UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mineral-Resource potential of the Dragoon Mountains Rare II Further Planning Area, Cochise County, Arizona

U.S. Bureau of Mines Mineral Land Assessment
MLA 35-82
1982

By
Kreidler, T.J

This open file report summarizes the results of a Bureau of Mines wilderness study and will be incorporated in a joint report with the U.S. Geological Survey. The report is preliminary and has not been edited or reviewed for conformity with the U.S. Bureau of Mines editorial standards. Work on this study was conduced by personnel from Intermountain Field Operations Center, Building 20, Denver Federal Center, Denver, CO 80225.

UNITED STATES DEPARTMENT OF INTERIOR
(BUREAU OF MINES)

MINES MENTIONED IN REPORT:
Golden Rule
Hubbard
Seneca (senecia)
Buena Vista
Burrito de Fierro
Rainbow
San Juan
Abril
Middlemarch
Pittsburg-Manhattan

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By
Terry J. Kreidler

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Access is good from all directions on periodically maintained Forest Service and county roads. The roads are particularly good on the north and south ends because of the past mining activity in these areas.

The Dragoon Mountains are an elongate north-south trending range with elevations from 5000 to 7500 ft (1500-2300 m) marked by rugged topography and dense brush. Though several major drainages have incised steep-walled, canyons, none are perennial streams.

Mining Activity

The Dragoon Mountains were first prospected during the rush following the silver strike at Tombstone in the 1870's. Since then mining and exploration activity has been sporadic, the last burst taking place in the late 1940's and early 1950's. During the spring and summer of 1980, no mining or exploration activity had taken place within the RARE II boundary. Activity

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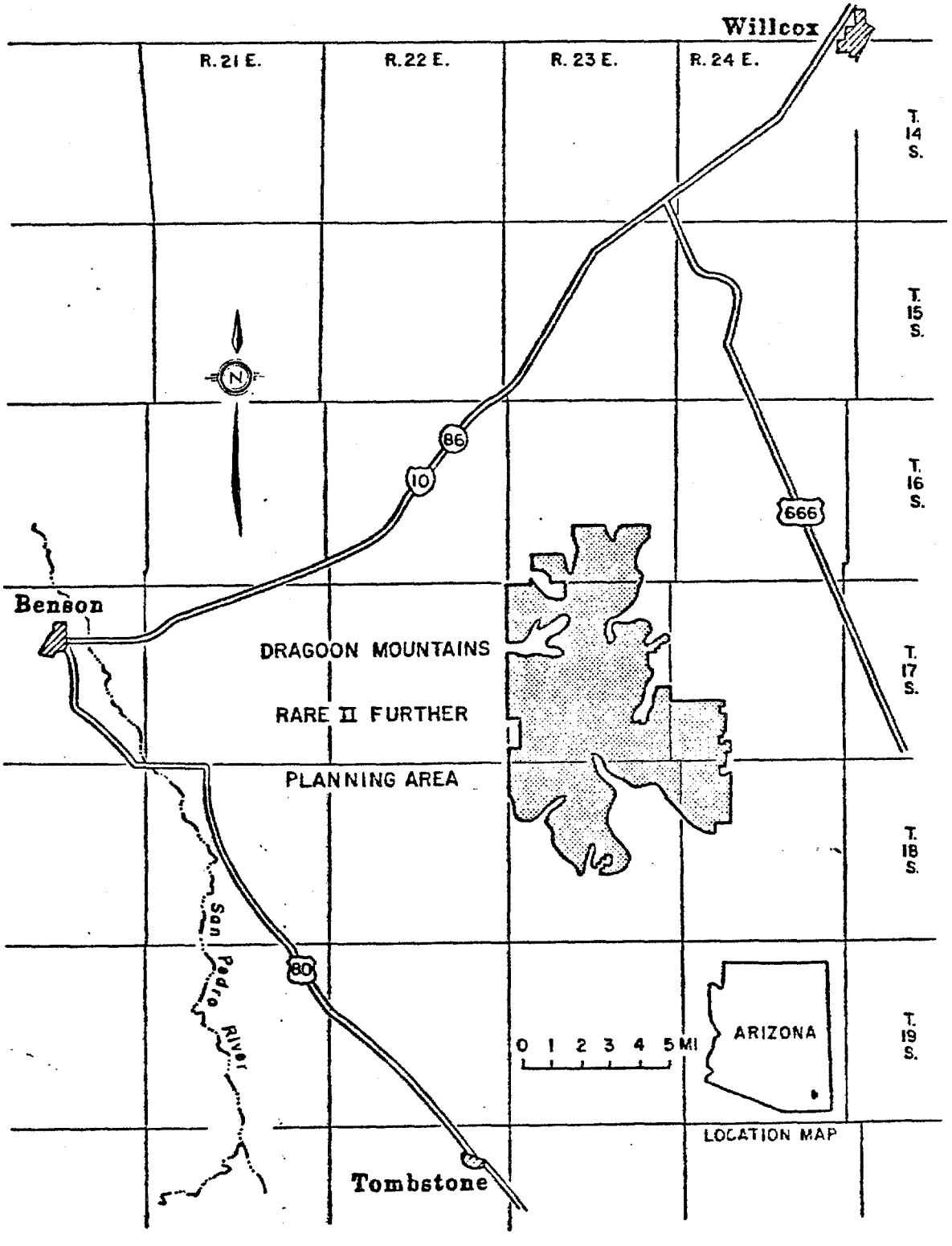

