au (0.87 ppm), Ag (8 ppm), Cu (225 ppm) and Pb (1200 ppm).

3,000 feet northwest of the Kabba Mine in Section 23 is an inclined shaft on a silicified 40° structure in the granite-andesite breccia. A select sample of the dump assayed 1.1 ppm Au, 9 ppm Ag, 500 ppm Cu, 600 ppm Mo, 6500 ppm Pb and 50 ppm W.

It is clear that the Kabba Mine Breccia need intense geochemical sampling. This could be a breccia high in a porphyry Cu-Mo system and the best method to define a subsurface target would be a detailed geochem of the exposed breccias.

Philip J. Sterling

PJS:la

Philip J. Sterling

Philip J. Sterling

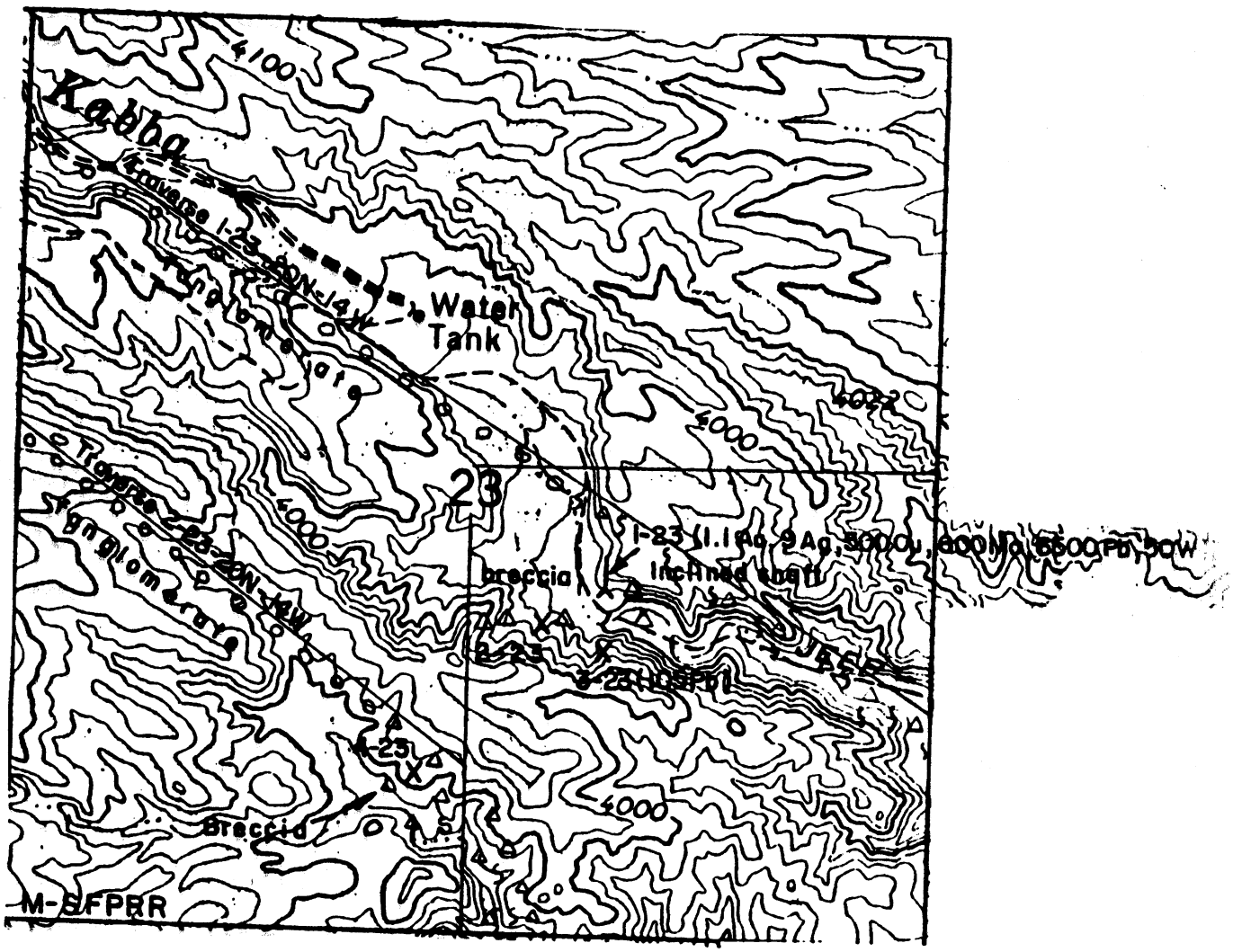
PJS:la

LOCATION: Northeastern Hualapai Mtns. Pediment, W/2 and NE/4 Section 23, T20N, R14W, Mohave County, Arizona, Bottleneck Wash 7 1/2 Min. Quad.

TARGET AREA: Kabba Mine Breccia Area Porphyry Cu-Mo and breccia hosted gold prospects (see Kabba Mine Breccia Pediment sheet).

GEOLOGY & GEOCHEMISTRY: SFP Minerals land in Section is almost entirely covered with fanglomerate. Traverse 1-23-20N-14W was entirely in fanglomerate with breccia exposed to the southeast immediately upon passing in the SE/4 of the section (non-SFP Minerals). On traverse 2-23-20N-14W, a few poorly exposed breccias are found on the extreme southeastern end of the traverse before passing into the SE/4 Section 23. Assay taken in the SE/4 Section 23 and the SW/4 Section 23 are attached.

ORE POTENTIAL: The Kabba Mine Breccia is discussed in detail within this report. Almost all of this mineralized breccia is exposed off of SFP Minerals but in Section 23 this breccia could be reached by shallow drilling on the southeastern end of both Section 23 traverses.



Geologic-Geochemical Traverse Map Showing SFP Minerals
Section 23, T20N, R14W

Scale 1" = 1000′

Contour Interval 20′

ASSAYS OF SAMPLES TAKEN IN SECTION 23, T20N, R14W
UNDERLINED SAMPLES TAKEN ON SFP MINERALS

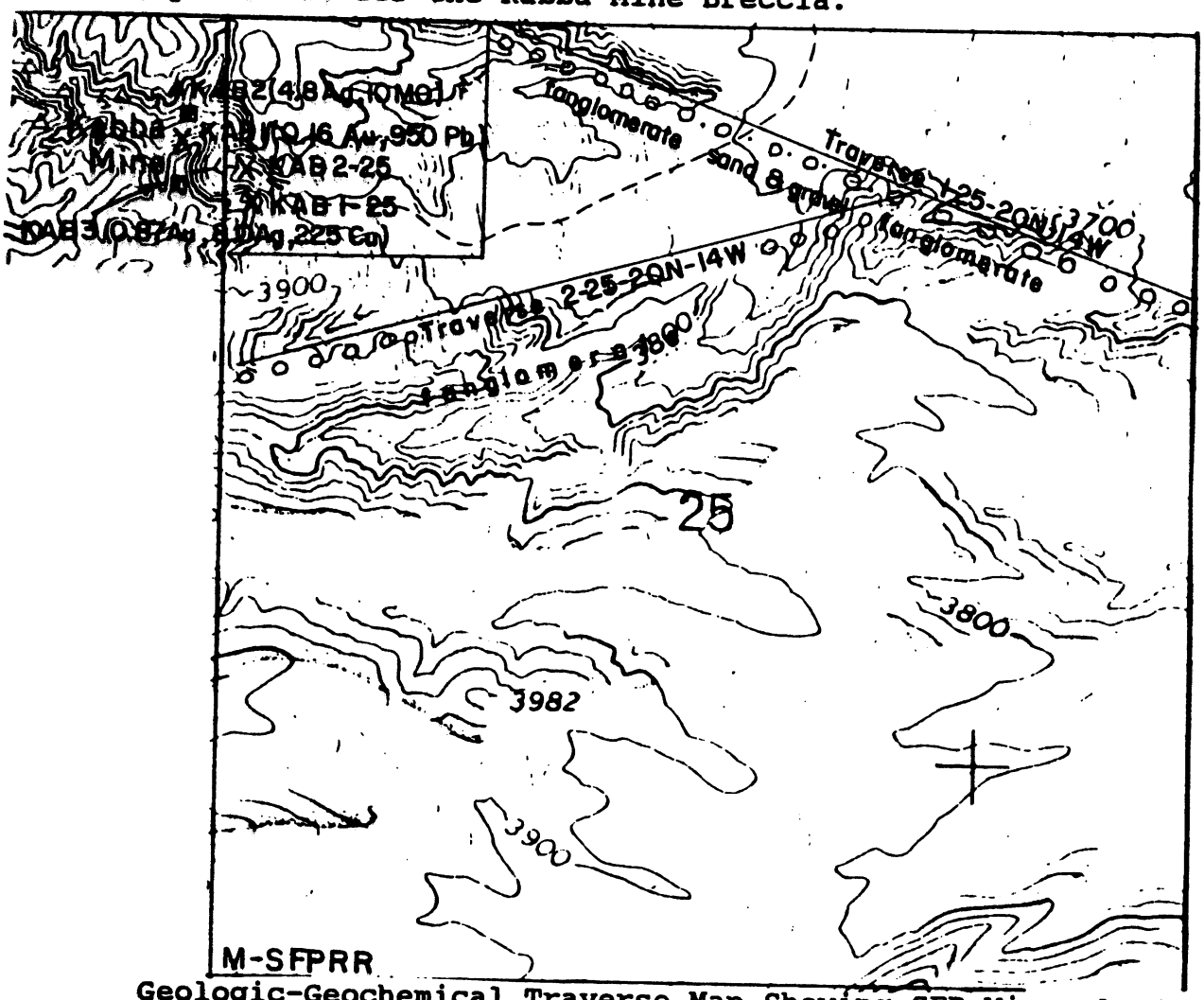
Sample No.	Sample Description	Au ppm	Ag ppm	Cu ppm	Pb ppm	Mo ppm	W ppm	As ppm
KAB1-23-20N-14W	Select dump sample of limonite stained quartz; incl. shaft 40° shows a 25' face of PEC gr.-andesite breccia	1.1	9.0	500	6500	600	50	
KAB2-23-20N-14W	Chip x 5' outcrop of strongly silicified gr. and quartz frag. breccia; strong limonite @ pyrite and hematite; typical outcrop in area	0.008	1.8	10	65	6	<2	
KAB3-23-20N-14W	As above 100' to the ESE	0.006	0.40	10	105	4	<2	
KAB4-23-20N-14W	Chip x 3' sil. & arg. PEC gr. and quartz frag. breccia hematite on all fractures	0.004	<.20	10	32	<2	<2	

LOCATION: Northeastern Hualapai Mtns. Pediment, Section 25 (minus the NW/4, NW/4), T20N, R14W.

TARGET AREA: Kabba Mine Breccia Porphyry Cu-Mo and Breccia Hosted Gold (see Kabba Mine Breccia Pediment sheet).

GEOLOGY & GEOCHEMISTRY: SFP Minerals land within Section 25 is entirely covered with fanglomerate. The far northwest portion of SFP Minerals within the section is just a few hundred feet south and southeast of the Kabba shaft within the Kabba breccia. The Kabba Mine Breccia is discussed in detail elsewhere within this report. Assays are attached of samples taken in the NW/4, NW/4 Section 25 and NE/4, NE/4 Section 26.

ORE POTENTIAL: The SFP Minerals within Section 25 immediately adjacent to the non SFP Minerals NW/4, NW/4 Section 25 has shallow drill potential for the Kabba Mine Breccia.



Geologic-Geochemical Traverse Map Showing SFP Minerals
Section 25, T20N, R14W

Scale 1" = 1000′ Contour Interval 20′

ASSAYS OF SAMPLES TAKEN IN SECTION 25, T20N, R14W*
UNDERLINED SAMPLES TAKEN ON SFP MINERALS

Sample No.	Sample Description	Au ppm	Ag ppm	Cu ppm	Pb ppm	Mo ppm	W ppm	As ppm
KAB1-26	Randon chip of outcrop of typical sil. PEC gr. block in breccia S.W. quartz veinlets lim. @ pyrite on fractures	0.16	0.05	5.0	38	2	<2	
KAB2-26	Random dump grab sample; 100' shaft 750' NE of main shaft; arg. & sil. PEC gr. frags.	<.002	4.8	60	8	10	4	
KAB3-26	Random dump grab sample from main shaft; no vein material; just lm. stained and sil. PEC gr. frags.	0.87	8.0	225	1200	4	<2	
KAB1-25	Randon chim x 30' exposure of PEC-qtz frag. breccia; strong hem. on fractures; SW qtz. veinlets	0.034	0.6	70	930	6	<2	
KAB2-25	As 1-25 chip x 10'	0.14	<.2	6	2	<2	<2	

* Samples taken NW/4, NW/4, NW/4 Section 25 and NE/4, NE/4 Section 26 immediately adjacent to SFP Minerals in Section 25, T20N, R14W

STERLING EXPLORATION
Metals Exploration Consultants
3007 Louisiana, N.E.
Albuquerque, New Mexico 87110
(505) 884-7262

TO: Fred Jenkins, Jr.

FROM: Philip J. Sterling

DATE: August 3, 1991

SUBJECT: **A Summary of the Porphyry Cu-Mo Potential in the McGarrys Wash Area, Mohave County, Arizona**

INTRODUCTION

The McGarrys Wash area is located in the extreme northeastern pediment of the Hualapai Mountains, approximately 12 airline miles southeast of Kingman, Arizona. The prospect area consists of E/2E/2 Sections 1 and 12, T20N, R15W, Sections 3 (SFP), 4, 5 (SFP), 6, 7 (SFP), 8, 9 (SFP partial), 10, 15 (SFP), 16, 17 (SFP) and 18, T20N, R14W.

ECONOMIC GEOLOGY

The exposed portions of the extreme northern Hualapai Mountains have been well explored for porphyry Cu-Mo orebodies associated with a north-south striking Laramide age granitic intrusive without success. My exploration of the area, on behalf of Santa Fe Pacific Mining, Inc. checked on the exposed SFP Minerals lands but concentrated on SFP Minerals in shallow pediment. Most of the sections in the McGarrys Wash area listed above are completely covered with shallow pediment, however, altered and mineralized outcrops and suboutcrops are found in two areas: 1) the Section 7 area and 2) the Section 9area both in T20N, R14W.

1. Section 7, T20N, R14W Area: This is a SFP Minerals section that is almost entirely covered with shallow pediment. In the NW/4 Section 7 is a low hill composed largely of suboutcrop of a strongly argillized granite (Laramide?). A sample from one of the few outcrops assayed 290 pm Cu and 10 ppm Mo and 18 ppm W. As this outcrop is strongly leached, the 290 ppm Cu is significant. Section 7 is at a projected structural intersection between the north-south structures controlling the emplacement of the major Laramide intrusive in the area and the northeast projection of the Hurricane-Chemehuevi Structural Zone.

The combination of alteration, Cu-Mo-W geochem and a projected major structural intersection makes the pediment in Section 7 and surrounding sections very prospective for pediment covered porphyry Cu-Mo orebodies. More sampling of the argillized exposure is needed to see if the geochem values point in some direction. IP could be helpful, but the most effective exploration tool will be to drill shallow drillholes and sample bedrock.

2. Section 9, T20N, R14W: SFP Minerals within Section 9 are the NE/4, E/2NW/4 and NW/4NW/4. In Section 9, there are poorly exposed argillized and silicified breccia masses surrounded by shallow pediment. Most of these exposures are immediately south of SFP Minerals, but argillized breccias are exposed in a roadcut on SFP Minerals land and there is little doubt that they occur elsewhere on SFP Minerals in Section 9 covered by thin pediment.

These breccia masses are composed of large (usually measured in 100's of feet) blocks of brecciated, silicified and hematite stained PEC granite and blocks of brecciated and argillized andesitic volcanics.

Geochemically, these breccias have erratic high values in Au, Ag, Cu, Mo and As. Seven of the ten samples taken of breccias contained anomalous Mo (10 ppm or greater), three were anomalous in Cu (100 ppm or greater) and one select sample of quartz contained 1.7 ppm Au, 1210 ppm Ag, 19500 ppm Cu and 610 ppm Mo. The highest As value (70 ppm) was taken from the roadcut mentioned above on SFP Minerals.

The origin of these breccias, as well as the Kabba Mine breccias a few miles to the southeast is not clear and can probably only be solved by drilling. There are three possibilities:

a) High Level Breccia Pipes in a Porphyry Cu-Mo System: These breccia pipes are found over and immediately adjacent to porphyry Cu-Mo deposits. They are silicified near the center of the pipe and often argillized on the outer portions of the pipe. High in the system they contain erratically anomalous Au, Ag, Cu, Mo and As.

b) Detachment Fault Related Breccia: A detachment or gravity sliding fault could explain the large blocks seen in the breccia and its wide-spread occurrences. Since detachment faulting in this area is considered Tertiary in age, this breccia would be post Cu-Mo mineralization.

c) <u>A Thrust Fault Related Breccia</u>: This could explain the widespread occurrence of the breccia and would probably make the breccia pre-ore contemporaneous with Cu-Mo mineralization.

At any rate, there are altered, mineralized breccia masses in a porphyry Cu-Mo prospect area and as such must be explored. As in the Section 7 target area above, more geochemical sampling of exposed breccias, possibly IP, but definitely shallow drilling to sample bedrock.

Philip J. Sterling

Philip J. Sterling

PJS:la

Santa Fe Pacific Mining, Inc.

AVAILABLE JOINT VENTURE
MOHAVE COUNTY, AZ
NI-12-01-25

McGARRY WASH
Cu, Mo, Au, Ag
Map Reference #11

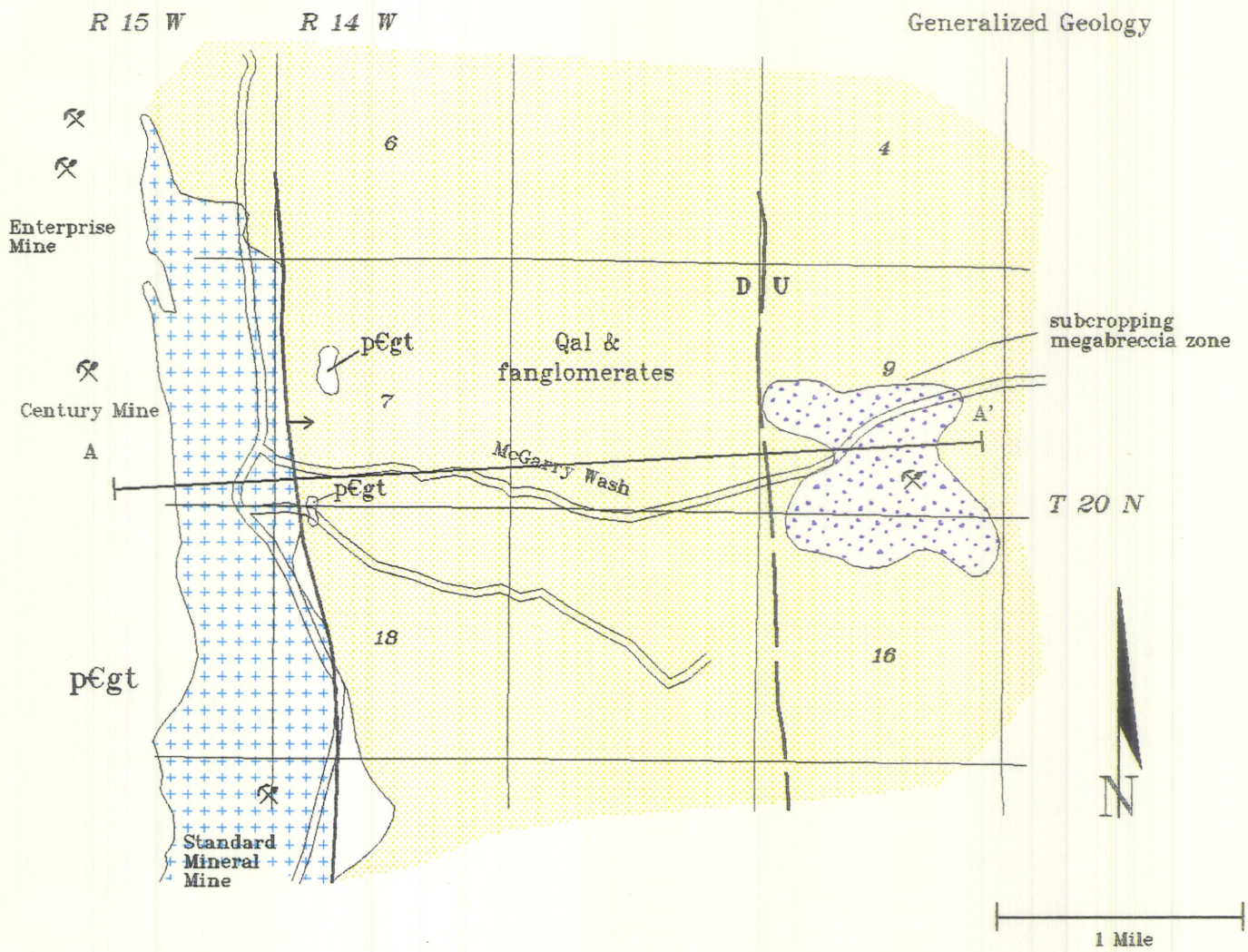
SUMMARY Mineralization and wallrock alteration adjacent to and within a Laramide(?) granitic intrusive on the east flank of the Hualapai mountains suggests the presence of a large porphyry copper-moly system. An even larger zoning halo may indicate a preserved hood zone downfaulted to the east or multiple gold targets occurring beneath alluvium, that in places is very shallow. Copper, moly, gold and silver are very anomalous to ore grade in megabreccia targets in subcropping pediment areas two-three miles east of the outcropping porphyry.

