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

ACCESS STATEMENT

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

CONSTRAINTS STATEMENT

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

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

QUALITY STATEMENT

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

Aa 13.0.0.

J.H.C.

MAY 13 1969

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

May 12, 1969

TO: Mr. J.H. Courtright

FROM: Mr. J.D. Sell

MR. WES
READ AND RETURN ✓
PREPARE ANSWERS ___ HANDLE ___
FILE ___ INITIALS ___

W.E.S. JUN 6 1969

Hassayampa Basin
Helicopter Project
Maricopa County, Arizona

Summary and Recommendations

The helicopter survey did not uncover a positive clue as to the presence of a direct new target area; however, a number of features were found which are germane for future and continued study in the district.

1). Many of the previously identified "Cretaceous"volcanics, dikes, and intrusive mass are of Tertiary age, and probably post-Miocene. These include tuffs, some agglomerates, and flows which overlie red conglomerate beds found between Twin Peaks and Vulture Peak. The conglomerate contains weakly altered and hematite flooded granite fragments as well as some epidotized andesite porphyry. In the exposures studied no source trend direction could be established.

2). Extremely complicated structures, including various dikes, cutting the south half of the White Tank Mountains clearly suggest that Laramide-age fractures trending NNW were active in this area. Late basalt vents are also controlled by this trend. This trend suggests that continued geophysical studies be conducted in a swath between the Copeland prospect (White Tank) and the Wickenburg Peak prospect of PD.

3). Again, the better mineralized fracture and vein filling structures trend northeasterly-a trend evident to most porphyry copper camps of the southwest.

4). A one sample site on the northeast side of the Belmont Mountains should be expanded for control prior to establishing geophysical survey. ?

5). The northwest Belmont Mountains contains a large color area which needs expanded mapping and sampling with special emphasis on gold-silver potential.

6). The Weldon Hill-Big Horn area should be restudied with emphasis on the potential role of precious metal-bearing manganese deposits (with one high geochem moly result) which may surround a center containing sheared rock which also contain anomalous geochemical values including moly. This area is along the projection of the northeast-trending Wickenburg lineament.

James D. Sell
James D. Sell

JDS:ir
cc: SRDavis

Purpose.

Following the White Tank examination, where weakly mineralized Tertiary porphyries and volcanics were found, it was proposed that a helicopter supported reconnaissance be made in the Hassayampa Basin in the search for additional clues to possible ore deposits. The reconn extended over a ten day period utilizing a supercharged Bell 47G3B from Arizona Helicopters of Scottsdale, Arizona. Mr. S.R. Davis assisted on the program.

General

The regional geology of the area is covered in the Maricopa County geologic map by the Arizona Bureau of Mines. The White Tank Mountains are shown to be Precambrian granite and granite gneiss in the central west portions with Laramide granites on the east. The Laramide granite is essentially devoid of any appreciable mineralization and in fact resembles the western Precambrian granite in many aspects. The White Tank prospect is in the area marked as Cretaceous rhyolites, but as reported by L.J. Jansen (April 21, 1969) and previous memos by J.D. Sell, the area is intruded and cut by monzonite, monzonite porphyry, and latites which are variably altered and mineralized.

Westward in the Big Horn Mountains the eastern end is mainly Precambrian granites and schist while Cretaceous andesites occupy the western areas. Cretaceous intrusive dikes and plugs are found cutting the above units.

In the ranges southwest, south, and east of Wickenburg, the basement Precambrian granites, granite gneiss, and schist are again exposed and variably covered by reported Cretaceous andesite and rhyolite units and cut by the Cretaceous intrusive dikes and plugs.

Known Prospects and Production

Numerous prospects and small mines are known in the mountains ringing the Hassayampa Basin area. These are mainly gold-silver-lead, with some copper, production areas. The most productive area is the Vulture district which included the Vulture mine and the Belmont-McNeil mine.

In the past several years Phelps Dodge had drilled two large altered areas east and southeast of Wickenburg known as the Wickenburg Peak and Red Hills areas. Drill hole and some sampling data and maps are in the ASARCO files with a file memo by R.B. Cummings (Maricopa General, Aa-13.0.0).

The Copeland Prospect on the northwest side of the White Tank Mountains contains variably altered and mineralized monzonite porphyry intrusives and related extrusives as do the two PD prospects. Drill information on the PD areas indicate low copper-moly values and drill hole sludge samples in the White Tank area also show low results.