Figure 1.-Index map of the Dragoon Mountains RARE II Further Planning Area.

near the area in 1980 included core drilling by Phelps-Dodge Corp., 3 to 4 miles (5 to 6.5 km) to the southeast, minor trenching on silver veins within one mile (1.6 km) of the southern boundary, and renovation and re-timbering of the Golden Rule mine, north of the area.

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Total reported production of the Dragoon mining district through 1970 amounted to about 19,000 tons (17,000 mt) of ore yielding about 9700 oz (302,000 g) gold, 72,000 oz (2,240,000 g) silver, 178 tons (162 mt) lead, 124 tons (113 mt) zinc and 9 tons (8 mt) copper with a total value estimated at $340,000 (Keith, 1973).

The Middle Pass mining district is at the south end of the Dragoon Mountains. Some mining and prospecting was done in the district as early as the 1880's, though most of the activity occurred between 1920 and 1950. The deposits have all been small mantos and chimneys of pyrometasomatic replacement in Paleozoic limestones near the contact with Stronghold Granite or rhyolite dikes. Among the larger mining operations in this district are (1) the Abril mine, 30,000 tons (27,000 mt) zinc-copper-lead ore; (2) the San Juan mine, 15,000 tons (13,600 mt) of zinc ore; and (3) the Middle March mine, 11,000 tons (10,000 mt) copper-zinc ore (Keith, 1973). These mines are located less than 1 mi (1.6 km) outside the RARE II boundary.

Total reported production of the Middle Pass mining district, through 1970, amounted to about 76,000 tons (69,000 mt) of ore containing some 337 oz (10,500 g) gold, 147,000 oz (4.6 million g) silver, 4,626 tons (4200 mt) of zinc, 1005 tons (915 mt) of copper, 137 tons (125 mt) of lead 2.5 tons (2.3 mt) scheelite concentrate, and 75 tons (68 mt) of hand sorted barite, with a cumulative value of about $1,725,000 (Keith, 1973).

MINING DISTRICTS AND MINERALIZED AREAS

The Dragoon Mountains RARE II Further Planning Area includes parts of two mining districts, the Dragoon (Golden Rule) on the north and the Middle Pass (Middle March) on the south. Fifteen patented mining claims are in or adjacent to the Dragoon Mountains RARE II Area. Unpatented claims that have been recorded as being in or near the area number close to 3,000. Most of these were staked between 1880 and 1940 and generally have vague location descriptions so that the locations can not be accurately determined. Nearly all of the claims have been staked in the Dragoon or Middle Pass mining districts. The Dragoon mining district, at the north end of the Dragoon Mountains, was prospected for gold and silver in the 1870's. Producing ore as early as 1873, the Golden Rule mine also known as the Old Terrible, 1/2 mile (0.8 km) north of the boundary, has been the only major mining operation in this district. Approximately 9,500 tons (8,700 mt) of gold-lead ore was mined before 1930 (Keith, 1973). Since then, production has been minor and sporadic. The Golden Rule is located on Cambrian Abrigo Limestone that has been faulted and intruded by Tertiary rhyolite dikes and rhyolite prophyry. Ore minerals (cerrusite, anglesite, galena, pyrite and oxidized zinc minerals) occur with coarsely crystalline quartz, calcite, and iron oxide minerals in vuggy fissure veins; the gold is associated mostly with the iron oxides. Recorded production through 1929 amounts to 9543 oz (300,000 g) gold and 158 tons (144 mt) lead worth about $224,000 (Wilson, 1934).