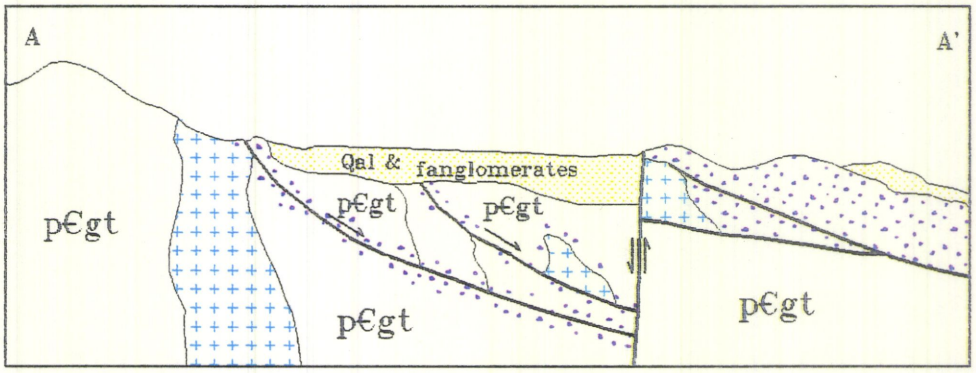
PROPERTY Santa Fe Pacific Mining, Inc. (SFPM) owns over 23 square miles of mineral rights in T20N, R14-15W. Most of the lands are SFPM fee minerals; however, 100 lode claims and two AZ state prospecting permits fill out the land package.

GEOLOGY A granitic pluton intrudes Precambrian basement granitoid gneisses and intrusions along an eight mile range front fault zone on the east side of the Hualapai mountains. The major structural elements influencing alteration and mineralization appear to be north-south and northeast-southwest. Alteration is characterized by broad zones of propylitic and argillic assemblages with more local zones of quartz-sericite (phyllic) and potassic alteration in five areas. In the pediment to the east of an east-dipping range front fault, alteration ranges from propylitic to phyllic, with large areas of brecciation in shallow subcrop. These are likely parts of a rotated decapitated block brought up to near surface along more recent high angle faults. Geochemistry in the pediment area shows an affiliation of copper (76-1200 ppm), gold (47-1148 ppb), silver (3-20 ppm) and molybdenum (23-610 ppm). (See map and cross section on back.)

PREVIOUS EXPLORATION SFPM conducted reconnaissance of the property in 1992, finding strong alteration and anomalous copper and/or gold mineralization on and adjacent to pediment areas. A review of historical records indicates at least five major mining companies explored portions of the areas west of the range front; however, it appears that most of the pediment and all of SFPM lands were unexplored.

EXPLORATION TARGET The most apparent target is a Bagdad or Mineral Park-type porphyry copper-moly deposit whose cap or hood zone has been moved eastward along north-south listric normal faults. Perhaps as important are related breccia-hosted gold zones associated with the intersection of the listric normal with high angle basin and range structures. These have excellent open pit potential.





Conceptual Cross-Section
(not to scale)

EXPLANATION

- Qal–Quaternary alluvium
  Tfg–Tertiary fanglomerate
- TKi–Laramide (?) intrusive
- p€gt–Precambrian basement gneisses, granitoids
- subcropping megabreccia
- Fault
- Contact

Santa Fe Pacific Mining, Inc.

McGarry Wash

NI 12-1-256

June 15, 1992

Call from Jim Matlock - Cyprus, Reno

1. learned that Mc Gary Wash area has been probably extensively drilled in the past by no less than six companies. Art Leger (Cyprus) previously worked for Hanna who drilled fast in the pediment, likely east of section 18. Holes (?#) penetrated blocks of granite and went into gravels or conglomerates. Other companies involved were 1) Noranda 2) Cerro 3) Union Carbide 4) Getty and 5) Newmont.

2. Cerro, U Carb. and Noranda likely drilled in the range west of the road, probably in sections 13, 24, 25 R15W where most of the alteration zones are exposed. Newmont, later joined by Getty in a J.V. explored in section 18, R14W and were successful in hitting some moly mineralization under ±800 feet of conglomerate. David Lowell was and apparently still is very impressed with the strength and potential of the system. Steve Van Nost was also involved in the project at this time. Both of these people should be contacted. Getty's files were apparently purchased by Centurion Mines Corp (SLC, UT?)

3. Jim was somewhat impressed with a possible gold play in the Kabba mine area where he believes there is a sizeable detachment surface with typical chlorite-hematite alteration and zones dipping 30° easterly. Didn't get to section 9 to see if zone extends that far. (over)

4. He may see Dave Lowell in S. America next week and will mention the property to him. Suggested I contact Gordon Wiedenwelt with Mining Geophysical surveys for possible source of info. since intensive ground geophysical surveys were conducted in the area.

5. I am still puzzled that no one had contacted Santa Fe about leasing our sections. Check with George Wagner for 1970's inquiries.

RJJ

McGarry's Wash
Cominco Data
Submitted 6/15/92
from Gaylord Cleveland

AREA: ARIZONA
COLLECTOR: G. CLEVELAND (+ F. DUNN, J. PLAHUTA 772-785) LAB
DATE: 4/25 – 5/8 1992

Cominco American Resources Incorporated

GEOCHEMICAL SAMPLING

SAMPLE NUMBER	LOCATION		REMARKS (Date)	Type	FA/AA Au ~ppb	ICP Ag ppm	Cu ppm Sol/Calc	Pb ppm	Zn ppm	Mo ppm	As ppm	Sb ppm	ICP/NAF Ba ppm	Bi
758	NW 5.7, 20N, 14W, McGarry Bx		4/26 Red soil	SO	18	<0.2	102	60	114	4	<5	<5	206	
759	" " " "		" Qz Float – E. side hill composite	RF	255	33.8	516	3769	120	1035	220	23	24	117
300 760	" " " "		" Comp. grab 50', ser'd, locally K-alt'd gran	RO	10	4.4	159/177	29	56	18	14	<5	221	12
761	" " " "		" " " 40' adj. 760, gran. trace bio, MnOx local Cu	RF	<5	0.4	673/748	9	291	13	<5	<5	105	
762	" " " "		" " " 75'x100' area; bx'd off outcrop (15/20/5) w/ ser. gr.	RO	36	6.7	44/59	474	37	89	<5	<5	60	17
763	" " " "		" " " 40'x20' " ; 60% bx'd off outcrop adj. gr.	RF	9	1.2	40/44	90	44	95	<5	<5	104	
764	NE 5.12 " 15W		" Ser'd gran. w/ qz vn + FeOx after py	RO	<5	<0.2	39	7	10	38	<5	<5	164	
765	SE 5.9 " 14W McGarry Bx		" Vn Qtz, "high gr" ?, dump, abund. MnOx, some CuOx	RD	4856	13.40 oz/t >50.0	12,560	6.10 % >10000	6156	688	>2000	1262	47	30
766	" " " " "		" Comp. of dk gray gran. volc. vn. at shaft	RO	83	18.6	500	2489	534	34	67	312	68	
767	SW 5.18 26N 14W McG. Por.		4/29 Comp. 50' rd cut, Brown FeOx ser.-alt'd intr. 90/10?	RO	<5	<0.2	187/195 / 208	5	19	200 AA 295 ICP	6	<5	142	
768	" " " " "		" " 20' " " S. of 767, Gray ser.-alt'd intr. w/ Cu	RO	<5	<0.2	1806 / 1825 / 2009	7	53	33 AA 535 ICP	9	<5	255	
769	" " " " "		" " 25/35 " , Ser.-alt'd intr, abund. gy. H + Cu	RO	8	<0.2	346 / 341 / 461	7	19	32 AA 32 ICP	<5	<5	101	
300 770	SE 5.9 " " McG Bx		" Grab 6"-8" Vn in Main shaft, N45W, 45SW dip	RO	435	2.35 oz/t >50.0	1273 AA 1281 ICP	7808	1374	2444 AA 2536 ICP	383	996	39	← Te 66
771	" " " " "		" Dump – 2 grab, brown c.g. carbonate w/ (?)	RD	21	1.6	131 AA 127 ICP	2567	325	17 AA 5 ICP	19	7	23	← Cd 140.2
772	NE 25 DEMP PK 20N 15W McG. Pork		5/7 Wk'ly ser.-alt'd gr, wk. limon 100G	RO	44	<0.2	128/128	12	75	16	6	<5	155	
773	NW 30 " 14W " "		" Wk-Mod " " (clay) gr, 2 var.? Sa. fm FeOx 70% 30%	"	<5	1.3	228/326	13	742	160	<5	<5	117	
774	" " " " " "		" " " " gr, mod. FeOx 95% 4J 1T	"	<5	<0.2	56/59	7	125	12	<5	<5	57	
775	SE 25 " 15W " "		" c.g. foi'd bio-rich, mag.-rich pE(?) gr 100%	"	<5	<0.2	158/158	6	130	10	<5	<5	124	
776	SW 18 " 14W " "		" Good Adit 8K's, ser.-alt'd gr, bolwitet bulb 90%	"	<5	<0.2	710/789	6	103	430	<5	<5	175	
777	SE 13 " 15W " "		" Std. Min'le ridge, serv. ser.-alt'd gr, abund gy. H, bio 35J	"	<5	<0.2	95/146	5	9	135	<5	<5	145	
778	SW 18 " 14W " "		" Mod. ser.-alt'd gr. (frac.) abund gy. H, 85% 5J	"	<5	<0.2	201/236	8	33	275	<5	<5	217	
779	" " " " " "		" Serv " " " (CuOx) 80% 10J Tr H	"	<5	0.7	244/305	9	49	77	<5	<5	208	
300 780	NW " " " " "		" " " " 90% 10J Tr H	"	11	<0.2	110/122	5	18	44	<5	<5	121	
781	" " " " " "		" Serv. " " " 75% 25J Tr H	"	32	2.7	163/217	34	39	185	16	12	579	
782	NE 13 " 15W " "		" Wk. " " " (frac.) 90% 10J	"	<5	<0.2	118/131	4	51	16	<5	<5	118	
783	NE 12 HULL Stk " " " "		5/9 pE gr & Lgr ?, wk. ser., adj. 2 Qz Vns + Aplite 90% 10J	RO	7	<0.2	141/157	19	80	16	<5	<5	241	
784	" " " " " "		" At site 783, Qz Vns 90% 10J	"	49	4.3	99/110	50	4	52	<5	<5	87	17
785	SW " " " " "		" pE gr, mult – wk ser on frac, mod Lim. 98% 2J	"	9	<0.2	43/44	11	14	24	<5	<5	125	

Cominco American Resources Incorporated

GEOCHEMICAL SAMPLING

AREA: ARIZONA
COLLECTOR: G. CLEVELAND (+ P. DUNN, J. PLAHUTA) ~~[illegible]~~
DATE: 5/8 – 5/11 1992

LAB

SAMPLE NUMBER	LOCATION	REMARKS (Date)	Type	Au ppb	Ag ppm → oz/ton	Cu	Pb	Zn	Mo	As	Sb	Ba	Bi
				FA/AA		ICP → LAB. ANALYSIS							
300 786	SW 12 SW 20N KW McG Morph.	5/8 Century Mine Fg. dike rock w/ 2% py on Dump	RO	16	1.2	226	121	1230	5	8	<5	61	
787	" " " " " "	" " " Qz Vn & silic wall rock w/ py " "	"	55	6.4	90	575	1525	6	18	<5	15	13
788	" " " " " "	" " Adit, 6', Qz Vn + Silic - (5') + 1' Fine	RO	58	18.7	317	349	324	19	43	61	160	44
789	" " " " " "	" " " " 7' sheared, wk alt'd bio-mtx tween Vns	"	79	11.2	1317	791	2961	35	116	9	273	21
300 790	" " " " " "	" " " " Bio-feldspar mtx (pcd) mult Mod lin 100G	RO	11	0.5	345/345	43	1306	10	<5	<5	111	
791	NE " " " " "	" pEg adj Rhyolite, sced. ser (frac?) 700, 25J, 5H	"	<5	<0.2	97/139	15	25	9	<5	<5	127	
792	" " " " " "	" Lgr, mult. to wk Ser frac 100G	"	<5	<0.2	49/49	5	31	9	<5	<5	95	
793	SE " " " " "	" " adj Rhyolite, gr in Network strg. Ser. 806, 20J, TRH	"	<5	<0.2	97/121	9	27	11	<5	<5	231	
794	" " " " " "	" " mod-wk Ser. (frac.), short frac. NBW 986, 2J	"	<5	<0.2	73/74	4	93	8	<5	<5	140	
795	NW 18 DEAD PK 14W " "	" " wk-Mod Ser. (frac.) 906, 10J	"	7	<0.2	120/133	64	82	25	65	18	153	
796	SW 7 " " " " "	" white Pit, Ser.-Alt. Lgr. BX w/ abund jarosite 306, 70J	F?	<5	1.0	11/37	16	25	53	<5	<5	105	51
797	" " " " " "	" Horsepen Shear Zone, Lgr - pE ? NGE 806, 20J	RO	<5	<0.2	188/225	27	500	4	35	<5	125	
798	DEAD PK SE 12 20N 15W McG Morph.	5/9 Lg, str. Ser. tween 2 Vns 706, 20J, 5H	RO	<5	<0.2	100/133	5	19	6	<5	<5	165	
799	" " " " " "	" Qz Vn 2.5'	RO	<5	<0.2	25	16	12	60	<5	<5	70	
300 800	NE 13 " " " "	" Lg adj. Qevin, 1', Str. Ser. (Cement 798) 656, 35J	RO	<5	0.9	57/88	23	24	26	20	10	214	
801	NW 18 " " " "	" Qz Vn, 9' 606, 40J	RO	<5	1.0	15/25	28	7	19	<5	6	542	
802	NE 13 " " " "	" pEg, mod-wk, Fair Limon 906, 10J	"	<5	<0.2	95/106	13	92	3	<5	<5	115	
803	NW 13 " " " "	" pEg, wk-Mod Ser. 806, 20J	"	<5	<0.2	177/221	36	52	31	49	29	222	
804	NE 13 " " " "	" Lg, wk Ser, well frac, fair Limon 956, 5J	"	<5	<0.2	69/73	3	39	7	<5	<5	124	
805	NW 18 " 14W " "	" Lg, Mod Ser " " 606, 40J	"	<5	<0.2	120/200	8	91	28	<5	<5	420	
806	" " " " " "	" Lg?, qz pver, wk. Ser. 956, 5J	"	<5	<0.2	188/198	9	679	5	6	<5	194	
807	SW 18 " " " "	" Lg below Flat Qevin (below Major Strucf) str. Ser. 606, 40J	"	6	0.3	105/175	15	17	108	<5	<5	173	
808	DEAD PK NW 18 20N 14W McG Morph.	5/10 Dogtrench, Lg, str. Ser + K Spar, str frac 850, 15J	RO	<5	<0.2	430/533	22	37	117	<5	<5	206	
809	SE 13 " 15W " "	" Lg, str. ser. in area of epiz 906, 10J	"	<5	<0.2	88/98	5	11	60	<5	<5	140	
300 810	" " " "	" Lg, mod. Ser. frac. control 986, 2J	"	7	0.7	54/55	54	10	11	10	<5	173	
811	NE 13 " "	" Lg, ver. Ser. wk-str = Mod. 956, 5J, TRH	"	17	1.0	70/74	9	12	14	<5	<5	405	w/ zc
812	" " " "	" Lg, Mod. Ser. frac control 85, 15J	"	<5	<0.2	43/51	5	18	13	<5	<5	245	
813	" " " "	" Lg, Mod-Str. Ser. 906, 10J	"	19	<0.2	62/69	7	11	17	<5	<5	160	
814	NW 19 " 14W	" Lg, near E body Stock, Str. Ser. (Mod adj) 856, 15J	"	78	3.8	161/189	82	106	291	<5	<5	331	
815	SE 24 " 15W	" Lg, Ser. str Q-K-Spar stockwork Mod. 100G	"	<5	<0.2	64/64	6	50	17	<5	<5	149	
816	" " " "	" Lg, Ser, Mod. Q-K spar " 100G, TRH	"	<5	<0.2	139/139	5	58	52	<5	<5	236	
817	" " " "	" Lg, Ser., abund. Limonite 806, 20J, TRH	"	<5	0.7	155/194	5	30	102	<5	<5	205	
818	NE 24 " " " "	" Lg, wk Ser, wk K-Spar 986, 2J	"	<5	<0.2	79/81	6	60	34	<5	<5	39	
819	DEAD PK NW 7 20N 14W McG Morph	5/11 Lg, str. Ser (mult epi.) 956, 5J	RO	<5	<0.2	116/122	6	33	12	5	<5	182	
300 820	" SW 6 " " " "	" Lg, wk Ser, well frac + shallow oxidation 986, 2J	"	<5	<0.2	6/6	16	96	1	6	<5	174	

AREA: ARIZONA
COLLECTOR: G CLEVELAND (→ P. DUNN) LAB
DATE: 5/11 – 1992

Cominco American Resources Incorporated
GEOCHEMICAL SAMPLING

SAMPLE NUMBER	LOCATION	REMARKS (Date)	Type	Au ppb	Ag ppm → Sa/Calc	Cu	Pb	Zn	Mo	As	Sb	Ba	Bi
				LAB. ANALYSIS: (FA/AA) (ICP) →									
300 821	HUAL CAN NE12 20W 15W McGinnis	5/11 Lg. (dkbn) unch. to v wk Sor, disse (FR) py 100G	Fc	<5	<0.2	42/42	18	17	1	<5	<5	285	
822	DEAN PK SW18 " 4W " "	" Lg. mod Sor. in frac., abund. qz vein (7 K spar) 90G 10J		<5	<0.2	171/190	6	33	120	<5	<5	109	
823	" SE13 " 15W " "	" Lg " " " " 85G 15J		<5	<0.2	39/46	3	28	30	<5	<5	157	
828													
829													
300 830													
831													
832													
833													
834													
835													
836													
837													
838													
839													
300 840													
841													
842													
843													
844													
845													
846													
847													
848													
849													
300 850													
851													
852													
853													
854													
855													

Mineral

Cominco American
Resources Incorporated

RECEIVED
MAY 07 1992
SANTA FE PACIFIC MINING
RENO

May 5, 1992

Mr. Fred J. Jenkins
Exploration Manager, Joint Ventures
Santa Fe Pacific Mining, Inc.
250 South Rock Blvd., Suite 100
Reno, NV 89502

Re: Kabba-McGarry's Wash Area, Mojave County, Arizona

Dear Fred:

Thank you for meeting with George Cole and me on April 27, mainly concerning the above-named prospect area. As noted during that meeting, our primary interest is in the porphyry copper potential of the area. On April 29 I re-examined the Kabba-McGarry's Wash porphyry and breccia prospects with George and two other geologists. Although there are some unfavorable as well as favorable aspects to the altered rocks exposed, basically the conclusion of the visit is that we remain interested in the target.

George has left town for about two weeks. Upon his return, we will be back in touch with you concerning the prospect. In the interim, I intend to return to the area for a few days to do some additional geologic reconnaissance to attempt to pin down a specific target area a little more closely.

Sincerely,

Gaylord Cleveland
Geologist

831 East Glendale, Sparks, Nevada 89431 Tel. (702) 355-8787 Fax: (702) 355-8880

Cominco American
Resources Incorporated

RECEIVED
JUL 14 1992
SANTA FE PACIFIC MINING
RENO

July 13, 1992

Mr. Fred Jenkins
Santa Fe Pacific Mining, Inc.
250 S. Rock Blvd., Suite 100
Reno, NV 89502

Dear Fred:

We have decided not to pursue further a joint venture with you for the McGarry's Wash prospect, located at the north end of the Wheeler Wash porphyry system, Mohave County, Arizona.

I spent roughly 7-10 days in the area. Our conclusions are that (1) the Wheeler Wash prospect is a genuine porphyry copper system, (2) your Section 7 is at the north end of the system, and (3) there are geologic targets for covered and faulted off extensions of the system in the footwall and hangingwall, respectively, of the east boundary fault. However, Cu values are low (although Mo is clearly anomalous) and the sulfide system does not appear well enough developed to generate sufficient leaching to produce an enrichment blanket. The exposed portion of the system is probably fairly well tested. Although any untested portions of the system and the geologic targets may be worth additional work including a few drill holes, we feel that the project is not strong enough to acquire at this time.