Total production from the district is probably less than $20 million with the Vulture Mine area reportedly accounting for $15 million.

The three "porphyry" prospects have a large weak alteration and color anomaly area surrounding the better area, but apparently ore-grade mineralization is lacking in the tested areas.

Samples and Interpretations

The entire Hassayampa Basin area, and especially the alluvial-bedrock contact and bedrock outliers, were carefully checked, partly sketch mapped, and samples were collected from the more interesting areas.

Attachment A is from the Phoenix AMS sheet and shows the location of the sample sites. Attachment B is Hawley & Hawley's assay results with the locations and descriptions given in Attachment C.

White Tank Mountains sub area. Samples 8 through 19 were collected in four sample areas. The Copeland or White Tank prospect has been covered in the report by L.J. Jansen and he included some samples. The present sampling (samples 8-13) confirms minor moly-copper anomalous values in the main central, exposed, zone and somewhat similar values in geochem Pb-Zn to the samples taken in the PD tested areas.

Samples 14-16 were collected from a color zone in a schist-diorite-granite-gneiss complex area with no anomalous samples suggested.

Samples 17-19 were collected from a fresh granite gneiss area which is cut by a diabase dike which in turn is cut by a quartz-hematite vein structure. The vein structure (HB-17) ran anomalous lead-copper-moly geochem values and had 0.54 oz gold and 0.09 oz silver. The wall rock and diabase dike contained minor gold-silver and possibly slightly anomalous lead values, while the diabase had a slight increase in geochem zinc. Although this area contains a number of quartz-hematite vein structures trending northeasterly, which were apparently worked for gold-silver values, there is no suggestion any size or tonnage for ASARCO interest, nor of any alteration-color zones suggestive of more pervasive mineralization.

Northeast Belmont Mountains sub area. One sample (HB-20) was cut in a schist area within a color zone adjacent to alluvial cover. The sample is somewhat anomalous in geochem copper-zinc than other schist-dioritic samples collected elsewhere during the program even where those samples were collected in or near the PD altered zone. The schist area is cut by a few quartz veins containing scattered oxide copper but, with the exception of epidote, no additional alteration type minerals were noted.

Attachment D shows the location, general geology, sample HB-20 results, and the average geochem results of seven other schist-diorite samples collected. Further sampling is suggested for the area to confirm any anomalous condition.

Northwest Belmont Mountains sub area. This area is one of continued interest from several aspects: 1). A large color anomaly is contained in a basin area, 2). It opens onto a large alluvial area, 3). A strong, persistent, quartz-andesite breccia vein structure bounds the northeast side and shows 0.2+ oz. gold. The exposed basin area is underlain by a complex (Precambrian?) of granite gneiss, schist, and dioritic masses, with some muddy arkosic agglomerate--all of which contain variable streaks and zones of hematite. These units are cut by aplite, basic dikes, and quartz veins. The vein structure on the northeast side is more or less vertical with several workings along it and separates the basin from a pile of Tertiary (?) agglomerates, tuffs, and flows.

?

0.02 oz Au

Attachment E shows the general area, the sample sites, values, etc. Continued study in the basin area is suggested to determine the gold-silver potential and to further confirm the relative high geochem values in the rhyolite tuff and the arkosic volcanic.

Wickenburg sub area. As shown on Attachment A, nine sample sites are in this area. Samples 1 through 5 and 35 are from tested areas within the various altered zones while the remaining samples are near an alluvium site.