Other mines and their production in the Dragoon mining district include the Hubbard (Democrat-Sherman) on the west side of the RARE II area, 330 tons (300 mt) of zinc ore in the late 1940's; the Seneca just east of the boundary, 216 tons (196 mt) zinc-lead ore in the 1940's; Buena Vista and Horse Fall mines west of the area, 75 tons (68 mt) lead ore in the early

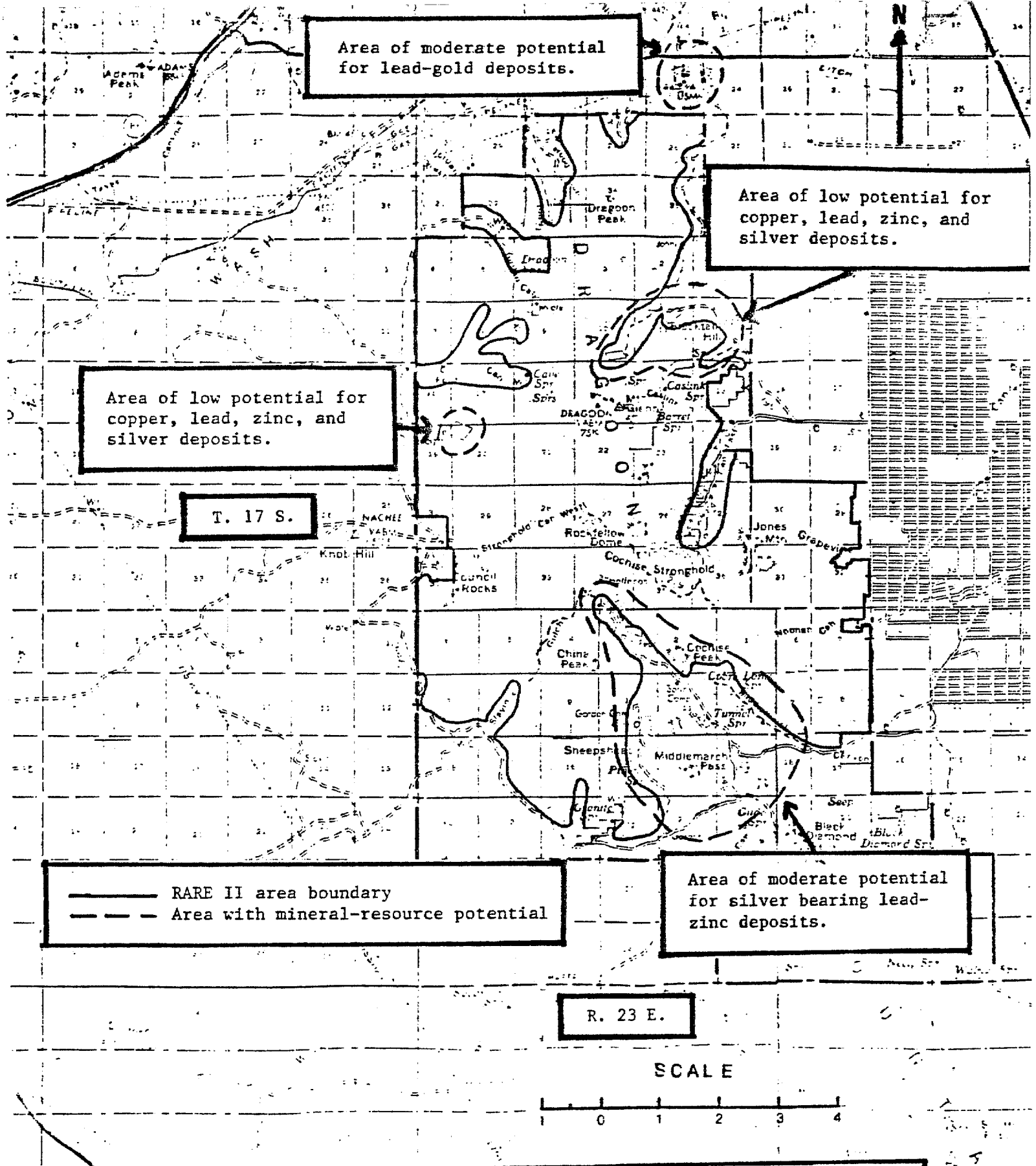

Figure 2.-Map of the Dragoon mountains RARE II Further Planning Area showing a preliminary determination of the mineral-resource potential.

ASSESSMENT OF MINERAL-RESOURCE POTENTIAL

Silver values in 16 of 128 samples from in or near the RARE II area ranged from 1.5 to 5.0 oz/ton; the other samples were in the 0.2 to 0.6-oz/ton range. Some samples, most notably those from the San Juan mine, the Pittsburg-Manhattan area, and the Hubbard mine, had anomalous zinc concentrations, ranging from 3 to 30 percent.