I sent you copies of our sample data in June, but we waited for Phil Sterling's latest data before making our final decision. We wanted to give this prospect a close look.

Thank you for considering us on it and for working with us during the evaluation. I also am keeping in mind other Santa Fe lands in Mojave and Yavapai Counties as we continue evaluations of base and precious metal targets in the area.

Sincerely,

Gaylord Cleveland
Geologist

GC:ph

831 East Glendale, Sparks, Nevada 89431 Tel. (702) 355-8787 Fax: (702) 355-8880

AZ-02372

EXPLORATION RESEARCH ASSOCIATES Incorporated

1701 Clinton Street
Suite 212
Los Angeles, California 90026
Telephone [213] 483-5127

31 December 1982

Santa Fe Pacific Railroad Company
4775 Indian School Road
P. O. Box 3588
Albuquerque, New Mexico 87190

Attn: William H. Crutchfield, Jr.
Director of Exploration

Subject: **WHEELER WASH PORPHYRY COPPER/MOLYBDENUM PROSPECT**
Northeastern Hualapai Mountains
T19&20N-R14&15W
Hualapai Peak NE 7.5' Quadrangle
Dean Peak 7.5' Quadrangle

DESCRIPTION:

The Wheeler Wash prospect area is located in an area of extensive alteration to anomalous copper and molybdenum mineralization in the northeastern Hualapai Mountains. The country rocks throughout much of the prospect area are granitic gneisses and granites of Precambrian age. These country rocks are intruded by an elongate pluton of medium-grained quartz monzonite and quartz monzonite porphyry of Laramide age (Vuich, 1974). This plutonic complex and the Precambrian crystalline assemblages to the west exhibit intense jointing, quartz and sericite veining, and pyritic alteration throughout an area of approximately four square miles. The most intense alteration and mineralization is exposed in Sections 12, 13, 23, 24, 25 and 26, T20N-R15W.

Within the area of pyritic alteration, numerous small mines have worked narrow high-grade vein deposits for copper, molybdenum and tungsten. This pyritic alteration is surrounded by a peripheral zone of anomalous copper, lead, and zinc mineralization (Vuich, 1974). The zoning of alteration and mineralization is similar to that of the Mineral Park porphyry copper/molybdenum deposit located in the Cerbat Mountains eighteen miles to the northwest.

The Wheeler Wash prospect area has been the site of extensive exploration for porphyry-type mineralization. Among the companies which have been active in the area are Kennecott Copper Company, Union Carbide Corporation, Cerro Corporation, Norandex, Inc., Cities Service Company and Arkla Exploration Company.

The zone of anomalous alteration and mineralization is terminated to the east by a complex system of east-dipping range-front normal faults. Our reconnaissance mapping in this area suggests that the alluviated pediment terrane east of the range front fault system may contain a displaced block of altered and mineralized rock. This pediment terrane is believed to warrant further evaluation. NO FORMAL [illegible] UNTIL [illegible] WHEN STAFF [illegible] RECON TRAVERSES ON COMPANY OWNED SECTIONS [illegible]

LAND STATUS:

According to the mining claims records of the U.S. Bureau of Land Management dated 22 June 1982, a major block of approximately 350 claims in the Wheeler Wash area was located by Kerr-McGee Corporation in October 1976. These claims are located as follows:

Township	Section	No. of Claims
T19N-R14W	5	4
	6	36
	7	9
	8	1
	17	2
	18	36
	19	9
	20	1
T20N-R14W	29	2
	30	18
	31	9
T19N-R15W	1	21
	2	36
	3	9
	11	7
	12	39
	13	13
	14	1
T20N-R15W	25	27
	26	21
	27	2
	34	28
	35	4
	36	36

Property Acquisition Request
Kabba/McGarry Wash, Mohave County, Arizona

The following is backup data supplying geologic information that supports further land acquisition on this target area. Surface geology and alteration suggest that the property is part of a porphyry Cu/Mo system that is partially exposed on the east flank of the Hualapai range. The system appears to be cut off to the east by a north trending, low angle normal fault, dipping to the east, thus possibly preserving a large decapitated portion of the potential ore zone (see cross section cartoon). Most of the detailed data is derived from a master's thesis from the University of Arizona by J.S. Vruich, 1974. Acquisition of this thesis and a more extensive recent field exam has somewhat changed my understanding of the property and raises some question as to the strength of the system, although the target hypothesis remains the same.

Along the mountain front, at least two of the alteration/mineralized zones have been drilled with no hard data on the results. However, we must assume that nothing of clearly economic interest was found. Indirectly, through contacts at Kennecott, we've learned that they had some very "interesting" drill intercepts, most likely in section 18, T27N, R14W, but they have refused to share the data with us. This would be located on the hanging wall of the bounding basin and range fault, giving some credence to the concept that a decapitated ore zone may be possible in the pediment area. The remaining untested mineral zones are still large enough to host a porphyry deposit, however on the negative side they do not appear in surface outcrop to contain more than 2-5% total oxidized sulfides (largely pyrite) which means a secondary chalcocite blanket will not likely be present. The best residual geochemistry left in the altered surface rocks is 60-490 ppm Cu and 12-370 ppm Mo. SFPM sampling on section 7 exceeded some of these copper values. Sampling results over previously known (thesis area) mineralization are pending and not available for comparison.

Weaver Well
Tanks
Enterprise Mine
Century Mine
Corrales
Agaitic
Well
Wash
McCartys
Prospect
Yellow Pine Spring
Standard Mine
Spring
Soap
Wheeler
Oak Ranch
Trail
Jeep
Pack
4WD
Well
Tr
Wash
McGinnis
LA
NTAINS

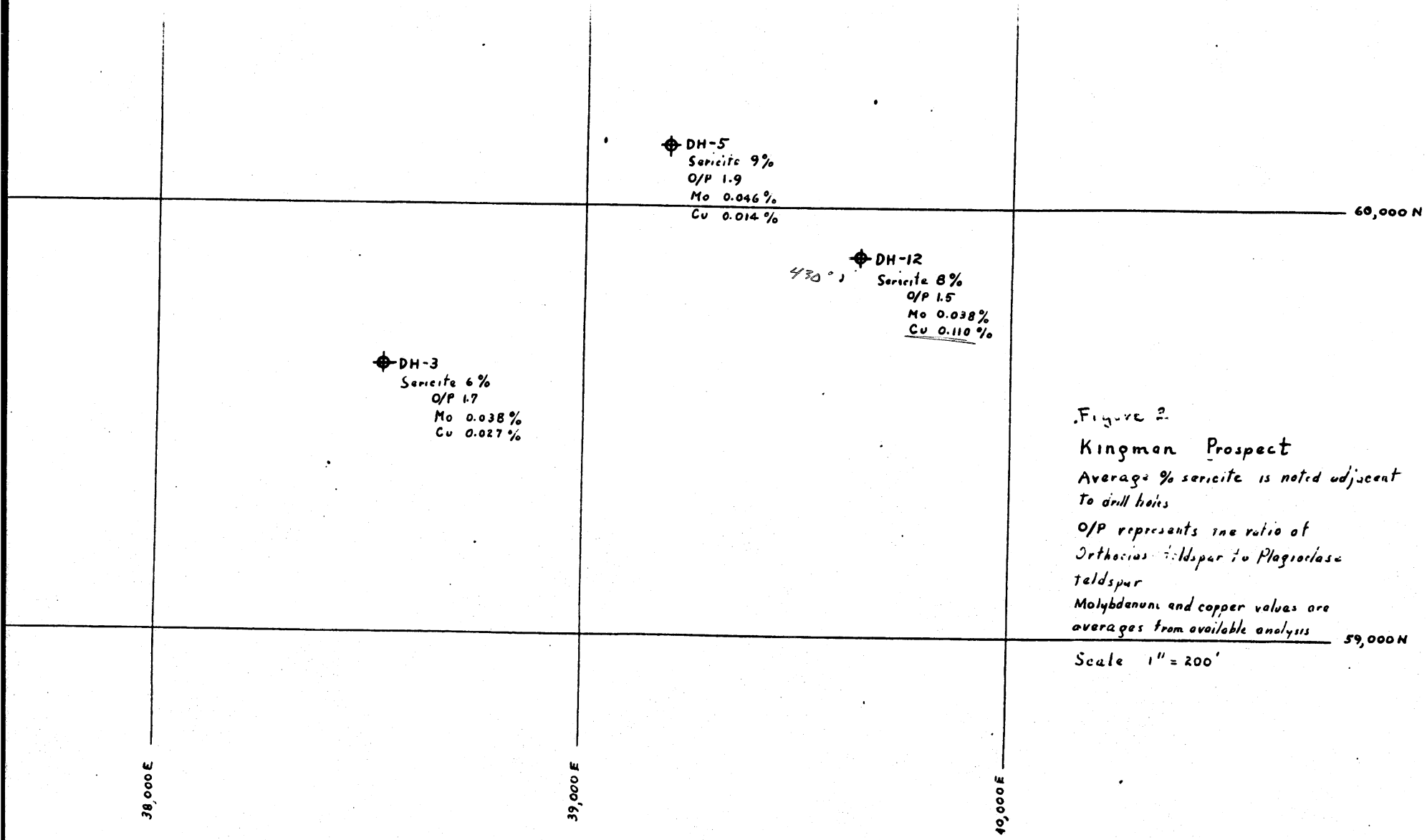


Figure 2.

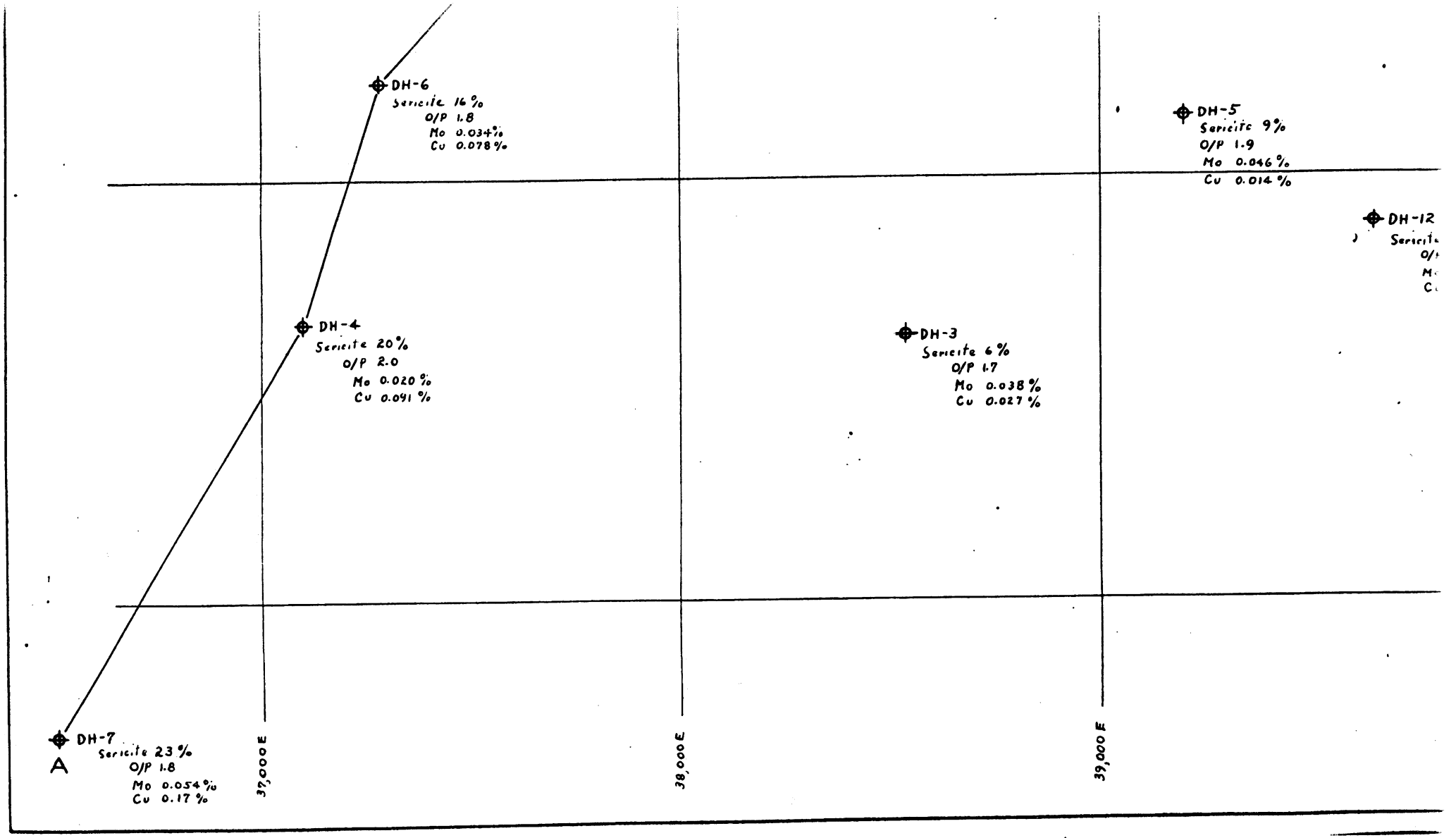
Kingman Prospect

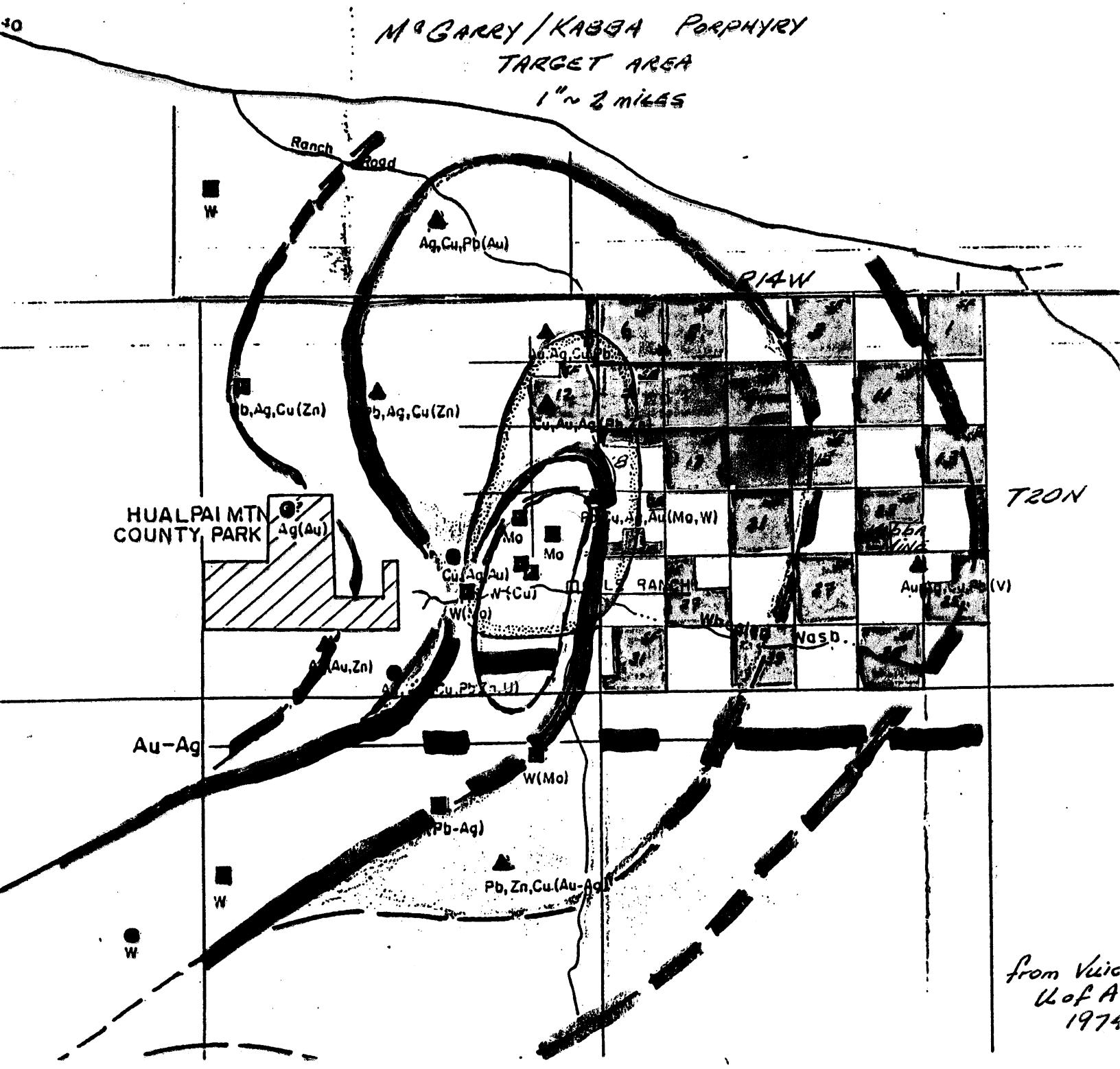
Average % sericite is noted adjacent to drill holes

O/P represents the ratio of Orthoclase feldspar to Plagioclase feldspar

Molybdenum and copper values are averages from available analysis

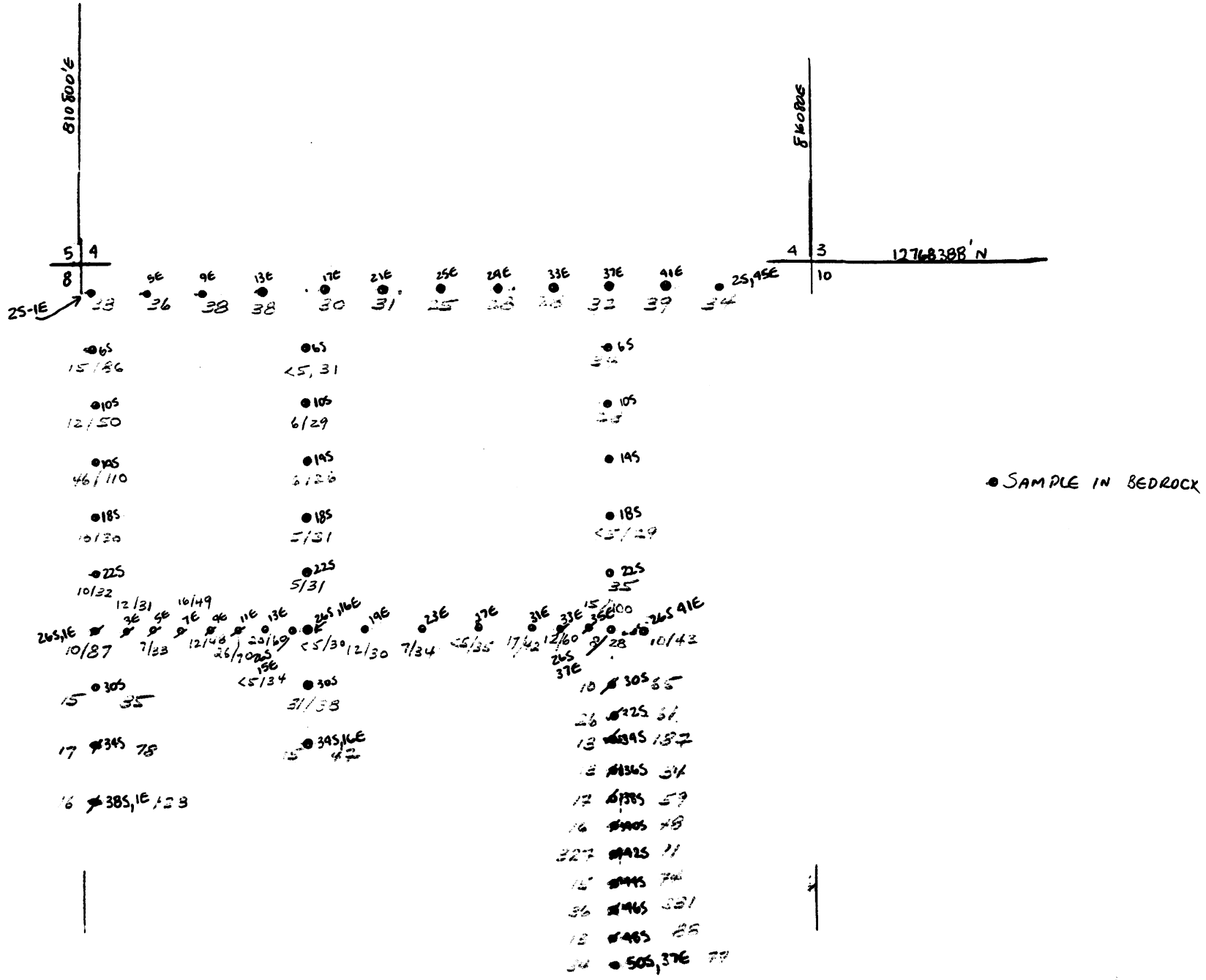
Scale 1" = 200'