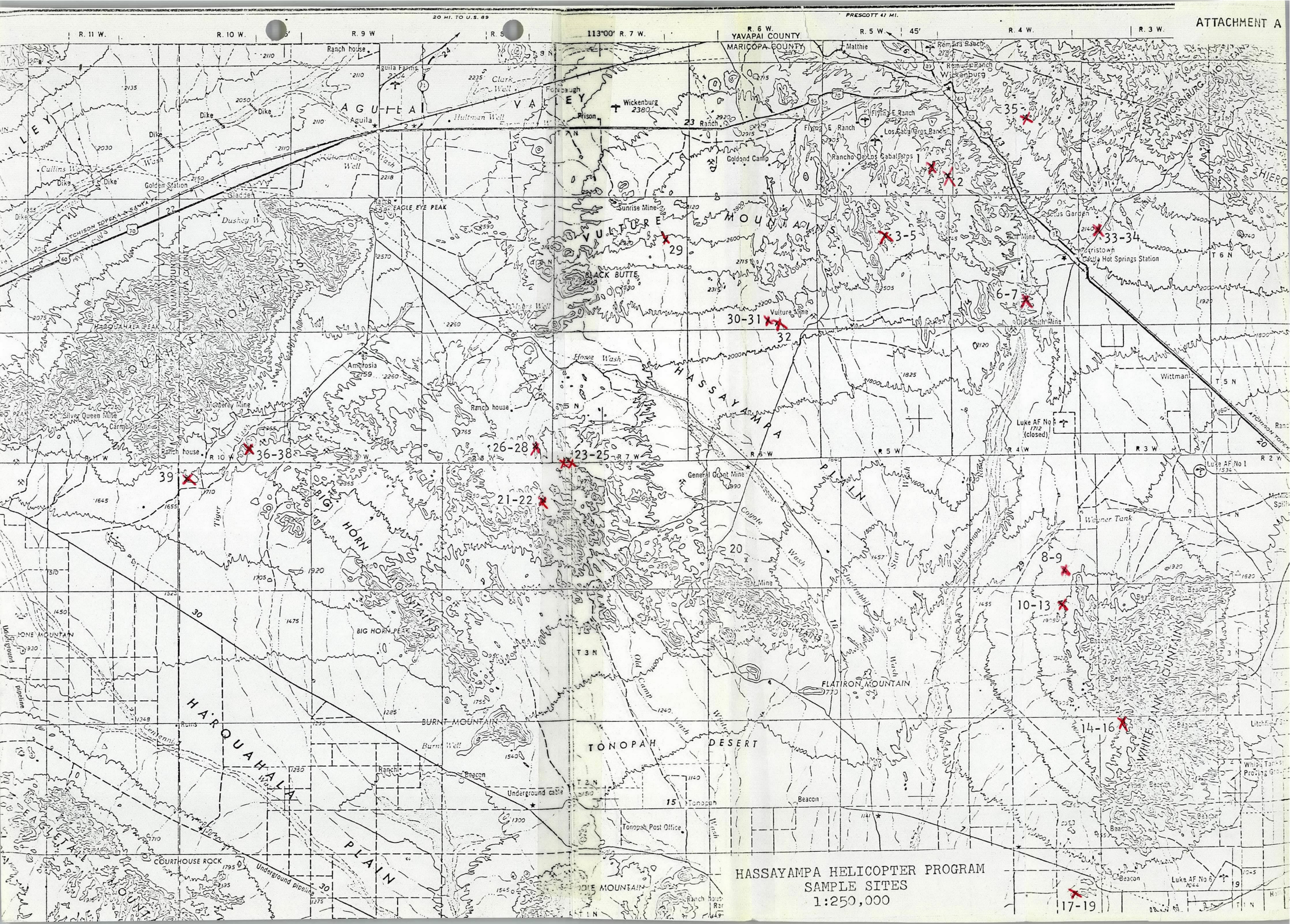
No real clue to encouraging alteration or mineralization was found in any of the sample areas other than that in general, the samples showed some gold-silver value, (mainly silver averaging about 0.06 oz.) when compared to the previous samples which generally shows nil gold and 0.01-0.02 oz. silver.

Big Horn sub area. The northwest end contains a number of manganese mines and diggings which were rapidly scanned. Three samples were taken (HB-36 thru-38); one of the high-grade vein material, another of the manganiferous wall rock and the last in the surrounding granite. The vein material had 20 ppm moly but other values were not particularly encouraging for further study except for the consistent silver content (0.04.0.06) in the samples (Note: JEK's two samples of maganiferous values taken around Bouse & Agulia failed to show any gold or silver values-memo of April 30, 1969). The samples are also given on Attachment F.

South Harquahala Mountains (Weldon Hill) sub area. A small hill had been bulldozed which was essentially surrounded by alluvium and sample HB-39 was cut on this. The rock is granite gneiss and schistose rocks with minor hematite, some epidote, and one quartz-copper, vein structure. Only the wall rock was sampled, but the sample shows 50 ppm moly, high geochem copper, and detectable gold-silver. Elsewhere, around the adjacent main mountain area, and around a few hills to the southeast, no color or alteration areas were noted.

With the number of prospects in the immediate area a more complete study of Welson Hill area is warranted. The sample site and results are given on Attachment F.