The RARE II area and its immediate environs have a low potential for large low-grade deposits of base metals, the type for which southern Arizona is famous. Because known ore deposits in the Dragoon Mountains, whether in or near the RARE II area, are small pyrometasomatic replacement bodies in limestone near the contact with the granite or rhyolite dikes, finding any large commercial deposits in the area is unlikely. The southeast part of the RARE II area has a moderate potential for small deposits of medium-to high-grade zinc with accessory lead, copper and silver.

Figure 2 shows the preliminary determination of the mineral-resource potential based on work by the U.S. Bureau of Mines.

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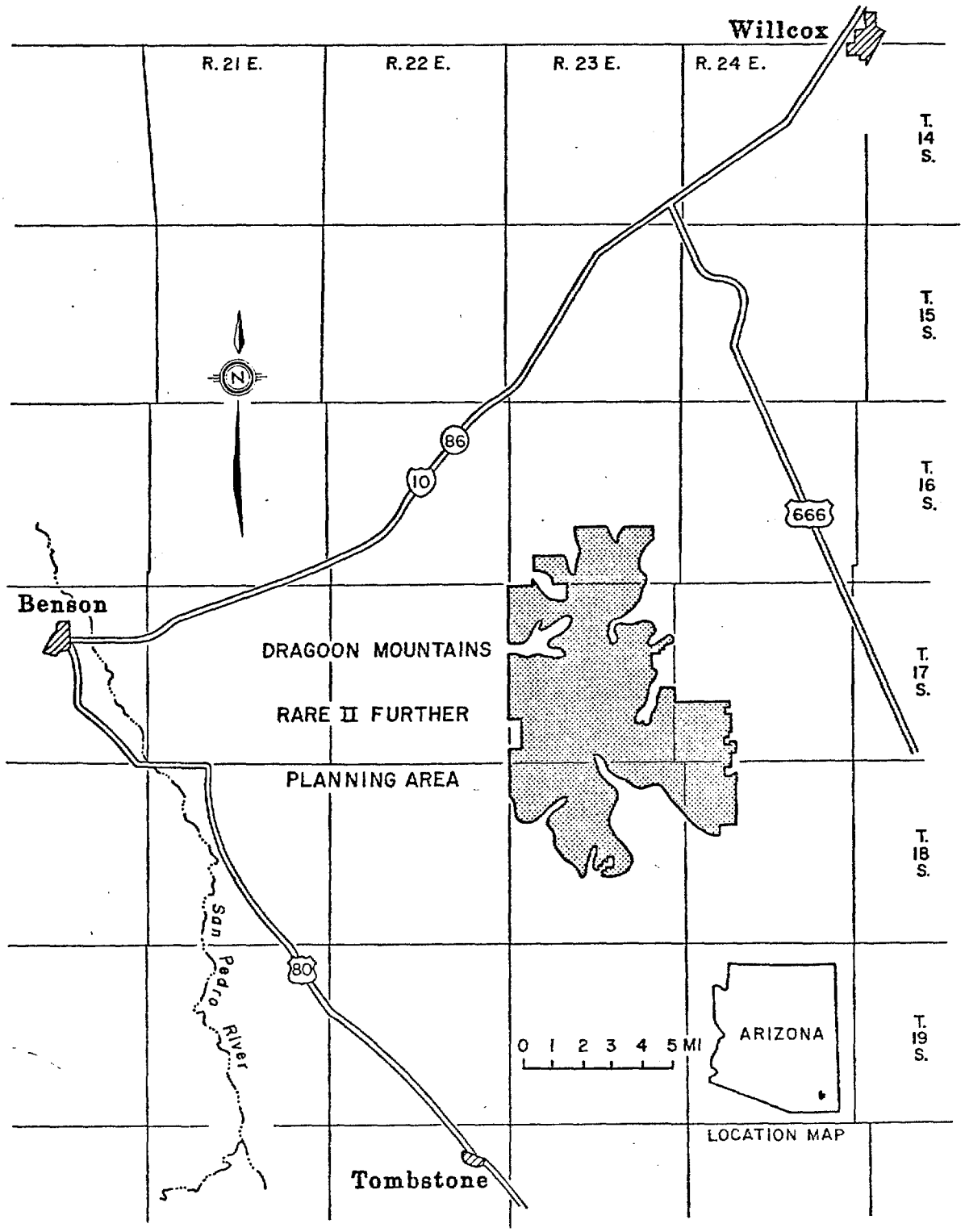