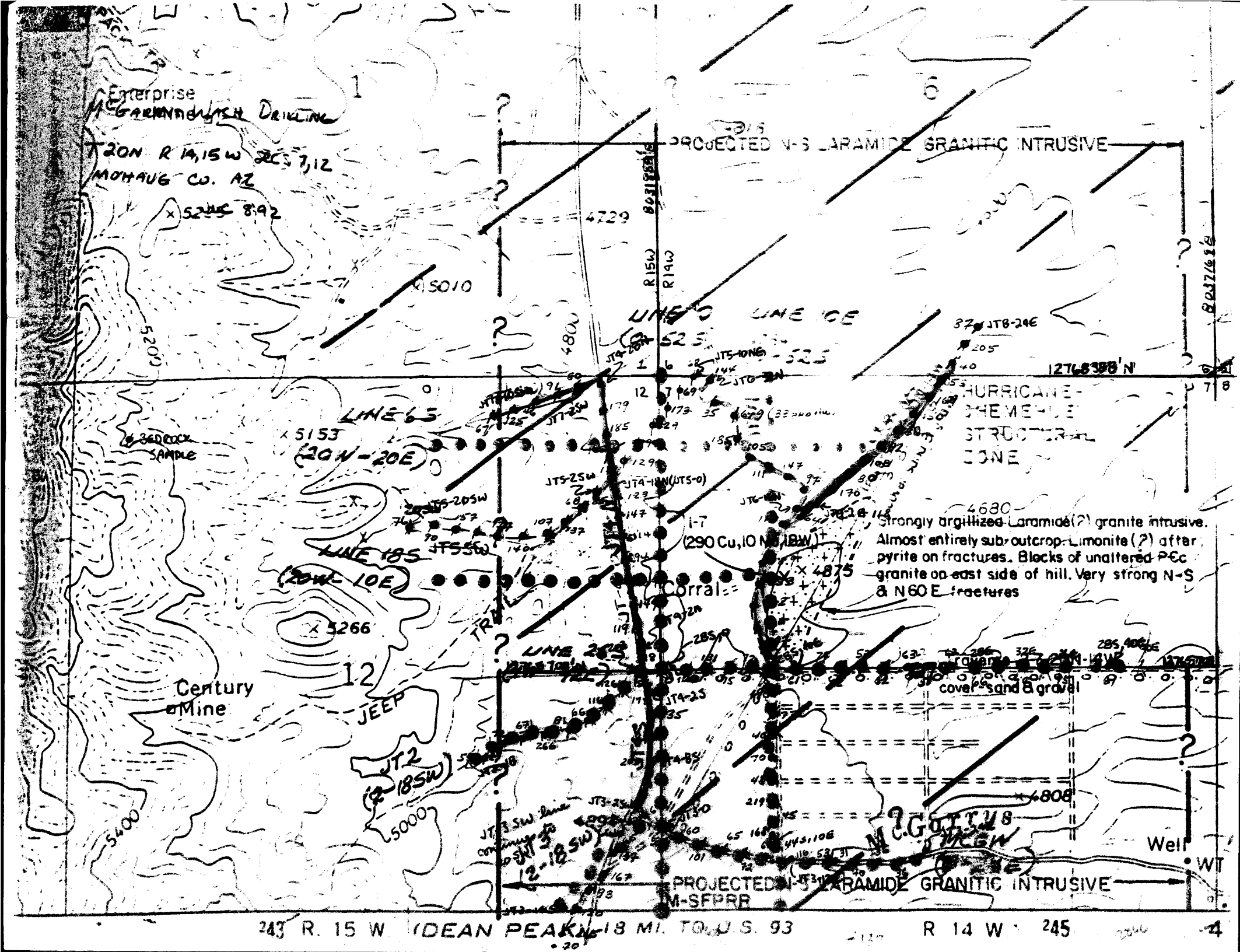

DH-6
Sericite 16 %
O/P 1.8
Mo 0.034%
Cu 0.078 %
DH-5
Sericite 9%
O/P 1.9
Mo 0.046 %
Cu 0.014 %
DH-12
DH-4
Sericite 20 %
O/P 2.0
Mo 0.020 %
Cu 0.091 %
DH-3
Sericite 6 %
O/P 1.7
Mo 0.038 %
Cu 0.027 %
DH-7
Sericite 23 %
O/P 1.8
Mo 0.054 %
Cu 0.17 %
A
37,000 E
38,000 E
39,000 E

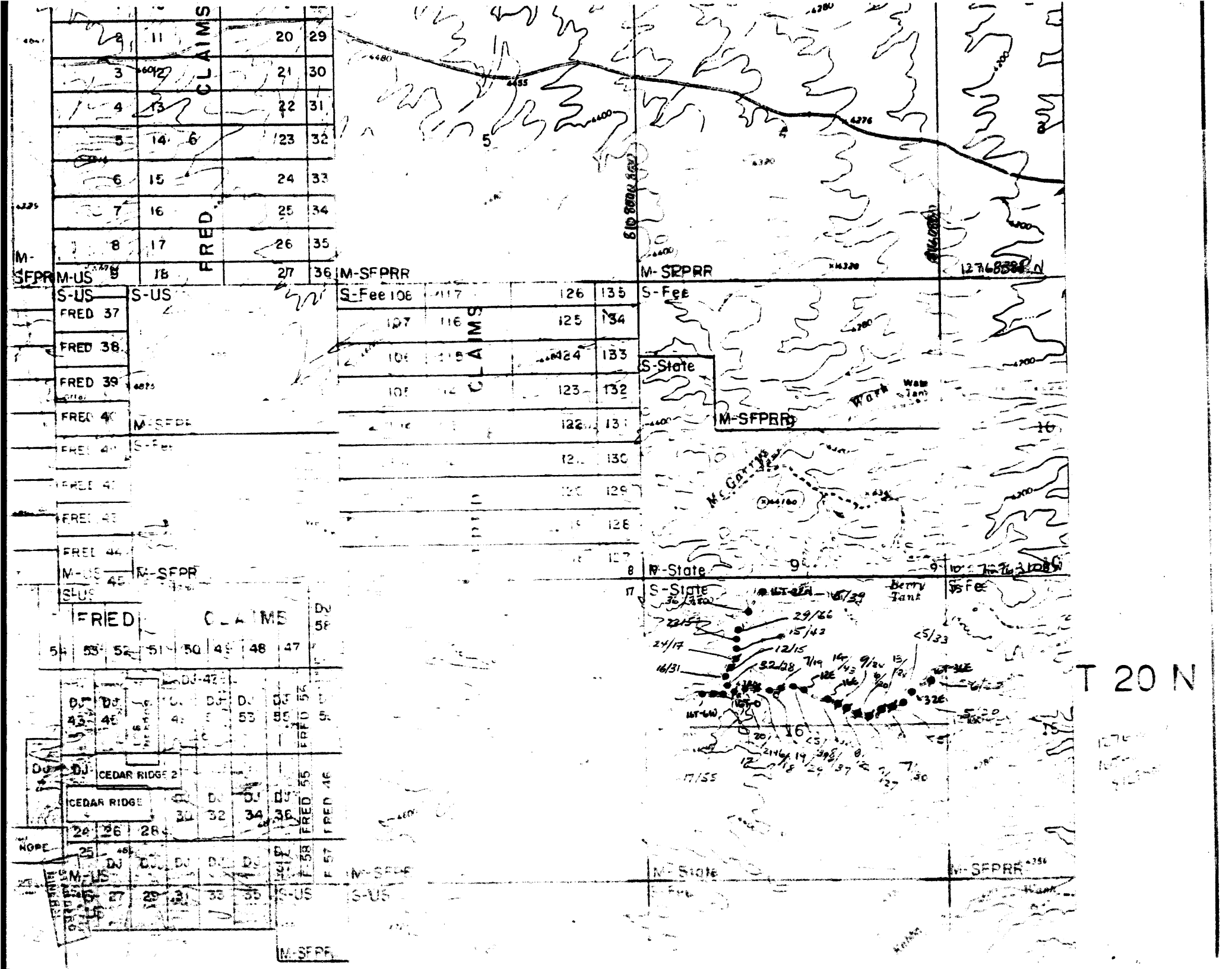


from Vuic
U of A
1974

McGarrys Wash
Section 9 Auger Drilling
T20N R14W Sec9
Mohave Co Az




Enterprise
McGarrah Wash Drilling
T20N R 14,15 W SEC 7,12
MOHAVE CO. AZ
PROJECTED N-S LARAMIDE GRANITIC INTRUSIVE
HURRICANE-CHEMEHUEVI STRUCTURAL ZONE
LINE 65
(20N-20E)
LINE 185
(20W-10E)
LINE 25
(20W-18W)
Corral
Strongly argillized Laramide(?) granite intrusive. Almost entirely sub-outcrop. Limonite (?) after pyrite on fractures. Blocks of unaltered P€c granite on east side of hill. Very strong N-S & N60E fractures
(290 Cu, 10 Mo, 18W)
Century Mine
JEEP
TRAIL
cover sand & gravel
Well
PROJECTED N-S LARAMIDE GRANITIC INTRUSIVE
M-SFPRR
243 R. 15 W
IDEAN PEAK
18 MI. TO U.S. 93
R 14 W
245


FRED CLAIMS
M-SFPRR
M-US
S-US
S-Fee
M-SFPRR
S-State
M-State
FRED 37
FRED 38
FRED 39
FRED 40
FRED 44
M-US 45
FRED CLAIMS
CEDAR RIDGE 2
CEDAR RIDGE
NOPE
Big Rock Bay
McGarvey
Water Tank
Berry Tank
T 20 N

McGarrys Wash
Section 9 Auger Drilling
T20N R14W Sec 9
Mohave Co Az

LINE 1E (2-44S)
LINE 16E (2-40S)
LINE 32E
LINE 52E
LINE 25S (1-50E)
LINE 25S ×4512 (1-52E)

poorly exposed breccia, silicified w/strong hematite
6-9(3.7 Ag, 30 Mo, 55 As)
7-9
4-9(0.13 Au, 70 As)
8-9(28 Mo)
SEPRR 9
Water Tank
SAMPLE IN BEDROCK
breccia-exposed in road cut, argillized hematite & limonite after pyrite
McGarrys
exposed breccia w/small mines & prospects, zone of strong silification & argillization, strong hematite & limonite after pyrite
2-9(20 Mo)
3-9(0.2 Au, 2.4 Ag, 10 Mo)
1-9(17 Au, 1210 Ag, 19500 Cu, 610 Mo)
10-9(3.4 Ag, 370 Cu, 14 Mo, 40 As)
9-9(3.4 Ag, 375 Cu, 12 As)
Traverse 20N-4W
cover - sand & gravel
cover - sand
cover - road gravel
Traverse 20N-0W
1276388 N
3891000m N
240000m E
35°07'
113°45'
VIRGINIA — 1980
247
3892

PRELIMINARY REPORT

REPORT : SP 017259

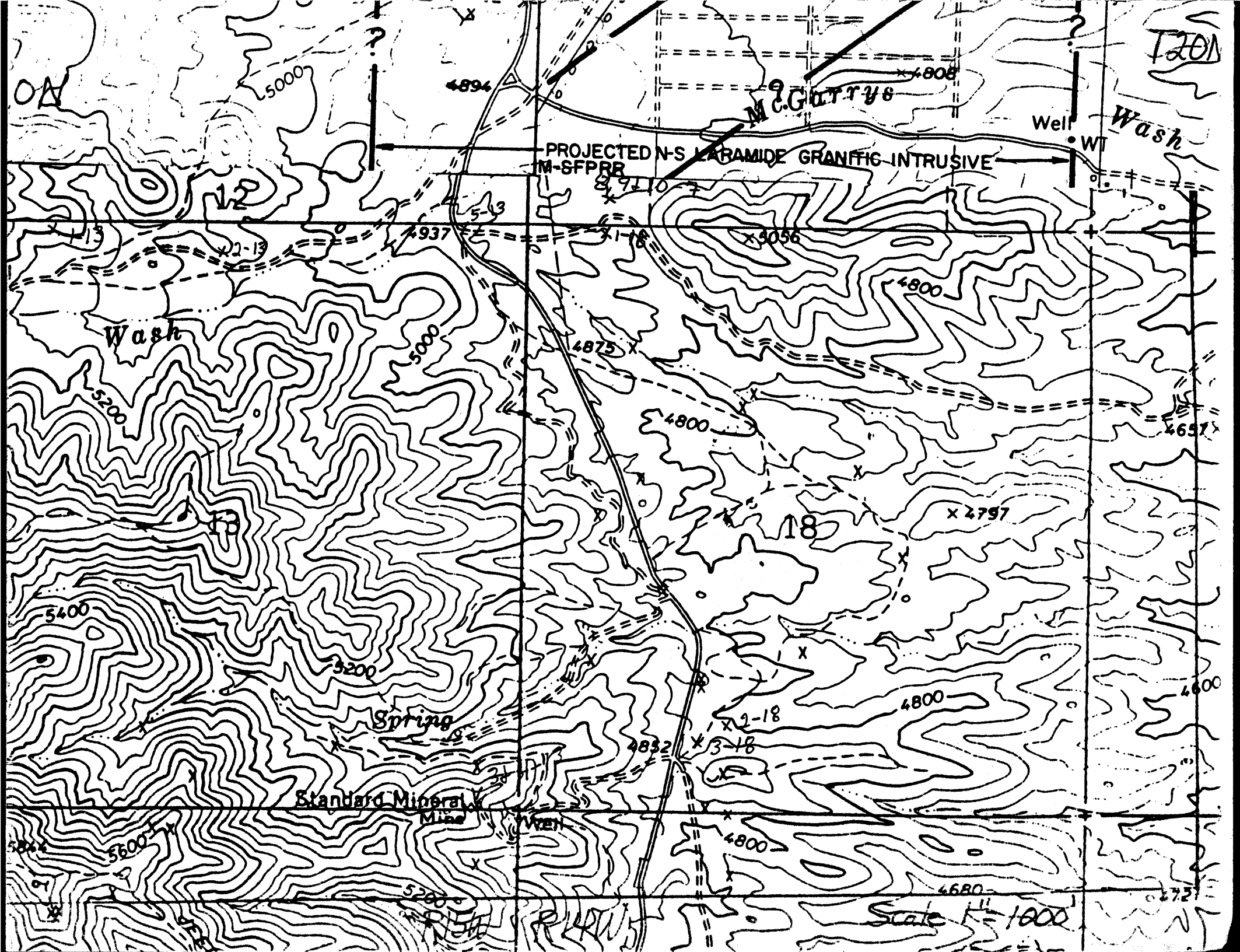
Sample	Au ppb	Au(R) ppb	Ag ppm	Cu ppm	Mo ppm	
sect 7						
R-19-1-7	128		19.3	76	255	NW417 Qtz bx area
R-19-2-7	47		4.4	361	117	100' from above
R-19-3-7	7		<0.5	360	<5	clay alt. trench s. of cont 7 outcrop
R-19-4-7	<5		<0.5	71	16	
R-19-5-7	10	15	2.8	938	23	
R-19-6-7 (Resample cont. sect 7)	6		3.2	794	19	
R-19-7-7	7		3.4	546	145	
R-19-8-7	<5		3.8	33	38	Qtz bx.
R-19-9-7 (SO 5.7)	<5		<0.5	120	<5	
R-19-10-7	<5		<0.5	104	<5	
sect 12						
R-19-1-12	<5		<0.5	69	60	
R-19-2-12	<5		<0.5	58	<5	
R-19-3-12	<5		<0.5	141	14	
R-19-4-12	122	132	30.3	159	8	
R-19-5-12	527	570	42.8	689	14	
R-19-6-12	41		0.6	62	95	
R-19-7-12	<5	<5	<0.5	85	62	
R-19-8-12	6		3.2	73	16	
R-19-9-12	20		4.2	251	27	
R-19-10-12	63		544.0	1.38%	5	
R-19-11-12	<5		5.5	217	6	
sect 13						
R-19-1-13	<5		<0.5	89	9	
R-19-2-13	51		<0.5	269	19	
R-19-3-13 (Sect 8x veins)	1147	1126	261.0	116	945	leached oxide mineral high mn
R-19-4-13	3166	2989	625.0	2.54%	1050	" " Cu Ox Ore

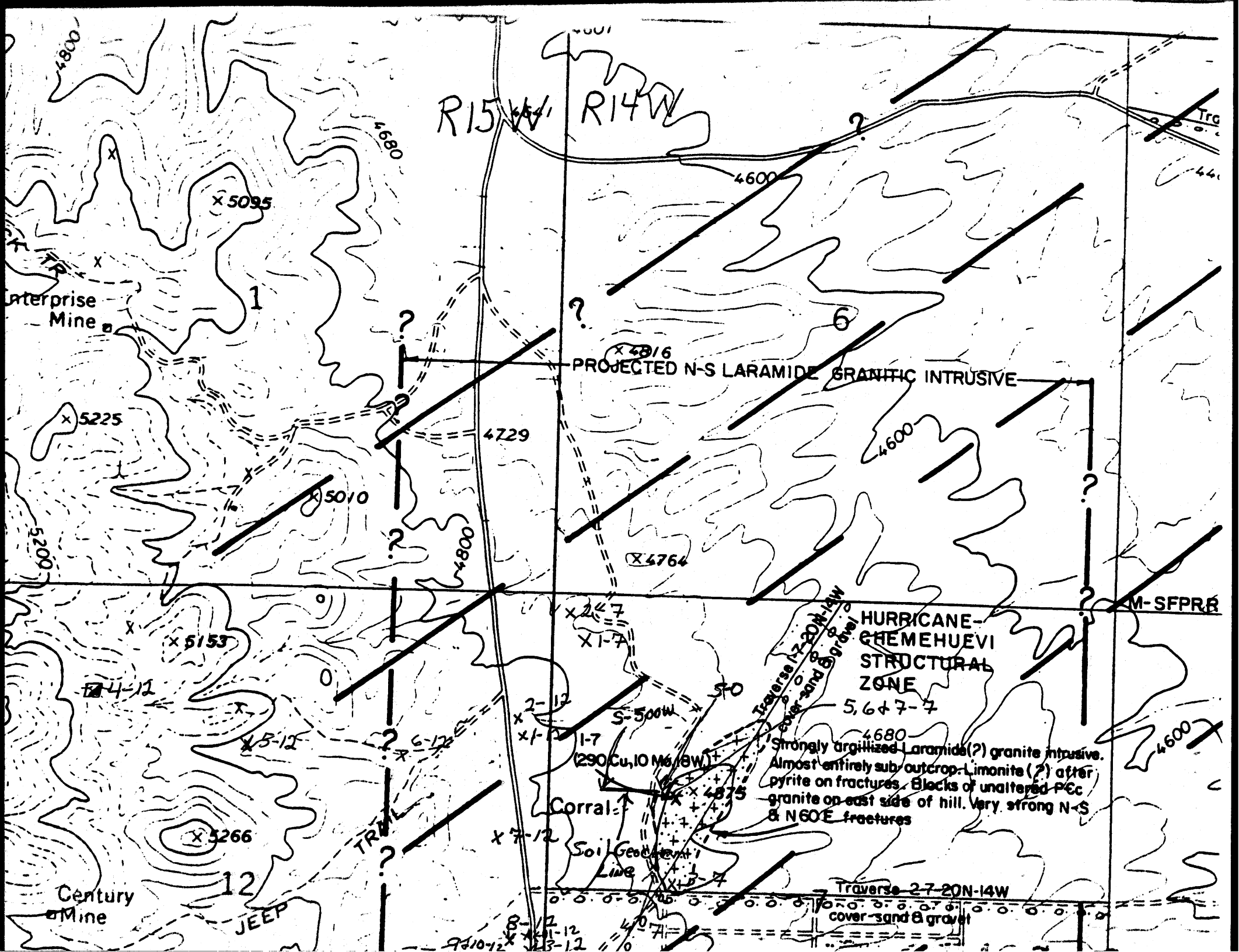
PRELIMINARY REPORT

REPORT : SP 017259

Sample	Au ppb	Au(R) ppb	Ag ppm	Cu ppm	Mo ppm	
R-19-5-13	14		3.2	337	27	
R-19-6-13	<5		<0.5	97	169	
SEET 18						extreme n. 18
R-19-1-18	<5		<0.5	101	13	
R-19-2-18	<5		<0.5	33	81	DUMP
R-19-3-18	116		6.2	615	1200	OUTCROP IN ROAD

Please refer to the cover sheet for further analysis details.