ATTACHMENT A



HASSAYAMPA HELICOPTER PROGRAM
SAMPLE SITES
1:250,000

ATTACHMENT B

HAWLEY & HAWLEY

ASSAYERS AND CHEMISTS, INC.

1700 WEST GRANT ROAD - TELEPHONE 622-4836 - POST OFFICE BOX 5934

TUCSON, ARIZONA 85703

Registered Assayers

THE SOUTHWEST'S LEADING ASSAYERS AND REPRESENTATIVES

Branch Representatives at Buyer's Plants:
Phelps Dodge Corp., Douglas, Arizona; ASARCO, El Paso, Amarillo, Texas and Hayden, Arizona

K.V.D.S.
MAY 8 1969

IDENTIFICATION	Gold ozs.	Silver ozs.	Lead %	Copper %	Zinc %	Mo. %			
			ppm	ppm	ppm	ppm			
HB-1	Nil	0.10	124	560	410	15			
HB-2	Nil	0.03	52	30	66	< 5			
HB-3	Nil	0.13	108	42	24	< 5			
HB-4	Nil	Nil	50	24	36	< 5			
HB-5	Nil	0.03	58	36	30	20			
HB-6	Nil	0.02	74	16	8	< 5			
HB-7	Nil	0.07	60	32	82	< 5			
HB-8	Nil	Nil	66	64	102	< 5			
HB-9	Nil	Nil	62	32	28	< 5			
HB-10	Nil	0.04	80	56	12	< 5			
HB-11	Nil	Nil	74	114	14	10			
HB-12	Nil	Nil	92	100	60	5			
HB-13	< 0.005	Nil	62	44	32	< 5			
HB-14	< 0.005	Nil	64	80	26	< 5			
HB-15	Nil	Nil	72	74	108	< 5			
HB-16	Nil	Nil	68	46	84	< 5			
HB-17	0.540	0.09	868	290	54	60			
HB-18	Nil	0.02	118	36	60	< 5			
HB-19	Nil	0.01	96	64	98	< 5			
HB-20	Nil	Nil	70	120	132	< 5			
HB-21	Nil	0.08	122	18	152	< 5			
HB-22	Nil	Nil	40	86	96	< 5			
HB-23	0.025	0.19	130 >	1000	68	20			
HB-24	0.030	0.08	134	804	112	< 5			
HB-25	0.030	0.16>	1000 >	1000	358	10			
HB-26	0.010	0.06	598 >	1000	604	20			

CC: American Smelting & Refining Company
ADD: P. O. Box 5795
CITY: Tucson, Arizona 85703
ADD: Attn: Jim Sell
CITY:

REMARKS:
Page 1
Au - Ag Single
Pb - Cu - Zn Geochem
Mo Geochem
Mn Verified

Analysis Cert. By

Preparation $
Analysis $

ACC AMERICAN SMELTING & REFINING CO. | Date Spl. Received 4/24/69 | Date Compl. 5/7/69 | TUC 342920 | $

HAWLEY & HAWLEY

ASSAYERS AND CHEMISTS, INC.

Registered Assayers

1700 WEST GRANT ROAD - TELEPHONE 622-4836 - POST OFFICE BOX 5934

TUCSON, ARIZONA 85703

K.V.D.S.
MAY 8 1969

THE SOUTHWEST'S LEADING ASSAYERS AND REPRESENTATIVES

Branch Representatives at Buyer's Plants:
Phelps Dodge Corp., Douglas, Arizona; ASARCO, El Paso, Amarillo, Texas and Hayden, Arizona

IDENTIFICATION	Gold ozs.	Silver ozs.	Lead ~~%~~ ppm	Copper ~~%~~ ppm	Zinc ~~%~~ ppm	Mo. ~~%~~ ppm	Mn %		
HB-27	Nil	0.09	134	72	94	< 5			
HB-28	0.005	Nil	380	304	510	< 5			
HB-29	Nil	Nil	48	34	8	5			
HB-30	Nil	Nil	410	54	242	< 5			
HB-31	Nil	Nil	92	28	50	< 5			
HB-32	< 0.005	0.07	34	104	60	< 5			
HB-33	Nil	0.03	52	12	18	< 5			
HB-34	0.005	0.05	132	42	66	< 5			
HB-35	Nil	0.24	132 >	1000	264	< 5			
HB-36	Nil	0.04	140	70	384	20	15.68		
HB-37	Nil	0.04	176	40	226	< 5	4.26		
HB-38	Nil	0.06	60	16	40	< 5	0.89		
HB-39	0.010	0.07	60	590	30	50			