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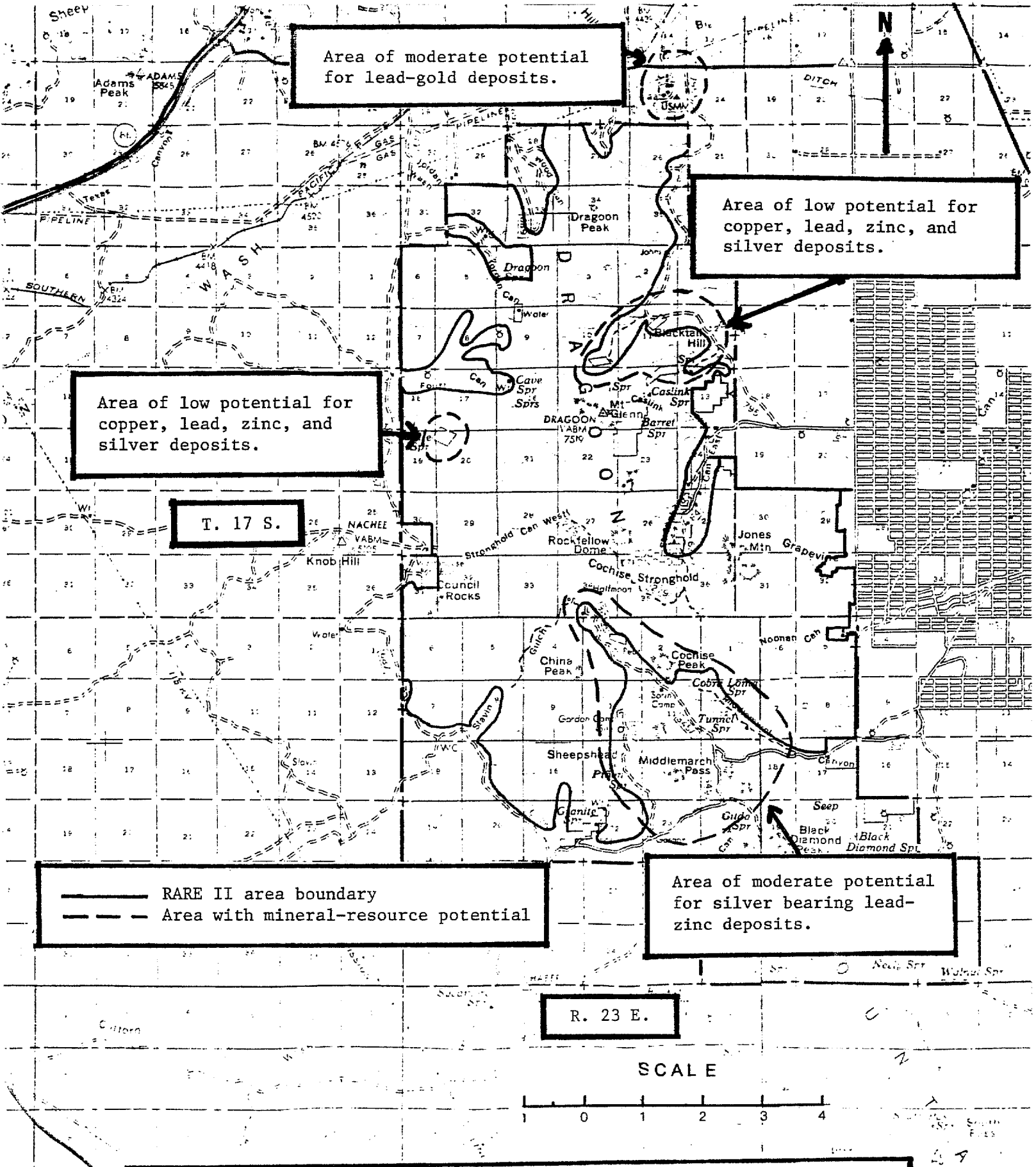