T20N
OA
50000
4894
4808
McGarrys
Well
WT
Wash
PROJECTED N-S LARAMIDE GRANITIC INTRUSIVE
M-SFPRR
12
5-13
4937
1-18
3056
4800
Wash
5000
4875
5200
4800
4657
18
4797
5400
3200
Spring
4800
2-18
4832
3-18
Standard Mineral
Mine
Well
5600
4800
5200
4680
Scale 1" = 1000'


R15W
R14W
PROJECTED N-S LARAMIDE GRANITIC INTRUSIVE
HURRICANE-CHEMEHUEVI STRUCTURAL ZONE
5,6 & 7-7
4680
Strongly argillized Laramide(?) granite intrusive. Almost entirely sub-outcrop. Limonite (?) after pyrite on fractures. Blocks of unaltered PCc granite on east side of hill. Very strong N-S & N60E fractures
Traverse 1-7-20N-14W
cover-sand & gravel
Traverse 2-7-20N-14W
cover-sand & gravel
M-SFPRR
Enterprise Mine
Century Mine
Corral
Soil Geochem Line
JEEP TRAIL
1-7
(290 Cu, 10 Mo, 8W)
S-500W
5-0
4-12
5-12
6-12
7-12
8-12
9-10-12
11-12
13-12
2-12
1-7
2-7
3-7
4-7
4816
4729
4764
4875
5095
5225
5010
5153
5266
4800
4680
4600
5200

PRELIMINARY REPORT

RECEIVED
JUN 15 1992
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RENO

REPORT : SP 017258

SAMPLE	Au ppb	Au(R) ppb	AuR2 ppb	Ag ppm	Cu ppm	Mo ppm
19-5-0	11		--	<0.5	390	12
19-5-50W	<5		--	<0.5	131	5
19-5-100W	10		--	<0.5	162	<5
19-5-150W	6		--	<0.5	142	5
19-5-200W	<5		--	<0.5	143	<5
19-5-250W	<5		--	<0.5	114	<5
19-5-300W	92	273	43	<0.5	139	<5
19-5-350W	<5		--	<0.5	128	<5
19-5-400W	<5		--	<0.5	139	<5
19-5-450W	<5		--	<0.5	72	<5
19-5-500W	<5	<5	--	<0.5	65	<5

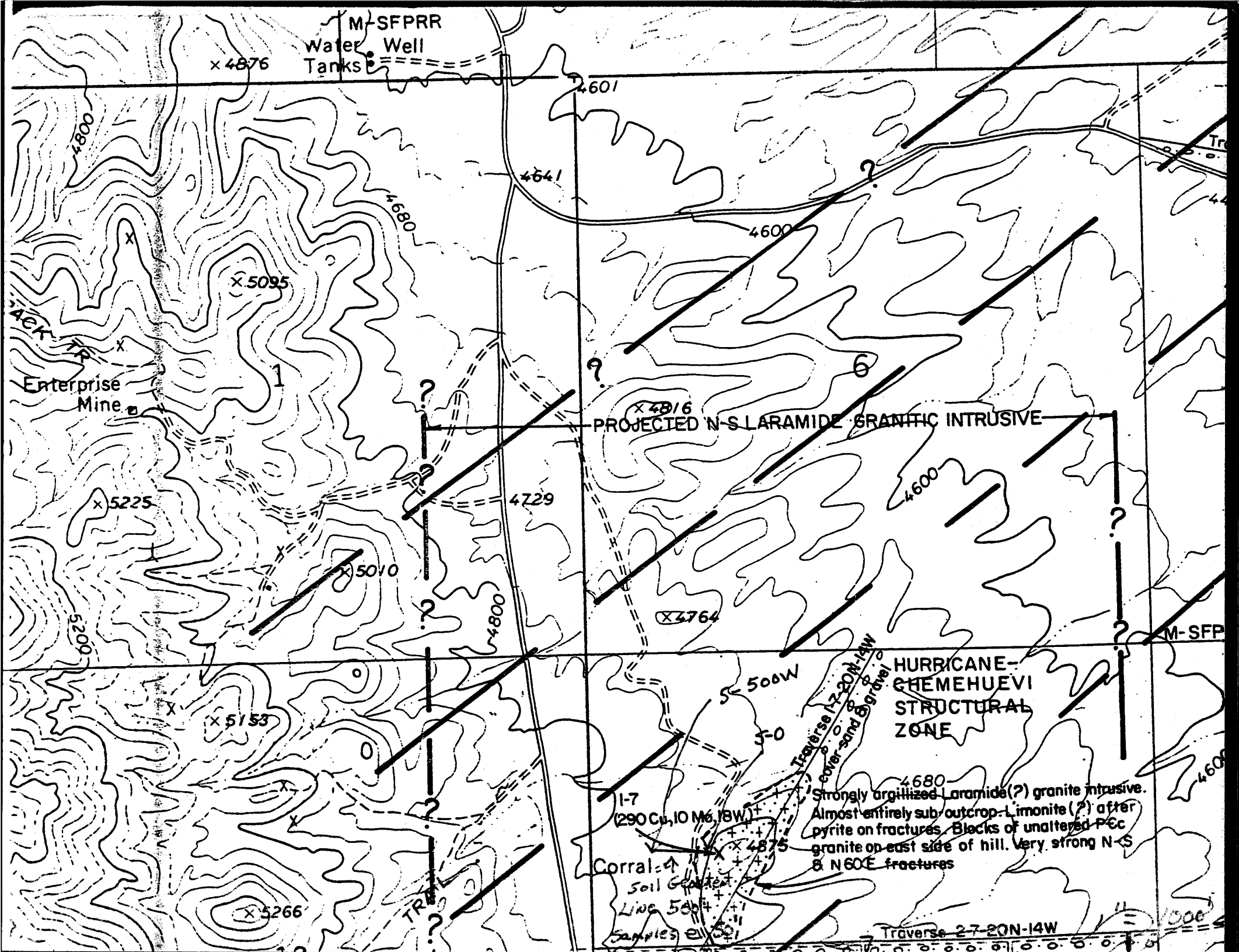
Please refer to the cover sheet for further analysis details.

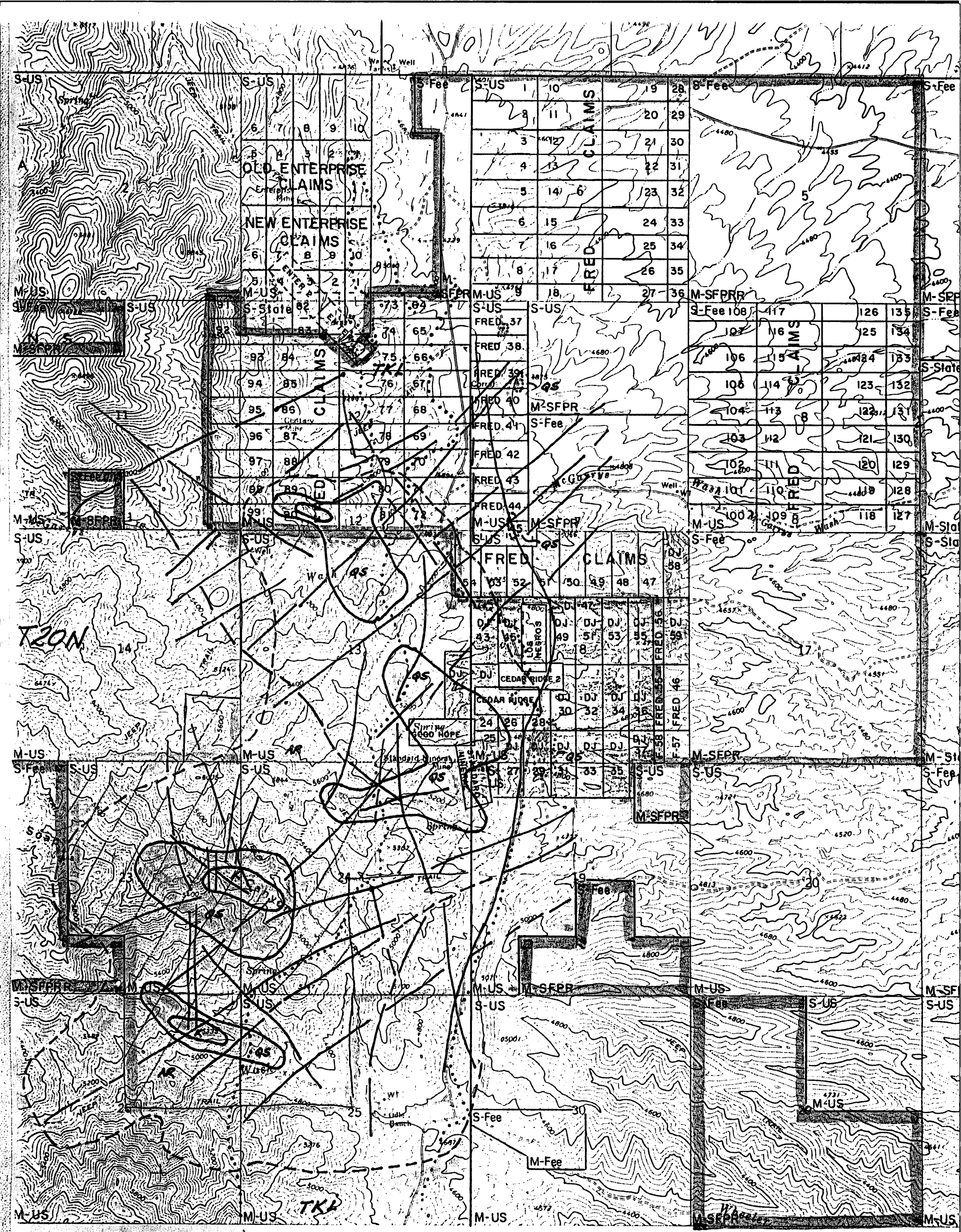
FRED: 6-12-92

Looks like soil geochems are working @ McGarry's Wash.

19-5-0 was soil immediately below the altered outcrop in section 7 (see attached map). Most of the Cu & Mo was contamination from this outcrop. As we moved west across the valley we got anomalous Cu & almost no Mo showing the Cu could be related to Cu in bedrock. If the values were related to transported altered & mineralized rock we would have retained Mo values.

Phil


M-SFPRR
Water Well
Tanks
4876
4601
4800
4641
4680
4600
5095
Enterprise
Mine
1
6
4816
PROJECTED N-S LARAMIDE GRANITIC INTRUSIVE
5225
4729
5010
4764
5200
M-SFP
HURRICANE-
CHEMEHUEVI
STRUCTURAL
ZONE
5-500W
5-0
Traverse 17-20N-14W
cover-sand & gravel
5153
0
1-7
(290 Cu, 10 Mo, 18W)
4875
Corral
Soil Geochem
Line 5600
Samples
Strongly argillized Laramide(?) granite intrusive.
Almost entirely sub-outcrop. Limonite (?) after
pyrite on fractures. Blocks of unaltered PЄc
granite on east side of hill. Very strong N-S
& N60E fractures
5266
Traverse 27-20N-14W



GENERAL GEOLOGIC / ALTERATION MAP

McGARRY WASH AREA

1" = 2000'

N

ALTERATION ZONES

- ARGILLIC
- PHYLLIC-QTZ/SERICITE
- POTASSIC
- PROPYLITIC (APPROX. BOUNDARY)

MAJOR STRUCTURAL ELEMENTS

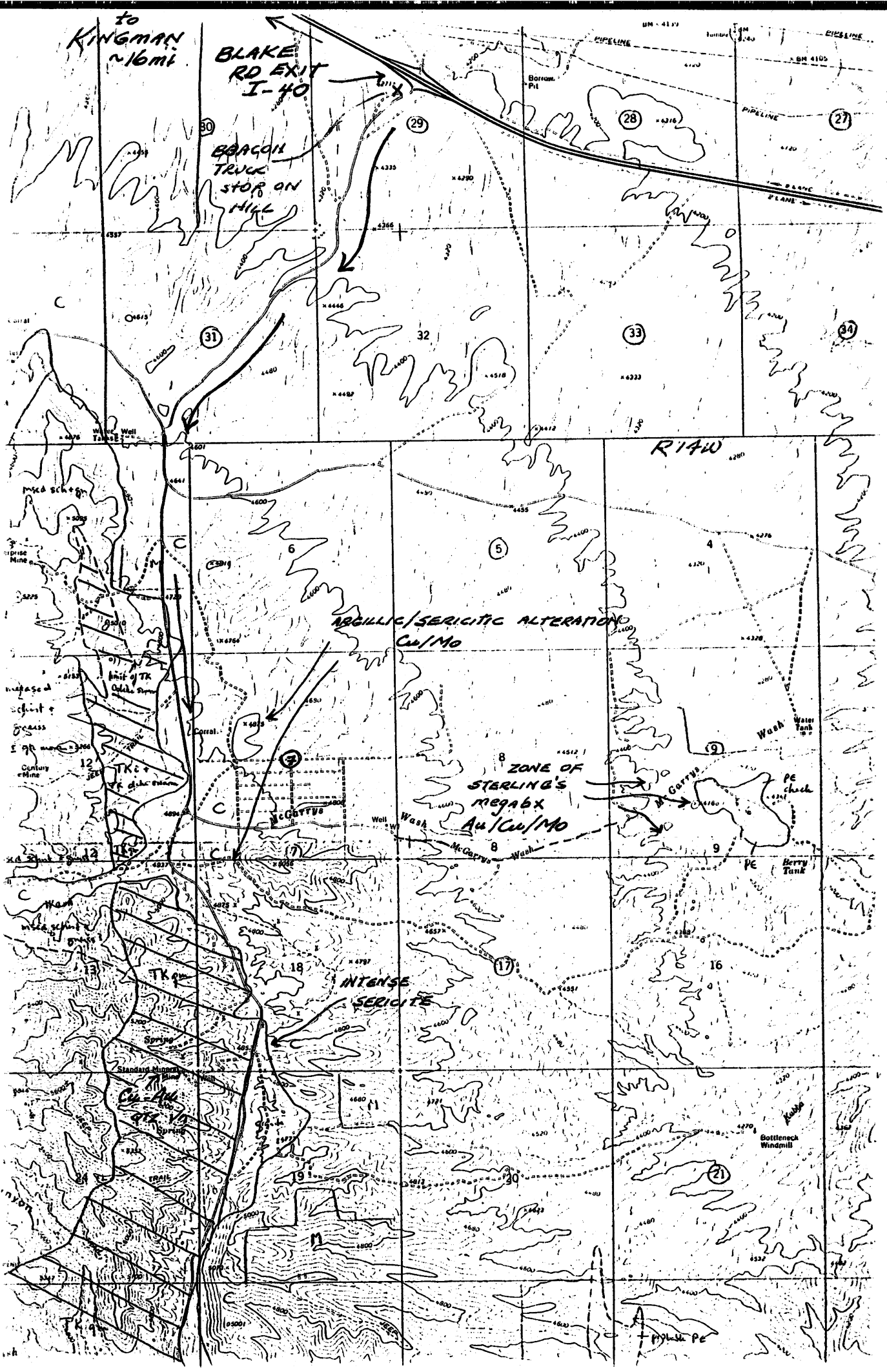
LARAMIDE granitic intrusive

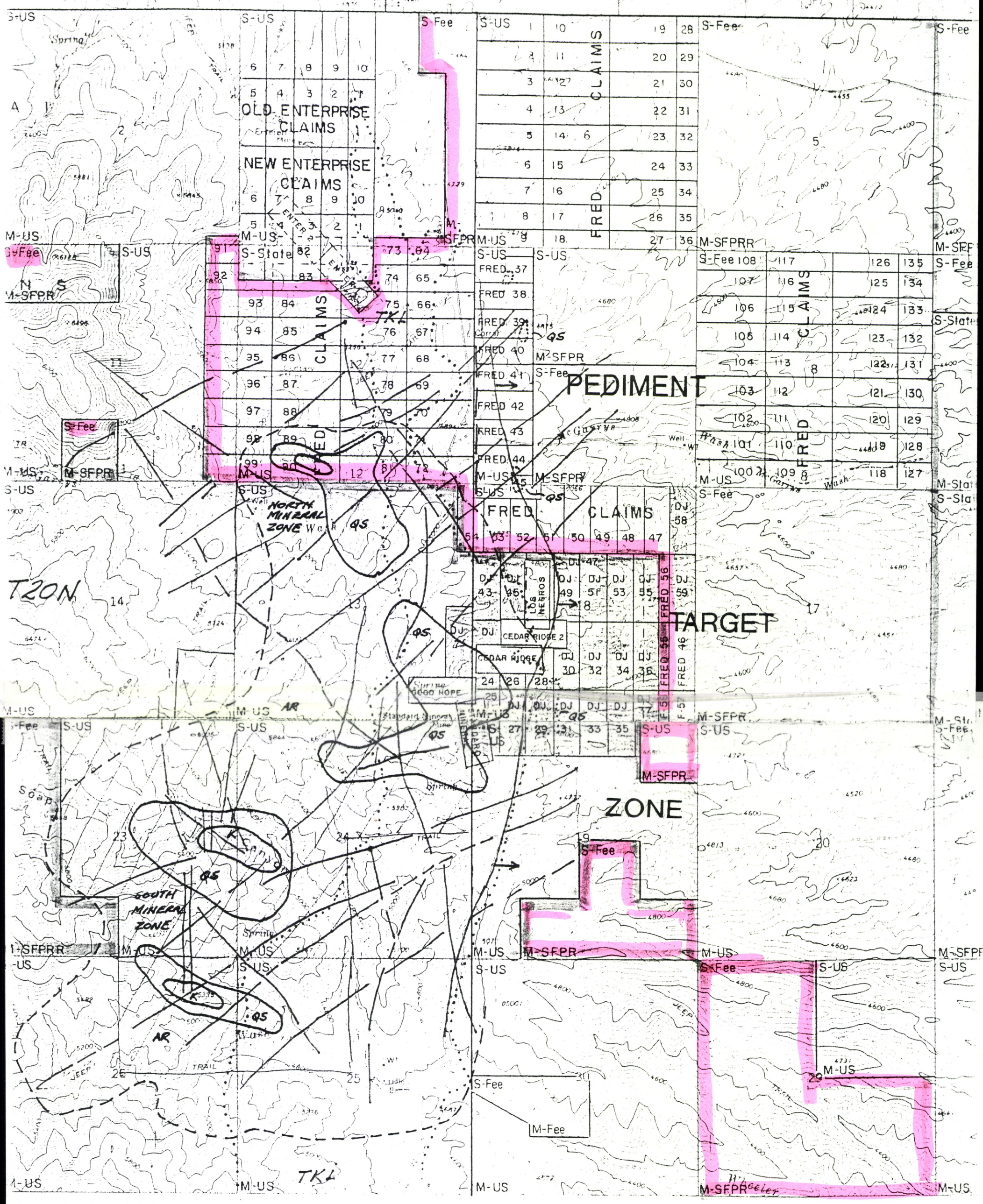
CURRENT SFPM PROPERTY POSITION

RECOMMENDED ADDITIONS

data from Vuich, J.S. 1974 U of A.
Anderson, Philip

Santa Fe


to KINGMAN ~16mi
BLAKE RD EXIT I-40
BRAGOIL TRUCK STOP ON HILL
R14W
ARGILLIC/SERICITIC ALTERATION Cu/Mo
ZONE OF STERLING'S megabx Au/Cu/Mo
INTENSE SERICITE
Cu-Au QTZ VN
McGarrys
Wash
Spring
Corral
Bottleneck Windmill
Berry Tank
Standard Minerals Mine
Century Mine
Water Well Tanks
Borrow Pit
PIPELINE
T.20N



GENERAL GEOLOGIC / ALTERATION MAP

McGARRY WASH AREA

1" = 2000'

N

ALTERATION ZONES

- AR — ARGILLIC
- QS — PHYLLIC-QTZ/SERICITE
- K — POTASSIC
- PR — PROPYLITIC (APPROX. BOUNDARY)

CURRENT SFPM PROPERTY POSITION

MAJOR STRUCTURAL ELEMENTS

RECOMMENDED ADDITIONS

TKL — LARAMIDE granitic intrusive

data from Vlisch, J.S. 1974 U of A.
Anderson, Philip

Santa Fe

A11

Ref.

McGarys Wash AZ — Journal of Geochemical Exploration

v 43, 1992 p127-155

Topo Coverage: Hualapai Peak NE

Dean Peak

Mike Brady - Rio Algom

Best Union Carbide holes in S ½ Sec 18 w/ .03-.1% Cu

and .03-.04% Mo over

+400 feet.

Ref. Ore Deposits of the United States Part 8 Chap 60

Copper-Moly Mineralization @ Mineral Park, Mohave Co, AZ.

Thesis: Vuich, John, 1974, A geologic Reconnaissance and Mineral Evaluation Wheeler Wash area, Hualpai Mountains, Mohave Co, AZ. MS U of A.