39 samples crushed, split, pulverized @ $0.85	33.15
39 single Au - Ag @ $4.00 = $156.00 - 2.5% discount	152.10
39 Geochem Pb - Cu - Zn @ $2.50 = $97.50 - 2.5% discount	95.06
39 geochem Mo @ $1.50 = $58.50 - 2.5% discount	57.04
3 verified Mn @ $4.50	13.50

CC: American Smelting & Refining Company
ADD: P. O. Box 5795
CITY: Tucson, Arizona 85703
ADD: Attn: Jim Sell
CITY:

REMARKS:
Page 2
Au - Ag Single
Pb - Cu - Zn - Mo Geochem
Mn verified

Analysis Cert. By

REGISTERED ASSAYER CERTIFICATE NO. 7734 H. E. HAWLEY State Signed Arizona U.S.A.

Preparation
Analysis $ 341.70

ACC:	Date Spl. Received	Date Compl.		$
AMERICAN SMELTING & REFINING CO.	4/24/69	5/7/69	TUC 342920	350.85

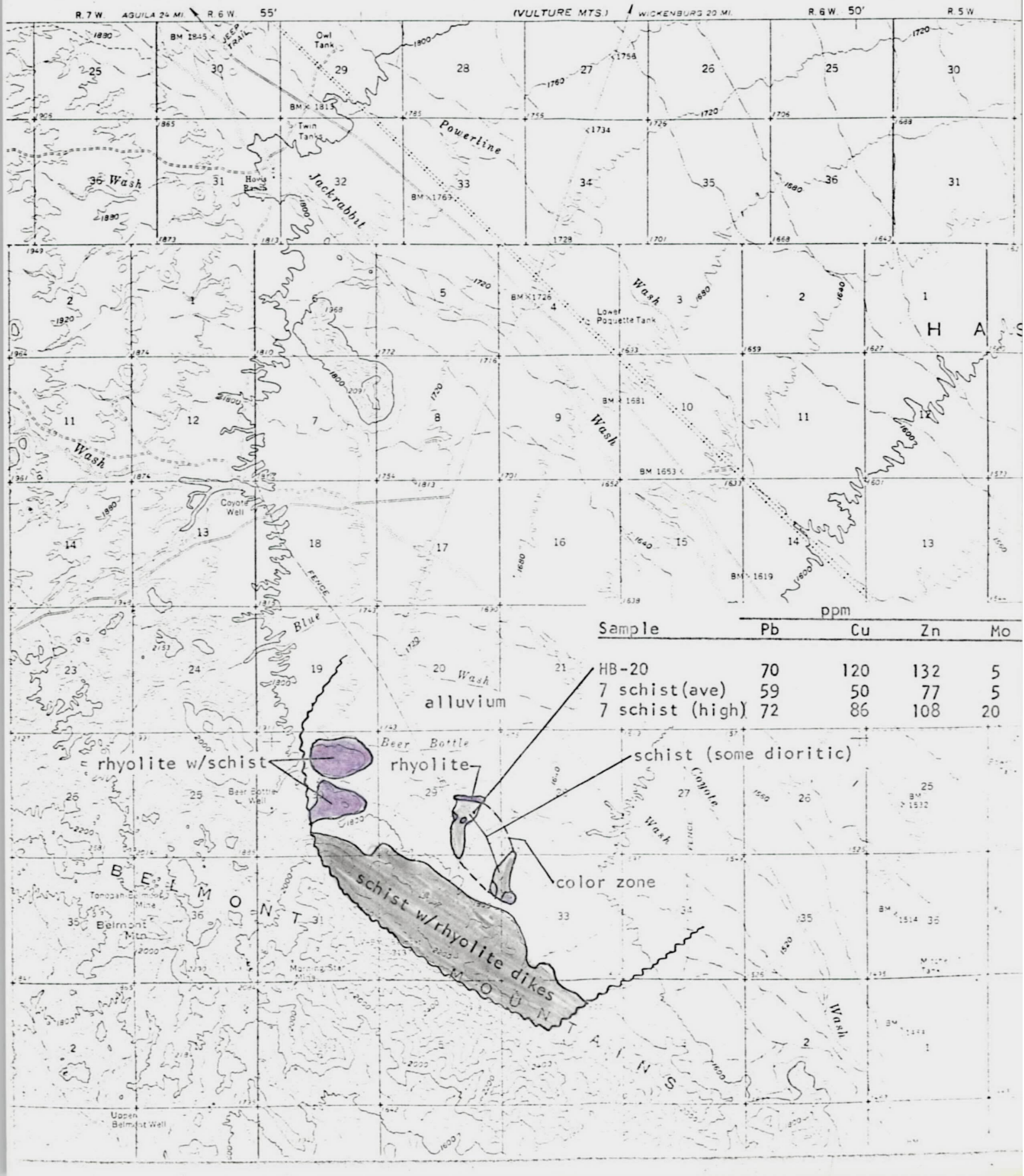
ATTACHMENT C

Hassayampa Basin Sample Descriptions. Series HB-

1. SE¼, Sec. 26, T7N, R5W. Heavy Fe stain, some Cu, in gr and sch.
2. NE¼, Sec. 36, T7N, R5W. Rhy-andesite-porphyry breccia dike.
3. SW¼, Sec. 10, T6N, R5W. Rhy with flooded hematite.
4. SW¼, Sec. 10, T6N, R5W. Sch, tuffaceous, fresh.
5. SW¼, Sec. 10, T6N, R5W. Sch, heavy hematite, N60°E fracture zone.
6. Center S½, Sec. 27, T6N, R4W. Rhy vent dike, with flooded hematite.
7. Center S½, Sec. 27, T6N, R4W. Schist block inclusion in #6.
8. Center, Sec. 35, T4N, R4W. Augite diorite mass (Precamb.)
9. Center, Sec. 35, T4N, R4W. Granite (Precamb.) with N30W hem. fract.
10. SW¼, Sec. 2, T3N, R4W. Rhyolite with weak alteration.
11. SW¼, Sec. 2, T3N, R4W. Rhyolite with moderate alt. & limonites.
12. SW¼, Sec. 2, T3N, R4W. Tert. quartz porphyry, weak alt & lim.
13. SW¼, Sec. 2, T3N, R4W. Andesite porphyry, weak alt & lim.