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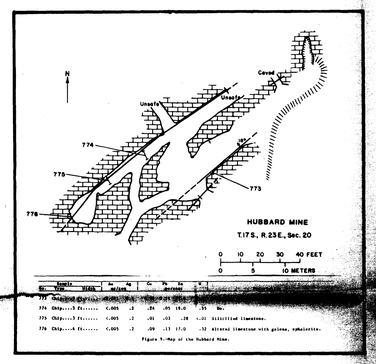
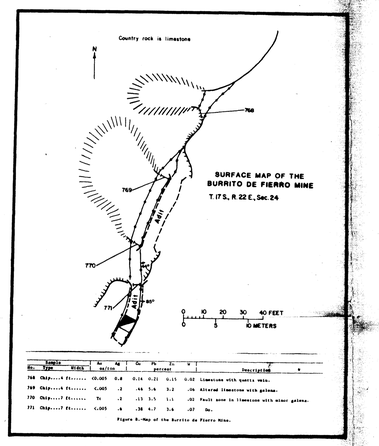
PLATE 1



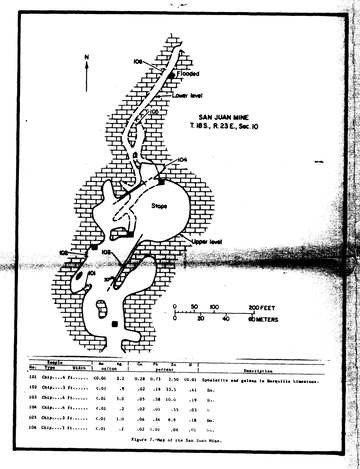
Sample No.	Type	Width	Au oz/ton	Ag oz/ton	Cu percent	Pb percent	Zn percent	V	Description
773	Chip	4 ft.	<0.01	0.4	<0.01	0.10	0.06	<0.01	Limestone with quartz veins.
774	Chip	3.5 ft.	<.005	.2	.04	.05	19.0	.35	Do.
775	Chip	3 ft.	<.005	.2	.01	.03	.28	<.01	Silicified limestone.
776	Chip	4 ft.	<.005	.2	.09	.13	17.0	.32	Altered limestone with galena, sphalerite.

Figure 9.-Map of the Hubbard Mine.



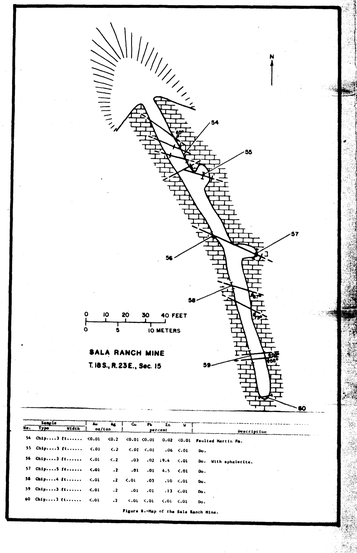
Sample No.	Type	Width	Au oz/ton	Ag oz/ton	Cu percent	Pb percent	Zn percent	V	Description
768	Chip	4 ft.	<0.005	0.8	0.14	0.21	0.15	0.02	Limestone with quartz veins.
769	Chip	4 ft.	<.005	.2	.44	5.4	3.2	.04	Altered limestone with galena.
770	Chip	3 ft.	Tr	.2	.13	3.5	1.1	.02	Fault zone in limestone with minor galena.
771	Chip	7 ft.	<.005	.4	.38	4.7	3.4	.07	Do.