McGARRYS WASH, MOHAVE COUNTY, ARIZONA: R14,15W/T20N, Mohave County, Arizona

The McGarrys Wash property is located approximately 20 miles east of Kingman, Arizona in the northern Hualapai Mountains. Past exploration focused within a N-S elongate Laramide(?) quartz monzonite porphyry along a range-front fault zone on the east side of the Hualapai Mountains. At least five major mining companies explored the porphyry system west of the range front. The rocks show intense jointing, quartz-sericite veining, and pyritic mineralization. The zone of alteration and mineralization is terminated to the east by east-dipping range-front normal faults. It has been suggested that the pediment to the east may represent the decapitated portion of a porphyry copper-moly deposit. All assays are pending for this property.

Previous reconnaissance in the pediment area indicated strong alteration and anomalous copper/gold mineralization in large areas of brecciation in shallow subcrop. The pediment is almost entirely covered with fanglomerate except for two areas. An area 2 miles east of the porphyry system exposes hematite stained, argillized Precambrian granite containing quartz-hematite breccia structures. These breccias are generally observed as float striking in a NNW direction. The quartz-hematite structures do contain a significant amount of wulfenite and less than 2% sulfides. These are interpreted to be associated with a detachment fault system.

The Kabba mine area is located 6 miles east of the Wheeler Wash porphyry system. The operation consists of two main shafts and several adits and produced gold and vanadium. Gold mineralization occurs in a vein system associated with faults striking NNW to NNE and shallowly dipping to the northeast. These mineralized zones are strongly hematite stained, generally less than 50 feet wide and occur in Precambrian gneisses. It is not clear if the mineralization is related to a low angle detachment fault.

McGarrys Wash, Mohave County: Cambior collected 70 samples and conducted reconnaissance mapping over an area of 6 square miles in March. Sampling focused both in the Laramide intrusive and in the pediment area to the east.

In general, the Laramide intrusive contains low tenor copper and molybdenum restricted to small quartz veins and veinlets. Work by Vuich (M.Sc. thesis, 1974) invokes the possibility that we are looking at the roots of a porphyry system. This interpretation is consistent with the low amount of sulfides observed and the lack of evidence of supergene enrichment. Anomalous copper values were obtained in Sec. 18 where five samples returned between 426 to 5788 ppm Cu. Drill holes from that specific area intersected anomalous Cu (<.11%).

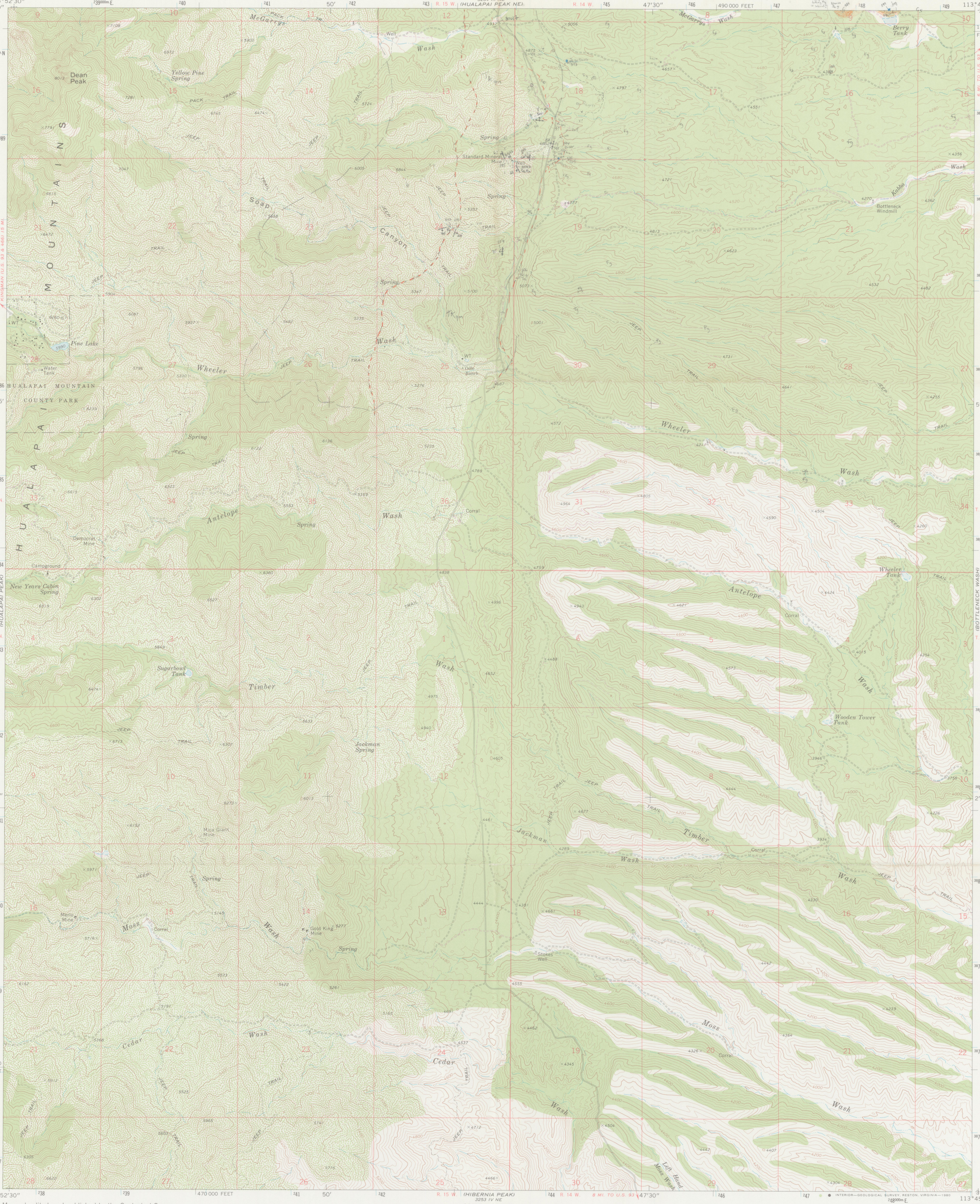
Vuich (1974) suggested that a portion of the porphyry system was

cut by basin and range faulting. The only mineralization observed in the pediment is in quartz-hematite breccia structures containing wulfenite ($PbMoO_4$) identical to Gold Basin. These narrow structures are hosted within Precambrian granitic rocks. Gold values range from .006 to .156 oz/t. Strongly anomalous Ag, Pb, and Mo are associated with these breccias. Copper oxides were observed only at two locations with dump samples yielding .44 and 1.6% Cu. It seems unlikely that the pediment area represents the higher portion of a porphyry system. No further work is recommended on this property.

McGarry's Wash Prospect.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEAN PEAK QUADRANGLE
ARIZONA – MOHAVE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



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Topography by photogrammetric methods from aerial photographs taken 1967. Field checked 1968

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

To place on the predicted North American Datum 1983 move the projection lines 2 meters north and 71 meters east as shown by dashed corner ticks

There may be private inholdings within the boundaries of the National or State reservations shown on this map

GN MN
1°37' 29 MILS
14° 249 MILS
UTM GRID AND 1980 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET*

SCALE 1:24 000

1 ½ 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ARIZONA
QUADRANGLE LOCATION

Revisions shown in purple compiled by the Geological Survey from aerial photographs taken 1978. This information not field checked
Map edited 1980

ROAD CLASSIFICATION
Light-duty ——— Unimproved dirt - - - - -

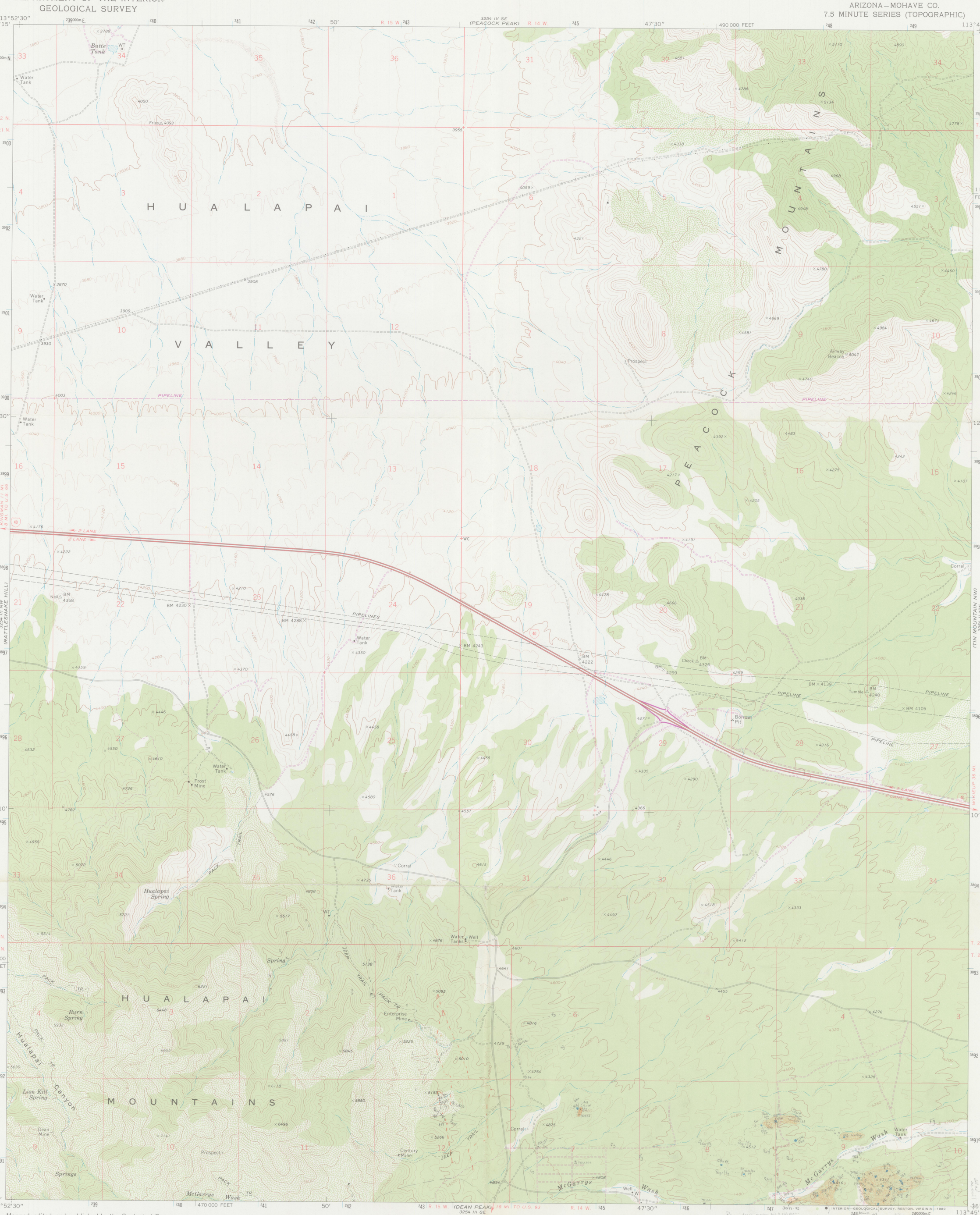
INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1980

DEAN PEAK, ARIZ.
N3500—W11345/7.5
1968
PHOTOREVISED 1980
DMA 3254 III SE—SERIES V898

Tucson Map and Flag Center
00399
DEAN PEAK 7.5' 2.85

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

HUALAPAI PEAK NE QUADRANGLE
ARIZONA—MOHAVE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



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Polyconic projection. 1927 American datum
10,000-foot grid based on Arizona coordinate system, west zone
1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue
To place on the predicted North American Datum 1983 move the projection lines 2 meters north and 71 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence lines

GN MN 1°37' 29 MILS 14° 249 MILS

UTM GRID AND 1980 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Qtz-hem lox.
Pg granite.

ARIZONA
QUADRANGLE LOCATION

Revisions shown in purple compiled from aerial photographs taken 1978 and other source data. This information not field checked. Map edited 1980.

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1980

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Unimproved dirt
Interstate Route

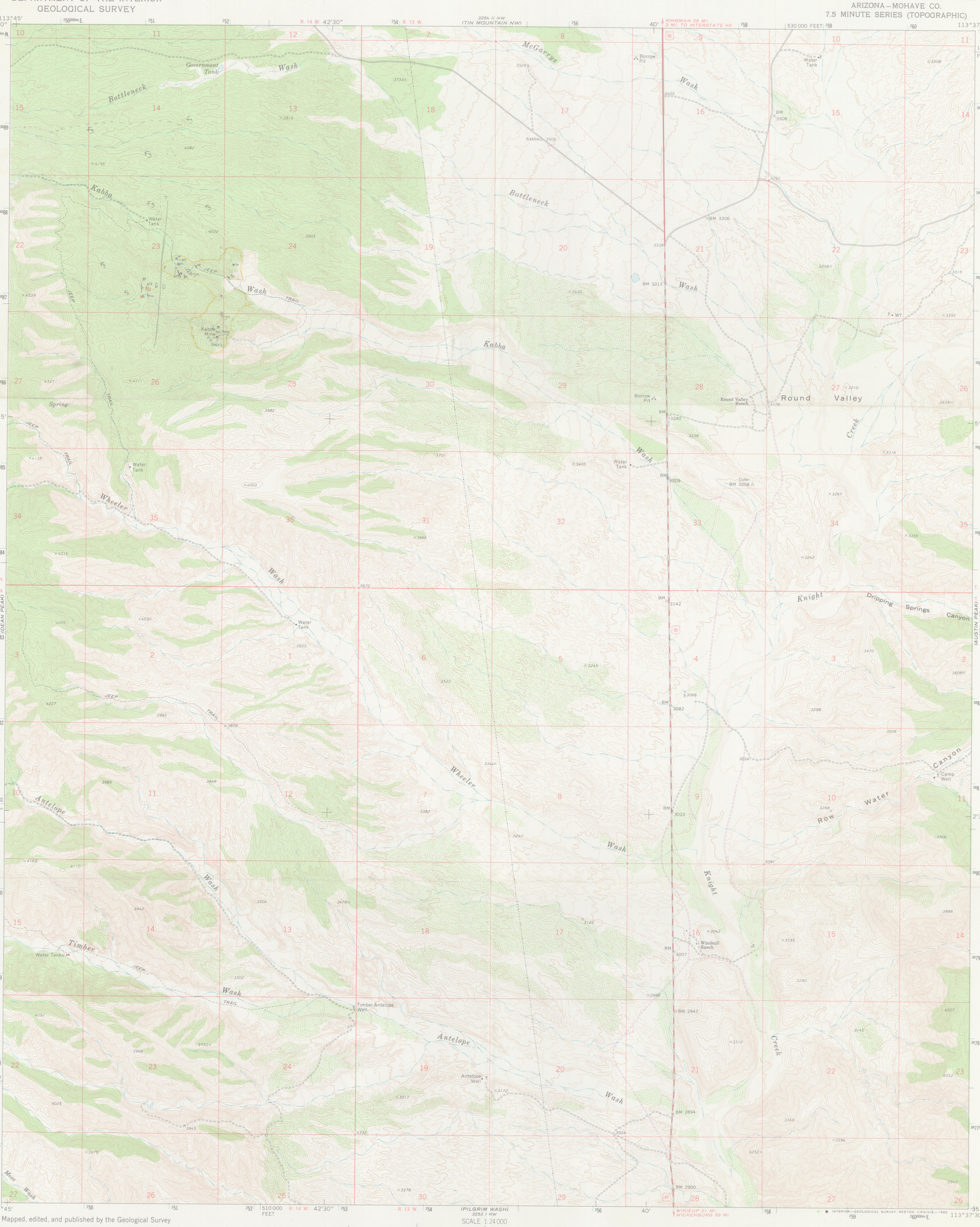
HUALAPAI PEAK NE, ARIZ.
N3507.5—W11345/7.5

1968
PHOTOREVISED 1980
DMA 3254 III NE—SERIES V898

Tucson map and Tag Center
HUALAPAI PEAK NE 2785

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

BOTTLENECK WASH QUADRANGLE
ARIZONA—MOHAVE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



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Topography by photogrammetric methods from aerial photographs taken 1967. Field checked 1968

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

To place on the predicted North American Datum 1983 move the projection lines 2 meters north and 70 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence lines

Revisions shown in purple compiled from aerial photographs taken 1978 and other source data. This information not field checked. Map edited 1980

UTM GRID AND 1980 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

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A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U. S. Route

BOTTLENECK WASH, ARIZ.
N3500—W11337.5/7.5
1968
PHOTOREVISED 1980
DMA 3254 II SW—SERIES V898

BOTTLENECK WASH
0 00000 00168
$ 3.25

620 (5)

590 (10)
591-92 (14,13)

T20 N

618 (<5)

619 (135)

(1483) 553 — 552 (45)
3 551 (9)

554-55
(<5, 43)

7

549 (159) (9, 17)
547-48
570 (32)

566 (120)

9

583 (45)

584 (45)

(2100) 556 557 (23) 558 (214) 555 (15)
559 (6285)

(20) 565 542-43 (10, 33) (1395)

588-89 (29, 29) 543-75 (87, 36, 34) 544 (1850) 560 562-89 (13, 2485) 561 (22)

571-72 (103, 13) 576-77 (125, 12) 578 (32) 581 (9) 571 (1450) 580 (41)

R15 W R14W
67

593 (5)

13

18

611 (<5) 601 (<5)

600 (<5)

(<5) 599 594 (8)

(<5) 602

592 (5) 598 (<5) 603 605 (10)
595 (26) 597 (347) 604 (3)

582 (29)

24 (<5) 608 (6) 609 610 (<5)

19

607 (<5)

606 (<5)

23

614 (1580)

615 (7)

616 (<5)

612-13
(33, 38 ppm)

cc: MMG
RM
LG

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iPL 93D0701

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Fax (604) 879-7898

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Out: Apr 12, 1993 Project: 304
In : Apr 07, 1993 Shipper: Laurie Gaborit
PO#: Shipment: -- ID=C013500
Msg: Au(FA/AAS 20g) ICP(AqR)30
Msg:

44 Samples

	44= Rock	0= Soil	0= Core	0=RC Ct	0= Pulp	0=Other	[iPL=39:0420:15:00:151]
Raw Storage:	03Mon/Dis	--	--	--	--	--	Mon=Month Dis=Discard
Pulp Storage:	12Mon/Dis	--	--	--	--	--	Rtn=Return Arc=Archive

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Analytical Summary

##	Code	Method	Title	Limit Low	Limit High	Units	Description	Element	##
01	312P	FA/AAS	Au	5	10000	ppb	Au Fire Assay/AAS finish	Gold	01
02	361P	FAGrav	Au	See Data Pg		oz/st	Au Fire Assay/Grav 1/2 As	Gold	02
03	721P	ICP	Ag	0.1	100	ppm	Ag ICP	Silver	03
04	711P	ICP	Cu	1	20000	ppm	Cu ICP	Copper	04
05	714P	ICP	Pb	2	20000	ppm	Pb ICP	Lead	05
06	730P	ICP	Zn	1	20000	ppm	Zn ICP	Zinc	06
07	703P	ICP	As	5	10000	ppm	As ICP 5 ppm	Arsenic	07
08	702P	ICP	Sb	5	1000	ppm	Sb ICP	Antimony	08
09	732P	ICP	Hg	3	10000	ppm	Hg ICP	Mercury	09
10	717P	ICP	Mo	1	1000	ppm	Mo ICP	Molydenum	10
11	747P	ICP	Tl	10	1000	ppm	Tl ICP 10 ppm	Thallium	11
12	705P	ICP	Bi	2	10000	ppm	Bi ICP	Bismuth	12
13	707P	ICP	Cd	0.1	10000	ppm	Cd ICP	Cadmium	13
14	710P	ICP	Co	1	10000	ppm	Co ICP	Cobalt	14
15	718P	ICP	Ni	1	10000	ppm	Ni ICP	Nickel	15
16	704P	ICP	Ba	2	10000	ppm	Ba ICP	Barium	16
17	727P	ICP	W	5	1000	ppm	W ICP	Tungsten	17
18	709P	ICP	Cr	1	10000	ppm	Cr ICP	Chromium	18
19	729P	ICP	V	2	10000	ppm	V ICP	Vanadium	19
20	716P	ICP	Mn	1	10000	ppm	Mn ICP	Manganese	20
21	713P	ICP	La	2	10000	ppm	La ICP	Lanthanum	21
22	723P	ICP	Sr	1	10000	ppm	Sr ICP	Strontium	22
23	731P	ICP	Zr	1	10000	ppm	Zr ICP	Zirconium	23
24	736P	ICP	Sc	1	10000	ppm	Sc ICP	Scandium	24
25	726P	ICP	Ti	0.01	1.00	%	Ti ICP	Titanium	25
26	701P	ICP	Al	0.01	5.00	%	Al ICP	Aluminum	26
27	708P	ICP	Ca	0.01	10.00	%	Ca ICP	Calcium	27
28	712P	ICP	Fe	0.01	5.00	%	Fe ICP	Iron	28
29	715P	ICP	Mg	0.01	10.00	%	Mg ICP	Magnesium	29
30	720P	ICP	K	0.01	10.00	%	K ICP	Potassium	30
31	722P	ICP	Na	0.01	5.00	%	Na ICP	Sodium	31
32	719P	ICP	P	0.01	5.00	%	P ICP	Phosphorus	32