14. NE¼, Sec. 5, T2N, R3W. Granite-granodiorite gneiss with epidote.
15. NE¼, Sec. 5, T2N, R3W. Basic, schist-diorite, zone in #14.
16. NE¼, Sec. 5, T2N, R3W. Selected augite diorite in #15.
17. SE¼, Sec. 11,T1N, R4W. Vein, qtz-hem, trending N70E.
18. SE¼, Sec. 11,T1N, R4W. Granite wall rock.
19. SE¼, Sec. 11,T1N, R4W. Diabase dike, trending N30W.
20. SE¼, Sec. 29,T4N, R6W. Schist-diorite, with epidote-hematite.
21. SE¼, Sec. 11,T4N, R8W. Rhy and rhy tuff with hematite.
22. SE¼, Sec. 11,T4N, R8W. Diabase with augite diorite.
23. SE¼, Sec. 31, T5N, R7W. Vein, Quartz-amethyst with Cu-Mn-Fe.
24. SE¼, Sec. 31, T5N, R7W. Shattered volc breccia wall rock.
25. SE¼, Sec. 31, T5N, R7W. Selected dump vein material.
26. NW¼, Sec. 31, T5N, R7W. Vein, quartz-shatter zone.
27. NW¼, Sec. 31, T5N, R7W. Granite gneiss, minor hematite.
28. NW¼, Sec. 31, T5N, R7W. Muddy arkosic volcanic.
29. SW¼, Sec. 12, T6N, R7W. Granite, with ferromag? Breakdown.
30. NE¼, Sec. 34, T6N, R6W. Dump material, granite gneiss, hematite-epi.
31. NE¼, Sec. 34, T6N, R6W. Rhy porp. dike rock with minor hem.
32. SW¼, Sec. 35, T6N, R6W. Granite gneiss with hem fractures.
33. SE¼, Sec. 7, T6N, R3W. Basal cgl(?) with hem cement & frag.
34. SE¼, Sec. 7, T6N, R3W. Granite porp. with hem and epi.
35. SW¼, Sec. 15,T7N, R4W. Granite with hem & copper stain.
36. NW¼, Sec. 35,T5N, R10W. Hi grade Mn fines from vein.
37. NW¼, Sec. 35, T5N, R10W. Andesite, with epi and Mn, wall rock.
38. NW¼, Sec. 35, T5N, R10W. Granite gneiss, fresh.
39. SW¼, Sec. 6, T4N, R10W. Granite, gneiss, schist with hem.