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iPL 93D0701

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Canada V5Y 3E1
Phone (604) 879-7878
Fax (604) 879-7898

Report: 93D0701 R Cambior Exploration USA, Inc. Project: 304 Page 1 of 2 Section 1 of 2

Sample Name	Type	Au ppb	Au oz/st	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm
Rgr 30551	Rock Chip	9	--	0.5	123	13	92	10	<5	<3	74	<10	<2	0.2	2	4	60
" 30552	Rock Chip	45	--	4.8	234	109	280	83	5	<3	50	<10	<2	0.9	3	5	72
Pbx 30553	Rock Chip	483	--	7.6	235	3525	368	142	9	<3	0.1%	<10	13	0.6	2	3	44
30554	Rock Chip	<5	--	1.1	323	26	717	<5	<5	<3	17	<10	<2	3.9	5	5	74
30555	Rock Chip	43	--	2.1	363	257	373	40	<5	<3	8	<10	353	0.6	2	5	98
30556	w Rock Chip	2100	0.074	69.1	110	15813	261	659	68	<3	0.1%	<10	<2	<0.1	4	7	77
30557	Rock Chip	23	--	<0.1	33	144	19	8	<5	<3	29	<10	<2	<0.1	3	6	93
30558	Rock Chip	216	.006	9.4	131	1299	1021	8	10	<3	47	<10	<2	4.1	3	8	339
30559	Rock Chip	6285	0.156	89.5	64	1617	161	121	27	<3	121	<10	<2	0.6	2	6	82
30560	w Rock Chip	1395	0.030	16.6	37	16161	238	338	34	<3	0.1%	<10	<2	1.2	2	4	8
30561	Rock Chip	22	--	1.1	34	109	10	6	<5	<3	30	<10	<2	<0.1	2	4	148
30562	Rock Chip	10	--	<0.1	4	75	27	<5	<5	<3	10	<10	<2	<0.1	5	5	34
30563	Rock Chip	33	--	0.4	104	15	24	5	<5	<3	7	<10	<2	0.1	4	5	139
30564	1-2% Cwx Rock Chip	1950	0.049	0.2m	16835	15902	4308	1777	0.3%	10	0.2%	<10	<2	207.3	13	3	18
30565	Rock Chip	24	--	1.9	130	395	149	13	17	<3	29	<10	<2	1.2	4	7	90
30566	Rock Chip	1220	0.034	70.4	177	7363	310	160	55	<3	319	<10	<2	0.8	2	6	94
30567	Rock Chip	9	--	0.3	62	76	12	<5	<5	<3	13	<10	<2	<0.1	1	3	39
30568	Rock Chip	17	--	0.5	96	26	9	<5	<5	<3	33	<10	<2	<0.1	1	4	46
30569	w Rock Chip	959	.028	0.2m	2431	6036	15221	435	988	22	199	<10	<2	49.8	4	7	954
30570	Rock Chip	32	--	1.1	44	54	26	7	31	<3	60	<10	<2	<0.1	1	5	88
30571	Rock Chip	100	--	4.5	585	2278	873	14	5	<3	15	<10	<2	30.6	4	6	28
30572	Rock Chip	17	--	0.3	108	28	66	<5	<5	<3	8	<10	<2	0.2	9	9	117
30573	Rock Chip	87	--	2.7	219	491	409	21	6	<3	8	<10	<2	1.8	10	9	134
30574	Rock Chip	36	--	2.8	54	108	200	22	<5	<3	3	<10	<2	2.2	4	6	82
30575	Rock Chip	36	--	4.7	146	199	153	39	<5	<3	4	<10	<2	1.0	4	5	80
30576	Rock Chip	125	--	4.6	503	910	1289	30	8	<3	11	<10	2	2.8	4	5	55
30577	Rock Chip	12	--	5.0	204	443	475	46	<5	<3	5	<10	2	1.4	6	5	125
30578	Rock Chip	32	--	0.5	57	17	18	<5	<5	<3	8	<10	<2	<0.1	2	3	65
30579	2% Cwx Rock Chip	1450	0.037	0.2m	4473	16961	7241	675	0.2%	17	0.2%	<10	<2	54.3	23	7	38
30580	Rock Chip	41	--	3.3	411	62	288	24	6	<3	23	<10	<2	1.1	14	12	159
30581	Rock Chip	9	--	0.7	28	61	20	<5	9	<3	21	<10	<2	<0.1	2	3	78
30582	Rock Chip	29	--	0.4	27	37	48	20	<5	<3	12	<10	<2	0.4	5	8	217
30583	Rock Chip	45	.001	0.7	33	181	116	26	<5	<3	4	<10	<2	0.3	7	7	116
30584	Rock Chip	45	--	5.6	38	287	1392	<5	10	<3	25	<10	<2	1.0	5	9	179
30585	Rock Chip	15	--	1.0	21	14	17	<5	<5	<3	9	<10	<2	<0.1	3	4	51
30586	Rock Chip	13	--	1.2	30	159	100	<5	<5	<3	3	<10	<2	0.1	7	6	68
30587	Rock Chip	2785	0.080	46.5	206	16059	149	658	101	<3	273	<10	<2	1.1	2	5	106
30588	Rock Chip	29	--	0.4	126	156	78	7	<5	<3	21	<10	<2	0.2	7	9	91
30589	Rock Chip	29	--	1.0	87	257	68	24	<5	<3	24	<10	<2	<0.1	3	4	86
Minimum Detection		5	0.005	0.1	1	2	1	5	5	3	1	10	2	0.1	1	1	2
Maximum Detection		10000	1000.000	100.0	20000	20000	20000	10000	1000	10000	1000	1000	10000	10000.0	10000	10000	10000
Method		FA/AAS	FAGrav	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

--=No Test ReC=ReCheck ins=Insufficient Sample m=Est/1000 %=Est % Max=No Est

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CERTIFICATE OF ANALYSIS
iPL 93D0701

Report: 9300701 R Cambior Exploration USA, Inc. Project: 304 Page 1 of 2 Section 2 of 2

Sample Name	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
30551	<5	119	18	44	100	30	<1	1	<0.01	0.35	0.05	2.20	0.04	0.19	0.03	0.02
30552	<5	93	26	133	155	38	1	2	<0.01	0.63	0.29	3.11	0.09	0.46	0.02	0.07
30553	6	212	5	99	5	9	<1	<1	<0.01	0.18	0.05	2.90	0.03	0.11	0.01	0.02
30554	17	109	23	351	24	84	<1	2	0.01	1.23	2.28	1.73	0.20	0.24	0.03	0.06
30555	404	227	21	115	3	80	<1	1	<0.01	0.53	0.97	1.78	0.06	0.19	0.03	0.01
30556	40	152	121	65	6	828	1	<1	<0.01	0.11	0.05	13%	0.01	0.01	0.01	0.01
30557	<5	146	33	69	164	29	1	3	0.03	0.83	0.11	1.98	0.18	0.26	0.05	0.05
30558	8	240	27	1.4%	12	28	<1	1	<0.01	0.22	0.07	2.22	0.10	0.06	0.02	0.01
30559	<5	222	32	140	3	16	<1	<1	0.01	0.14	0.06	4.80	0.03	0.05	0.01	0.01
30560	22	210	160	132	2	57	<1	<1	<0.01	0.12	0.07	5.3%	0.02	0.04	0.01	0.08
30561	<5	136	23	29	70	73	1	2	0.01	0.51	0.49	2.05	0.09	0.30	0.04	0.03
30562	<5	76	30	302	14	47	3	2	0.03	1.41	2.21	1.72	0.80	0.10	0.08	0.07
30563	<5	80	51	128	130	88	2	4	0.03	1.44	1.16	2.62	0.70	0.37	0.06	0.05
30564	16	257	259	2240	2	66	<1	<1	<0.01	0.13	0.14	4.12	0.02	0.05	0.03	0.08
30565	<5	106	31	199	128	50	2	2	0.05	0.76	0.20	2.39	0.33	0.31	0.04	0.07
30566	5	255	307	114	10	34	<1	<1	<0.01	0.12	0.04	2.57	0.03	0.10	0.02	0.01
30567	<5	136	13	30	65	25	<1	1	0.01	0.34	0.03	1.21	0.04	0.20	0.03	0.02
30568	<5	172	17	35	53	44	<1	1	0.01	0.37	0.04	1.52	0.04	0.16	0.04	0.02
30569	<5	160	78	1.2%	6	44	<1	1	<0.01	0.15	3.20	4.48	0.05	0.05	0.01	0.03
30570	<5	159	16	112	74	104	1	1	<0.01	0.34	0.06	1.46	0.04	0.23	0.02	0.03
30571	<5	112	264	871	10	44	<1	<1	<0.01	0.21	12%	1.86	0.06	0.06	0.01	0.01
30572	<5	119	53	455	122	75	2	5	0.10	1.92	1.28	3.24	0.93	0.40	0.03	0.06
30573	<5	91	37	2273	114	55	1	3	0.03	1.45	0.51	2.98	0.66	0.36	0.02	0.07
30574	<5	142	15	1395	43	39	<1	1	<0.01	0.65	0.31	1.77	0.17	0.29	0.02	0.03
30575	<5	130	12	1523	56	29	1	1	<0.01	0.51	0.16	2.03	0.09	0.27	0.02	0.03
30576	<5	162	127	1300	39	31	1	1	<0.01	0.52	0.12	2.16	0.11	0.24	0.01	0.03
30577	<5	50	19	2401	15	34	<1	1	<0.01	0.54	0.08	1.64	0.07	0.37	0.01	0.04
30578	<5	114	25	52	43	88	1	2	0.02	0.38	0.06	1.67	0.08	0.19	0.04	0.02
30579	<5	179	309	1.6%	4	42	<1	<1	<0.01	0.16	0.07	2.92	0.02	0.09	0.02	0.04
30580	<5	100	79	564	71	178	1	11	0.06	2.05	0.84	4.35	1.18	0.69	0.04	0.08
30581	<5	116	22	65	60	75	1	2	0.02	0.40	0.05	1.62	0.06	0.20	0.03	0.02
30582	<5	146	19	1965	98	33	1	1	<0.01	0.48	0.11	2.12	0.08	0.30	0.01	0.04
30583	<5	114	30	1824	170	57	1	3	0.02	0.84	0.36	2.70	0.38	0.35	0.02	0.08
30584	<5	247	13	5095	5	12	<1	<1	<0.01	0.17	0.04	1.25	0.05	0.04	0.01	0.01
30585	<5	90	16	59	107	110	1	1	<0.01	0.45	0.05	1.37	0.09	0.18	0.07	0.04
30586	<5	121	30	400	147	57	2	2	0.09	0.87	0.40	2.37	0.47	0.30	0.04	0.06
30587	16	225	186	45	5	738	1	<1	0.01	0.06	0.04	7.0%	0.01	0.13	0.02	0.03
30588	<5	94	43	410	106	202	1	5	0.04	1.75	0.97	2.82	0.76	0.38	0.03	0.06
30589	<5	132	11	1487	91	79	<1	1	<0.01	0.56	0.93	1.98	0.15	0.29	0.03	0.04
Minimum Detection	5	1	2	1	2	1	1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Maximum Detection	1000	10000	10000	10000	10000	10000	10000	10000	1.00	5.00	10.00	5.00	10.00	10.00	5.00	5.00
Method	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

---=No Test ReC=ReCheck ins=Insufficient Sample m=Est/1000 %=Est % Max=No Est

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Sample Name	Type	Au ppb	Au oz/st	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm
30590	Rock Chip	10	--	0.3	28	123	697	<5	<5	<3	3	<10	<2	2.6	11	11	117
30591	Rock Chip	14	--	0.5	12	76	185	<5	<5	<3	4	<10	<2	0.5	2	5	118
30592	Rock Chip	13	--	0.3	21	132	350	<5	<5	<3	2	<10	<2	1.1	2	4	104
30593	Rock Chip	5	--	0.5	88	17	185	<5	<5	<3	7	<10	<2	0.2	2	3	157
30594	Rock Chip	8	--	0.9	381	4	64	5	<5	<3	66	<10	<2	0.1	5	4	271

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Report: 93D0701 R Cambior Exploration USA, Inc. Project: 304 Page 2 of 2 Section 2 of 2

Sample Name	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
30590	<5	51	50	604	46	65	<1	5	0.05	1.91	3.50	2.72	0.99	0.44	0.02	0.08
30591	<5	113	9	511	22	15	2	1	<0.01	0.93	0.25	0.91	0.17	0.32	0.03	0.03
30592	<5	106	7	537	22	15	1	1	<0.01	0.74	0.25	0.88	0.13	0.27	0.04	0.03
30593	<5	118	14	98	120	54	1	1	0.02	0.49	0.10	1.80	0.17	0.43	0.05	0.05
30594	11	86	12	54	15	263	<1	1	0.01	1.22	0.87	2.04	0.20	0.58	0.04	0.04

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Analytical Summary

##	Code	Method	Title	Low	Limit High	Units	Description	Element	##
01	312P	FA/AAS	Au	5	10000	ppb	Au Fire Assay/AAS finish	Gold	01
02	361P	FAGrav	Au	See Data Pg		oz/st	Au Fire Assay/Grav 1/2 As	Gold	02
03	721P	ICP	Ag	0.1	100	ppm	Ag ICP	Silver	03
04	711P	ICP	Cu	1	20000	ppm	Cu ICP	Copper	04
05	714P	ICP	Pb	2	20000	ppm	Pb ICP	Lead	05
06	730P	ICP	Zn	1	20000	ppm	Zn ICP	Zinc	06
07	703P	ICP	As	5	10000	ppm	As ICP 5 ppm	Arsenic	07
08	702P	ICP	Sb	5	1000	ppm	Sb ICP	Antimony	08
09	732P	ICP	Hg	3	10000	ppm	Hg ICP	Mercury	09
10	717P	ICP	Mo	1	1000	ppm	Mo ICP	Molybdenum	10
11	747P	ICP	Tl	10	1000	ppm	Tl ICP 10 ppm	Thallium	11
12	705P	ICP	Bi	2	10000	ppm	Bi ICP	Bismuth	12
13	707P	ICP	Cd	0.1	10000	ppm	Cd ICP	Cadmium	13
14	710P	ICP	Co	1	10000	ppm	Co ICP	Cobalt	14
15	718P	ICP	Ni	1	10000	ppm	Ni ICP	Nickel	15
16	704P	ICP	Ba	2	10000	ppm	Ba ICP	Barium	16
17	727P	ICP	W	5	1000	ppm	W ICP	Tungsten	17
18	709P	ICP	Cr	1	10000	ppm	Cr ICP	Chromium	18
19	729P	ICP	V	2	10000	ppm	V ICP	Vanadium	19
20	716P	ICP	Mn	1	10000	ppm	Mn ICP	Manganese	20
21	713P	ICP	La	2	10000	ppm	La ICP	Lanthanum	21
22	723P	ICP	Sr	1	10000	ppm	Sr ICP	Strontium	22
23	731P	ICP	Zr	1	10000	ppm	Zr ICP	Zirconium	23
24	736P	ICP	Sc	1	10000	ppm	Sc ICP	Scandium	24
25	726P	ICP	Ti	0.01	1.00	%	Ti ICP	Titanium	25
26	701P	ICP	Al	0.01	5.00	%	Al ICP	Aluminum	26
27	708P	ICP	Ca	0.01	10.00	%	Ca ICP	Calcium	27
28	712P	ICP	Fe	0.01	5.00	%	Fe ICP	Iron	28
29	715P	ICP	Mg	0.01	10.00	%	Mg ICP	Magnesium	29
30	720P	ICP	K	0.01	10.00	%	K ICP	Potassium	30
31	722P	ICP	Na	0.01	5.00	%	Na ICP	Sodium	31
32	719P	ICP	P	0.01	5.00	%	P ICP	Phosphorus	32

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Report: 93DJ702 R Cambior Exploration USA, Inc. Project: 304 Page 1 of 1 Section 1 of 2

Sample Name	Type	Au ppb	Au oz/st	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm
0595	Rock Chip	26	--	2.6	117	47	5	<5	5	<3	417	<10	<2	<0.1	1	3	117
30596	Rock Chip	5	--	2.5	769	9	36	11	8	<3	74	<10	<2	<0.1	2	3	427
30597	Rock Chip	347	--	53.4	5788	3134	69	80	46	5	0.2%	<10	11	0.2	1	1	171
30598	Rock Chip	<5	--	0.3	270	18	31	9	5	<3	259	<10	<2	<0.1	2	3	175
30599	Rock Chip	<5	--	0.8	100	41	14	<5	<5	<3	116	<10	<2	<0.1	2	3	127
30600	Rock Chip	<5	--	<0.1	43	2	11	<5	<5	<3	135	<10	<2	<0.1	1	4	92
30601	Rock Chip	<5	--	0.1	426	8	154	7	<5	<3	31	<10	<2	0.3	9	9	249
30602	Rock Chip	<5	--	0.1	841	2	79	5	<5	<3	586	<10	<2	0.1	6	4	281
30603	Rock Chip	6	--	<0.1	474	7	2920	16	<5	<3	18	<10	7	3.3	16	11	366
30604	Rock Chip	7	--	0.1	56	26	115	6	<5	<3	19	<10	23	1.9	9	5	117
30605	Rock Chip	10	--	<0.1	168	7	713	<5	<5	<3	4	<10	<2	1.1	5	5	90
30606	Rock Chip	<5	--	0.5	252	6	583	<5	<5	<3	17	<10	<2	1.1	2	5	25
30607	Rock Chip	<5	--	<0.1	38	<2	45	<5	<5	<3	11	<10	<2	<0.1	2	4	67
30608	Rock Chip	<5	--	0.2	75	2	79	<5	<5	<3	7	<10	<2	<0.1	4	5	312
30609	Rock Chip	6	--	0.1	1319	2	548	15	<5	<3	124	16	<2	0.4	11	11	313
30610	Rock Chip	<5	--	<0.1	63	2	28	6	8	<3	44	<10	<2	<0.1	1	3	109
30611	Rock Chip	<5	--	0.8	377	12	140	6	8	<3	0.1%	<10	<2	0.3	3	4	241
30612	Rock Chip	33	--	0.4	138	1876	632	77	14	<3	18	<10	<2	1.6	13	12	120
30613	Rock Chip	38m	1.568	14.5	272	7398	418	466	53	<3	33	<10	3	1.8	4	8	55
30614	Rock Chip	1580	0.023	9.9	442	14993	5879	413	26	5	0.1%	<10	<2	2.9	11	16	868
30615	Rock Chip	7	--	<0.1	12	87	52	86	6	<3	7	<10	<2	0.2	4	6	66
30616	Rock Chip	<5	--	<0.1	4	9	16	16	<5	<3	2	<10	<2	<0.1	2	5	28
30617	Rock Chip	<5	--	<0.1	51	4	31	<5	<5	<3	3	<10	<2	<0.1	2	3	134
30618	Rock Chip	<5	--	<0.1	19	<2	8	<5	<5	<3	5	<10	<2	<0.1	1	5	25
30619	Rock Chip	185	--	14.0	134	514	365	5	<5	<3	9	<10	17	2.3	3	5	14
30620	Rock Chip	5	--	<0.1	20	3	26	<5	<5	<3	1	<10	<2	<0.1	2	5	35
Minimum Detection		5	0.005	0.1	1	2	1	5	5	3	1	10	2	0.1	1	1	2
Maximum Detection		10000	1000.000	100.0	20000	20000	20000	10000	1000	10000	1000	1000	10000	10000.0	10000	10000	10000
Method		FA/AAS	FAGrav	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

--=No Test ReC=ReCheck Ins=Insufficient Sample m=Est/1000 %=Est % Max=No Est

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Report: 93D0702 R Cambior Exploration USA, Inc. Project: 304 Page 1 of 1 Section 2 of 2

Sample Name	W ppm	Cr ppm	V ppm	Mn ppm	Ba ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
30595	<5	180	<2	26	3	20	<1	<1	<0.01	0.23	0.03	1.51	0.02	0.22	0.04	0.02
30596	<5	98	4	2[illegible]	1	37	<1	<1	<0.01	0.51	0.07	1.30	0.05	0.37	0.02	0.04
30597	744	192	<2	2[illegible]	5	17	<1	<1	<0.01	0.29	0.05	2.09	0.02	0.22	0.03	0.05
30598	61	112	9	50	11	29	<1	<1	0.01	0.61	0.10	1.82	0.10	0.35	0.04	0.04
30599	20	122	4	24	14	146	<1	<1	<0.01	0.45	0.03	1.72	0.04	0.46	0.05	0.04
30600	10	203	<2	76	7	2328	<1	<1	<0.01	0.16	0.46	1.14	0.02	0.07	0.02	0.01
30601	<5	79	25	257	32	105	2	2	0.02	1.90	1.11	2.24	0.42	0.38	0.05	0.06
30602	<5	144	4	265	15	30	<1	<1	0.01	0.86	0.44	1.53	0.09	0.35	0.03	0.05
30603	45	55	41	2138	24	67	<1	4	<0.01	2.33	2.69	3.48	0.43	0.56	0.03	0.06
30604	25	69	16	812	10	11	<1	<1	0.01	0.30	0.19	2.23	0.05	0.14	0.01	0.01
30605	<5	52	23	363	126	65	1	2	0.01	1.53	2.77	2.09	0.41	0.30	0.03	0.04
30606	<5	89	16	108	6	57	1	2	0.01	1.39	0.93	2.09	0.39	0.54	0.14	0.03
30607	<5	116	9	85	12	15	1	1	0.01	0.91	0.10	1.08	0.13	0.22	0.05	0.01
30608	<5	97	19	256	15	37	1	2	0.07	0.88	0.17	1.72	0.35	0.45	0.06	0.07
30609	<5	69	14	180	5	23	2	1	<0.01	1.11	0.18	14%	0.09	0.30	0.02	0.09
30610	<5	131	4	51	11	17	<1	<1	<0.01	0.62	0.22	0.61	0.05	0.27	0.02	0.02
30611	<5	145	<2	89	5	29	<1	<1	<0.01	0.45	0.07	3.53	0.04	0.28	0.02	0.04
30612	10	49	118	982	23	28	3	4	0.01	0.88	0.20	5.6%	0.35	0.24	0.03	0.06
30613	8	134	50	178	5	40	2	1	<0.01	0.38	0.06	9.4%	0.03	0.24	0.01	0.03
30614	335	133	233	2646	5	48	3	5	0.01	1.19	0.60	5.1%	0.09	0.56	0.01	0.04
30615	31	52	40	86	22	24	2	4	<0.01	0.73	0.24	2.35	0.09	0.46	0.01	0.07
30616	13	76	9	60	11	8	1	1	<0.01	0.45	0.18	0.79	0.08	0.25	0.05	0.07
30617	<5	105	13	64	10	30	<1	1	0.03	0.54	0.08	1.04	0.15	0.30	0.08	0.02
30618	<5	242	4	53	<2	3	<1	<1	<0.01	0.08	0.01	0.53	0.03	0.04	0.01	<0.01
30619	27	170	5	22	28	5	<1	<1	<0.01	0.25	0.03	2.65	0.02	0.21	0.01	0.01
30620	<5	155	10	122	33	9	1	1	0.02	0.41	0.06	1.00	0.11	0.20	0.06	0.01
Minimum Detection	5	1	2	1	2	1	1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Maximum Detection	1000	10000	10000	10000	10000	10000	10000	10000	1.00	5.00	10.00	5.00	10.00	10.00	5.00	5.00
Method	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

---=No Test ReC=ReCheck ins=Insufficient Sample m=Est/1000 %=Est % Max=No Est

cc: MMG
RM
LG

CERTIFICATE OF ANALYSIS
iPL 93D0701

iPL
INTERNATIONAL PLASMA LABORATORY LTD.