ATTACHMENT D

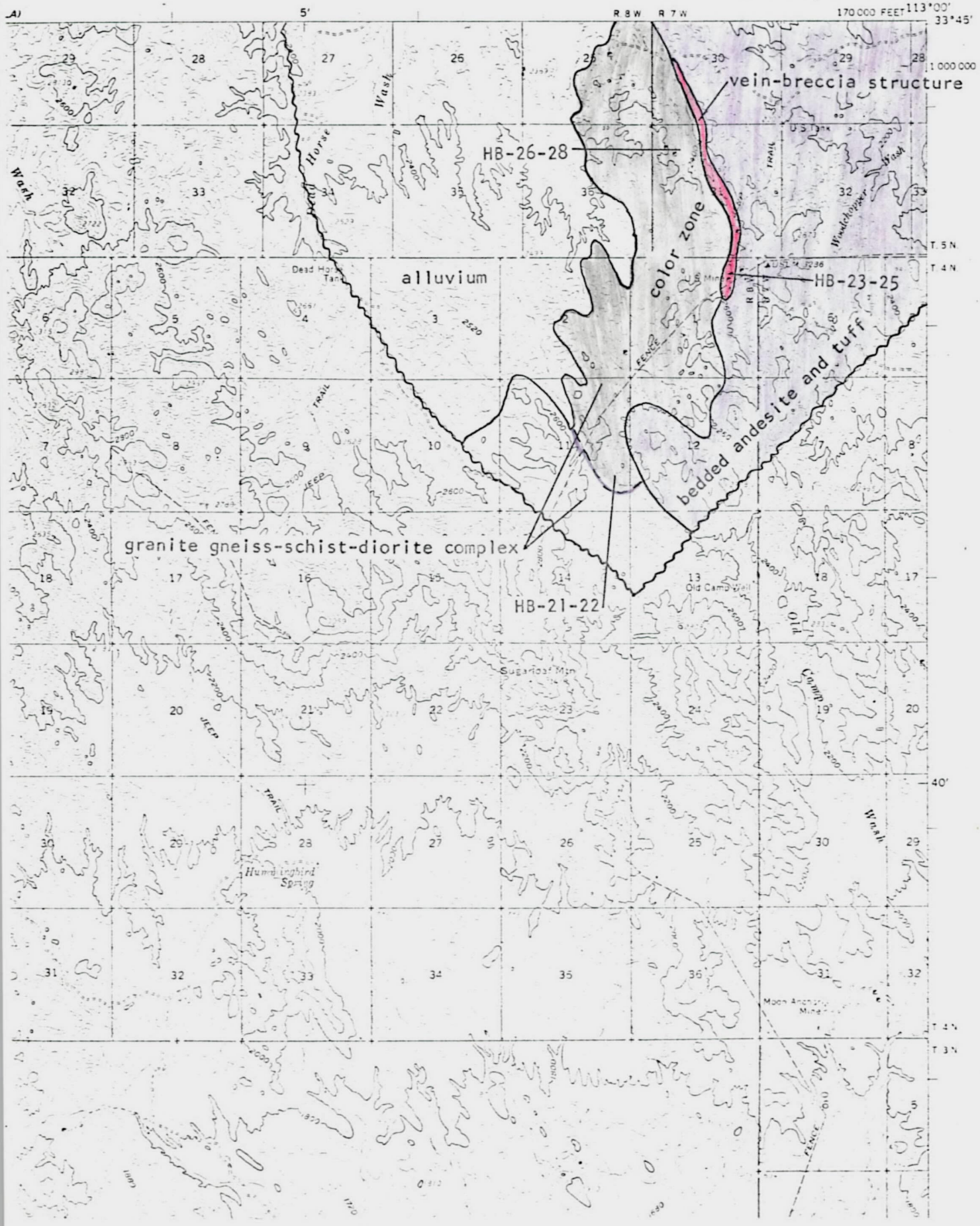
BELMONT MOUNTAINS QUADRANGLE



Sample	Pb	Cu	Zn	Mo
	ppm			
HB-20	70	120	132	5
7 schist (ave)	59	50	77	5
7 schist (high)	72	86	108	20