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Client: Cambior Exploration USA, Inc. iPL: 93D0701 M In: Apr 07, 1993 Section 1 of 1
Project: 304 44 Rock Chip Out: Apr 08, 1993 Certified BC Assayer: David Chiu

	Sample Name	Au ppb	Sample Name	Au ppb	Sample Name	Au ppb	Sample Name	Au ppb	Sample Name	Au ppb	Sample Name	Au ppb
Pegr	30551	9	30590 Pegr	10								
"	30552	45	30591 Lgm	14								
Qbx	30553	483	30592 "	13								
Pegr	30554	<5	30593 Pegr	5								
Qv	30555	43	30594 "	8								
Qbx	30556	2100										
Pegr	30557	23										
Qbx	30558	216										
Qbx	30559	6285										
Qbx	30560	1395										
Pegr	30561	22										
"	30562	10										
"	30563	33										
Qbx	30564	1950										
Pegr	30565	24										
Qbx	30566	1220										
Pegr	30567	9										
"	30568	17										
Qbx	30569	959										
Pegr	30570	32										
Q+cv	30571	100										
Pegr	30572	17										
Pegr	30573	87										
"	30574	36										
"	30575	36										
"	30576	125										
"	30577	12										
"	30578	32										
Qbx	30579	1450										
Pegr	30580	41										
"	30581	9										
"	30582	29										
"	30583	45										
Qbx	30584	45										
Pegr	30585	15										
"	30586	13										
Qbx	30587	2785										
Pegr	30588	29										
"	30589	29										
Min Limit		5		5		5		5		5		5
Max Reported*		9999		9999		9999		9999		9999		9999
Method		FAAA		FAAA		FAAA		FAAA		FAAA		FAAA

INTERIM RESULTS ONLY
DATA TO BE CONFIRMED
BY FURTHER ANALYSIS
AND/OR CALCULATION

---No Test ins=Insufficient Sample S=Soil R=Rock C=Core L=Silt P=Pulp U=Undefined m=Estimate/1000 %=Estimate % Max=No Estimate

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CERTIFICATE OF ANALYSIS
iPL 93D0702

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Client: Cambior Exploration USA, Inc. iPL: 93D0702 M In: Apr 07, 1993 Page 1 of 1 Section 1 of 1
Project: 304 26 Rock Chip Out: Apr 08, 1993 Certified BC Assayer: David Chiu

	Sample Name	Au ppb	Sample Name	Au ppb	Sample Name	Au ppb	Sample Name	Au ppb	Sample Name	Au ppb	Sample Name	Au ppb
qv	30595	26										
Lgm	30596	5										
Lgm+qv	30597	347	→ CuOx									
"	30598	<5										
"	30599	<5										
qv	30600	<5										
Lgm	30601	<5										
"	30602	<5										
"	30603	6										
qbx	30604	7										
Pegr	30605	10										
"	30606	<5										
Lgm	30607	<5										
Pegr	30608	<5										
Lgm	30609	6										
"	30610	<5										
Lgm+qv	30611	<5										
Pegn	30612	33	Kabba Mine									
Dump qbx	30613	38m										
Pegn. hem	30614	1580										
"	30615	7										
Pegr	30616	<5										
Lgm	30617	<5										
qv	30618	<5										
qv	30619	185										
Pegr	30620	5										
Min Limit		5		5		5		5		5		5
Max Reported*		9999		9999		9999		9999		9999		9999
Method		FAAA		FAAA		FAAA		FAAA		FAAA		FAAA

INTERIM RESULTS ONLY
DATA TO BE CONFIRMED
BY FURTHER ANALYSIS
AND/OR CALCULATION

—=No Test ins=Insufficient Sample S=Soil R=Rock C=Core L=Silt P=Pulp U=Undefined m=Estimate/1000 %=Estimate % Max=No Estimate

Mc Garry's Wash Submittal.

N½ sec. 7. #30551 Subcrop? or 7ft.
oxidized, slightly arg. f.g. granitic Rx
cut by small q.v.
Relict limonite - jarosite 60 - goethite 40
Dispersed limonite - hematite - jarosite - goethite
Contains diss. magnetite.
weak arg - k-feld → clay

Check out →

<100 ft. from #30551
#30552 Subcrop? 7ft oxidized,
weakly arg. granite, more k-feld rich
than previous loc., rare q.v. veinlets
mainly dispersed limonite - hem., mix jar/
goethite.
Weak-mod. arg. k-feld loc. → clay
biot → entirely oxidized.

In drainage below
#30553 7ft. boulder 2'x3' qtz-hem.
bx., oxidized looks exactly like
qtz bx at Cyclopic.

#30554-55 same loc.

30554 Strongly arg. granitic rock, feld → clay
biotite still fresh, weakly-mod. oxidized.
very soft

30555 right next to 30554. quartz vein struct.
or silicified, loc. sericite + clay
w/ qtz abundant limonites, no hem.
tr. Su., 2-3% light yellow mineral?
alunite, most probably, tr. malachite.
Struct. not very wide <1ft. striking
N20°E.

30556 Qtz-hem. bx., dump from prospect (?)
bx qtz vein, white containing abundant
hem., limonite goethite. Possibly Mn ox.
Wulfenite observed in several pieces.

30557 Weakly altd. Pc granite (?), plag. slightly
arg., loc. qtz veinlets discr., weakly ox.
slight dispersed hem., m.g., <10% biotite
weakly altd.

30558. Small prospect. Qtz bx, weak hem. abundant MnOx, mod. bx white qtz. loc. limonite, tr. Su (leached) seems to strike 95°, dipping shallowly to the north? discontinuous identical to Cyclopic Qx

30559. Two prospects exposing qtz-hem bx trending N20°W / 80° SW. struct is narrow 6" - 12". abundant hem, oxidized, tr. Su (leached) wall rock is relatively fresh granite Pe.

30560 Prospect. Qtz-hem bx, highly bx, abundant hem, also oxidized. loc. Mn Ox coating several pieces containing wulfenite + tr cinnabar. identical to Cyclopic bx. wallrock not exposed. loc. 125033-34

30561. Caved Adit. Sample of wallrock hem, slightly arg granite Pe, tr Su (leached) m.g. equigranular, mod. oxid. (limonite) Low & struct., strong hem. wt q.v. prog, crumbles easy N35°W / 42°NE.

30562 Adit. 6' channel across fw of low & fault. Bleached white f.g. intrusive, still recogn. biotite + qtz.

30563 8' channel hw. of low & fault. strongly arg, limonite, loc. hematite, soft intrusive low & fault resembles mylonite fabric strong foliation developed. N/S dipping 35° E

Inclined shaft. N50°E → 45°E Too dangerous to take sample. diff. phases of int. strongly oxid + hem; one phase light grey, clay altd. possibly some diorite dykes or sills.

30564. Dump. Qtz bx, mod. oxidation, weak hem. Containing 1-2% chrys. + malachite. Loc of 125037

30565 Float. Subprophy. c.g. granite large k-feld up to 2 cm., stained alt hem. loc. weakly ox.

03/31/93

30566. Qtz. bx. float trending N25°E.
mod. to strongly brecc. white qtz.
Matrix mainly gossan, limonite + hematite
leached sm. <2%.

30567-68 Top of small hill. strong oxidation + hem.
staining m. to c. grnd. subporphy. Pe granite.
<10% biotite, slight argillization, MnOx coating
fractures. loc. brecc. mm. zones
Red hill should show on air photo

30569 Prospect exposing Qtz bx trending N15°W
seem to be dipping shallowly to the SW 20-25°
Floating block along a ~N-S trend. Bx varies
from black stained qtz bx wt no ox. or hem.
where oxidized + hem. wulfenite is present
filling vugs. Generally strongly bx wt mod.
hem and oxidized matrix, white qtz frag.
veins from mm - to inch size.

30570 Same as 30567-69.

30571-72 South side of McGarry Creek
Roadcut exposing Pe gr.

30571 - Qtz + carb bx. mod. oxidation, weak hem.
Approx. strike N10°E / ~40 W
strong limonite along fract.

30572. 8' channel across highly arg. Pe granite
loc. mafic phases throughout. loc. hem.
soft in contact wt fg.

Approx. 200' from previous.
along Rd cut 10' channels 30573-75

30573 Strongly arg. Pe g. oxidized + hematized!
mafic phases also present (diorite)

30574 Same as above. Possibly small lamprophyre
dyke <6". Cutting small 2" q.v.

30575. Same as above, bx of sample in more
resistant rock stained wt MnOx.
well developed foliation. slightly silicified
105/50

30576 25' Adit trending N50°E
Cutting arg, hem, oxidized granitic Rx
Possibly in fault contact wt Fg
Fault N30°W/ ~90°
Foliation developed in Pe gr
~40° E / 35° SE

30577 Just above adit.
Dump or Subcrop? Mn Ox stained v.f.g. intrusion, slightly silicified, loc. bleached tr. Sen. q.v. material in the area. wt tr. Sen + hem. stained.

30578 Top of small hill, oxidized + limonitized Pe gr.
m.-c.g. subporphy. mafics are oxid.
Feld. are partly arg. Float + possibly subcrop?

30579 Prospect. Qtz+hem bx dump
and. ox + hem. sil. bx., strongly bx in general. Wulfenite + alunite observed in oxid+hem pieces tr. chrys. (up to 2¼ in some pieces) where matrix is dark grey qtz wt hem. chrys. is more visible along veinlets + fragments.
Trend of working N70°E? tr. bleached Sen

30580. 50' Adit trending N20°W.
Grab at portal., arg., oxidized + hem.
Pe gr. Lineation + fabric trending ~N40°W dipping ~30° NE.

30581 Top of small hill. oxid. + hem. Pe gr.
m.-c.g., subporph, oxid. mafics.

Zone of red. hills trending approx. N50-60°E

30582. Float. Probably Fg. select for oxid.-hem.
Pe gr. Qtz. float wt oxidized porphy And.

04/01/93.
Further to the East on McCoasy's block.
m.-c.g. subporphy. intrusion exposed. Pe
loc. hem. or argillized. some quartz veinlets fresh and non resistant. Cut by younger porphy andesite (Tertiary?) as dykes or sills (?)
Presence of small 30-50 ft adit, no struct. exposed
5 ft. block of qtz breccia white 95 fragment up to sev. in a oxidized matrix (caught with wk + int.?)

30583 Sample of Pe gr.

30584 Prospect Dump qtz bx, white qtz frag. <2" in an oxidized, bx. hem. matrix.
loc. Mag. + leached Sn.

30585 Outcrop exposing oxidized + hem. stained c.g. Pe granite. Next to outcrop exposure of epidote-chlor. altd Pe gr.
Fract N15°E/90°

30586 Caved adit on prospect exposing highly fractured, cavernous porphy Pe gr.
strong oxidation, most of biot not altered
in contact wit Ta. ~N20°E />60° W
loc. spotty hem. in Pe.
Ta - porphy, med. fract.

Qtz+lim. bx surrounding prospect
30587 Strong hem. (dark red-brown) + silic fract qtz bx, abundant MnOx., some limonite
loc. breccia is banded, frag of white qtz gener small <1 in.

30588-89 10' channels across oxidized-hem. m-c. grained Pe gr. Mod. fractured (seen by variation in alta) highly broken up to sheared loc. sil (in more resistant blocks).

Foliation N65°E/38° NW

30590 Strongly mag., soft mafic (?) intrusive mod. yellowish-greenish brown. unrecognizable. weak oxid.

30591-92 10' channel samples across weathered (oxidized) porphyritic qtz monzo. 20% sub-rounded qtz. mon. sericite, dis. of dissolved qtz crystals. feld slightly mag.

30593 Outcrop. Prospect exposing c.g. oxidized Pe granite, pinkish K. feld., ser alta. biotite, common fract

30594 Prospect. f.g. oxidized granite
<10% biotite (fresh), abundant ser.
occasional qtz. veinlets.
10' channel.

09/02/93.
Standard Mine. Laramide intrusion
in the hanging of qtz-ser. altn.

30595 Street striking N15°W / 65° W
consisting of qtz veins, alunite (?) wt
sericite, 15% limonite (goethite-jarosite)
no kem. no sw observed.
FW of zone qtz-ser. altn. qtz wrng.
wt. 20% biotite, mainly transported lim.
Orient. of q.v. 100° / 38°
In pieces below tr. chrysocolla along
fract. or with q.v.

Adit. exposing another street just like 30595.
adit follows the HW of this street (?)
highly fract. sheared, oxidized porphyry
N23°W/74°W

Adit

30596 Sample of HW. qtz-ser. altd porphyry
oxidized (fractures)

Working (stope) along qtz-alunite (?)-ser. vein.
striking at 30° W / 65° SW
more workings just above, street is <5' wide.
30597 Consist of qtz-ser altd. porphyry, abundant
q.v. up to 12" wide, where sampling
approx. 5% molybdite, some shattukite
in prospect area, abundant limonite (goethite-jar)
loc. spotty kem, abundant apple green soft clay.
loc. weak bx.

30598 Away from working. qtz-ser. altd porphyry
15-20% qtz veins from 1" - 6", fresh
biotite (10-15%). mod. oxidized
Veins striking N5°E / 60° W (8' channel)

30599 f-m. grad qtz-ser. altd. Laramide intrusion (?)
Slightly coarse grad from W. side of road
several q.v. up to 3", mod. oxidized.
no visible limonite observed.
N15°E / 57° W. Fracturing + q.v. orientation.

30600 Caved adit. Sign. dump.
mainly qz veins wt ser + gossite
adit oriented ~125° Az.
Random sample from dump.

30601. Outcrop. qtz-ser. altd porphyry Qmz.
strongly arg., not recognizable.
10' Channel.

30602. Roadcut exposing qtz-ser. altd Qmz.
loc. oxidation, tr. malachite. diss.
10' channel.
right next to sampling loc. partly caved
adit trending N70 E exposing same
as sample to CuOx.

30603. Caved adit. 10' channel at patd (?)
strongly arg. porphy Qmz. (loc. recogn.
text.) mod. limonite, spotty hem. alta
no q.v. observed or ser.

30604 Right next to above. Large boulders (one of them up
to ~7') of qtz-hem bx., strongly bx. oxidized, silicified
+ hem matrix. tr Sp. In one piece contact with wallrock
(seem to be Cassiaide Intr., f-m.g. ser. altd. ?).
tr Sp in wallrock and leached Sp in Bx.

30605 Prospect exposing sheared, arg. Pegr(?)
where recogn. c.g. highly fract., hem.
stained, mod oxidation.
6' channel. Area surrounded by
qz-hem. bx pit.

30606. Prospect. strongly argillized and oxidized
Pegr (?) m.g., soft sheared, loc. biot are
still fresh, minor sericite.

30607. Road cut 10' channel across qtz-ser. altd
qz porphyry, 10% qv. up to 3", string ser.
mod. oxidation.
Fract. + vein orient. from N0-10° E / 70-80° W.

30608. Prospect + Adit area.
Right next to prospect. Stringer. Striking ~75° dipping
70-75° E. Sample of this stringer (non resistant)
f-m. grnd granite, 15-20% biot. (fresh).
10% sericite, slight alta of feld → to clay.
mod. oxidation. Relict. goethite + hem.
recogn. px. relicts.
Dump consists of q.v. with abundant py (gossite colour)
Mass. py in veins as veinlets

30609. Rodent grab of gossan int.
unrecogn. text. abundant goethite - hem. jar
tr. Sn (leached) seem to be a low of
struc. dipping 0-20° to East, striking
~ N20°E. irreg. contacts.

30610 Slightly ox. porphyry Qtz mnz. 10% q.v.
<2", some sericite. also muscovite as veinlets
or filling in fract.

30611 Prospect exposing 1-1½' zone of qtz
veins lightly broken up within shear zone
partly arg. (clay) porphyry, strong jarosite
within struct, veins are oxidized.
Zone 95°/50 N

04/03/93
Kabba Mine
Two shafts (6'x6'), one adit.
all in Pe gr. Rocks. No idea what
they were mining? Dump pile (waste)
one pile of white clay with not?

30612. Sample of phyllosic rocks around shaft
on top of hill, hem. stained Pe gr+gn.

30613. Sample from lower dump. qtz vein bx
w/ abundant limonite, slick., hem.
minor jarosite, recogn. leached Py.
in one sample to malachite, wallrock (?)
is yellowish beige bleached & contains
spotty hem.
Possibly what they were mining (?)

30614. Inclined shaft 40°.
Following a N40°W striking structure,
strongly limonitized Pe gn., on dump
slightly ox qv. w/ hem. + limonites, no Sn observed.

30615. Wide struct zone ~50 ft of hem. altd Pe
gr + gn., limonites mainly along fractures
steep HW contact, highly broken up
strike ~ N25°W / 70°E
HW. fresh Pe granite weakly ox.

30616 hem. stained, weakly fract. Pe gr
w/s fract. dipping 30°E

30617. Sample roadcut at McGarry's Wash
Porphy qtz monz, mod fract. 10-20% fresh biotite, jarosite on fractures

30618 Ferrier workings
Sample of white q.v., minor limonite wt <1% Py in qtz monz.
Struct seen to be ~ 10' wide striking N10°W / 80-90 E.

30619. Adit. struct ~ 5' wide, qtz vein wt 1-3% pyrite (fresh), abundant jarosite on dump. Host PЄ gr.
Struct striking N40°W / 65-75 SW.

30620 Roadcut PЄ gr mainly slightly ox wt qtz monz porphy dyke <1 ft wide, highly fract.

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A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION WHEELER WASH AREA, HUALPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA

by

John Steven Vuich

A Thesis Submitted to the Faculty of the

DEPARTMENT OF MINING AND GEOLOGICAL ENGINEERING

In Partial Fulfillment of the Requirements
For the Degree of

MASTER OF SCIENCE
WITH A MAJOR IN GEOLOGICAL ENGINEERING

In the Graduate College

THE UNIVERSITY OF ARIZONA

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