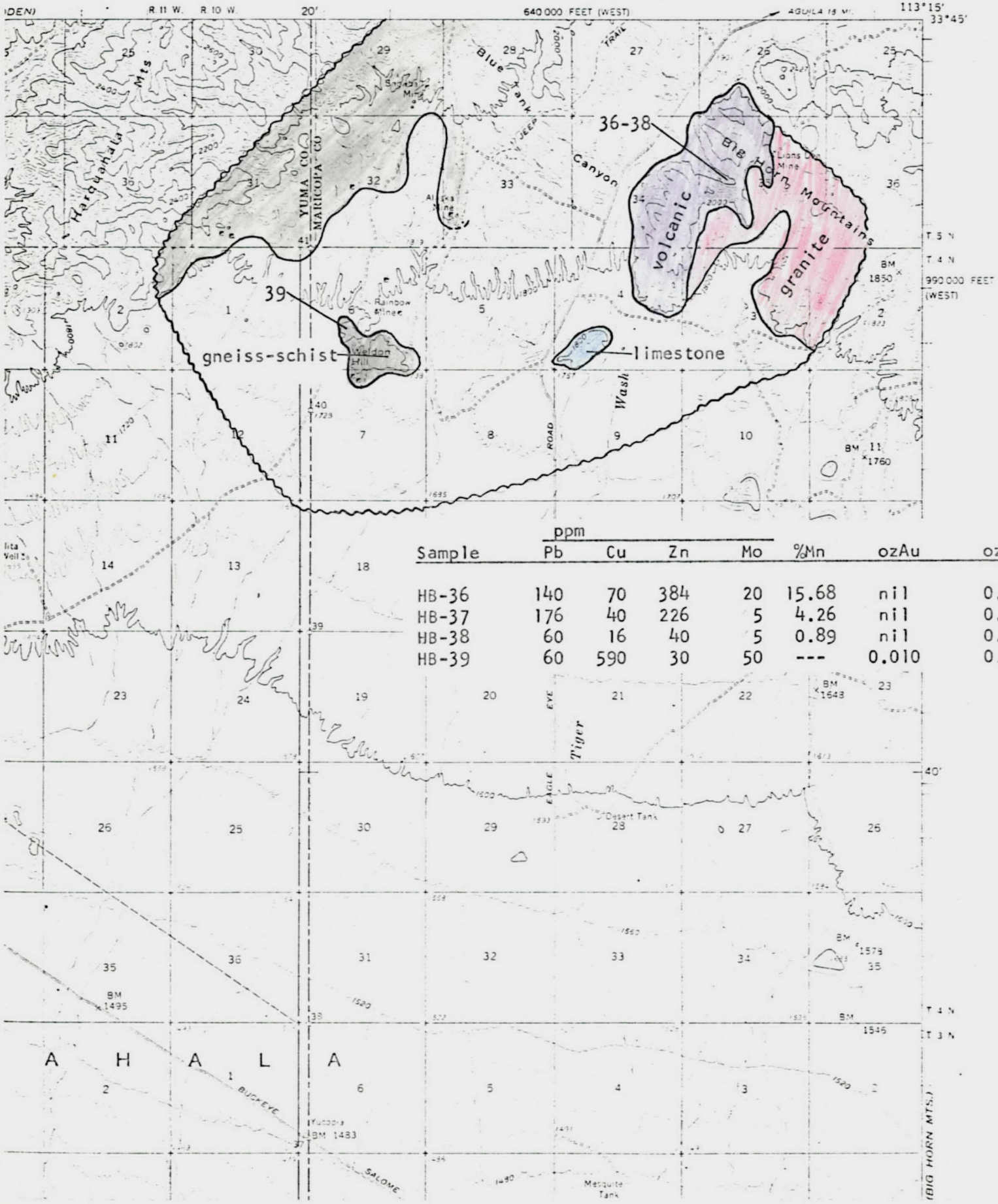
ATTACHMENT E

BIG HORN MTS. QUADRANGLE
ARIZONA–MARICOPA CO.
15 MINUTE SERIES (TOPOGRAPHIC)



ATTACHMENT F

LONE MOUNTAIN QUADRANGLE
ARIZONA
15 MINUTE SERIES (TOPOGRAPHIC)



Sample	ppm Pb	Cu	Zn	Mo	%Mn	ozAu	ozAg
HB-36	140	70	384	20	15.68	nil	0.04
HB-37	176	40	226	5	4.26	nil	0.04
HB-38	60	16	40	5	0.89	nil	0.06
HB-39	60	590	30	50	---	0.010	0.07

michele
michelle