Figure 8.-Map of the Burrito de Fierro Mine.



Sample No.	Type	Width	Au oz/ton	Ag oz/ton	Cu percent	Pb percent	Zn percent	V	Description
101	Chip	4 ft.	<0.01	2.2	0.28	0.73	3.50	<0.01	Sphalerite and galena in Bermudite limestone.
102	Chip	3 ft.	<.01	.9	.02	.19	33.5	.41	Do.
103	Chip	4 ft.	<.01	5.0	.05	.58	10.0	.19	Do.
104	Chip	4 ft.	<.01	.2	.02	.01	.15	.03	Do.
105	Chip	3 ft.	<.01	1.0	.06	.24	8.9	.18	Do.
106	Chip	3 ft.	<.01	.2	.02	<.01	.09	.01	Do.

Figure 7.-Map of the San Juan Mine.

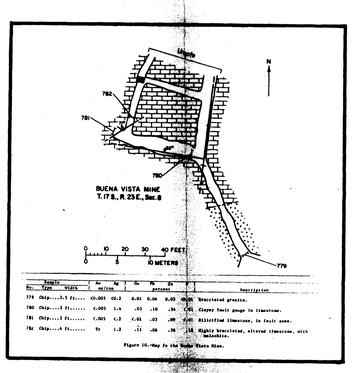


Sample No.	Type	Width	Au oz/ton	Ag oz/ton	Cu percent	Pb percent	Zn percent	V	Description
54	Chip	3 ft.	<0.01	<0.2	<0.01	<0.01	0.02	<0.01	Faulted Martin Fm.
55	Chip	3 ft.	<.01	<.2	<.01	<.01	.06	<.01	Do.
56	Chip	3 ft.	<.01	<.2	.03	.02	9.4	<.01	Do. With sphalerite.
57	Chip	5 ft.	<.01	.2	.01	.01	4.5	<.01	Do.
58	Chip	4 ft.	<.01	.2	<.01	.03	.10	<.01	Do.
59	Chip	3 ft.	<.01	.2	.01	.01	.13	<.01	Do.
60	Chip	3 ft.	<.01	.2	<.01	<.01	<.01	<.01	Do.

Figure 6.-Map of the Bala Ranch Mine.

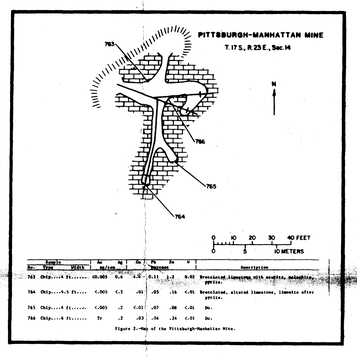
EXPLANATION FOR FIGURES

ABRIGO FORMATION
DIABASE
RHYOLITE
STRONGHOLD GRANITE
FAULT--Showing dip; dashed where approximate
FAULT--Vertical; dashed where approximate
VEIN
CONTACT--Located approximately
LOCALITY OF HORIZONTAL SAMPLE--Showing sample number and interval sampled
LOCALITY OF VERTICAL SAMPLE--Showing sample number
DUMP
SURFACE OPENINGS
Shaft
Flooded shaft
Portal
Caved portal
Portal of adit, with open cut
Open cut
UNDERGROUND OPENINGS
Underground workings--Inferred extent
Raise--Bottom of underground
Vertical raise--Top of underground
Winze



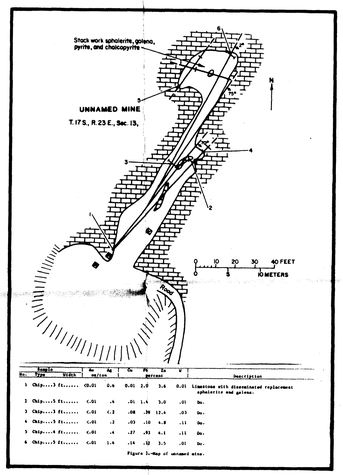
Sample No.	Type	Width	Au oz/ton	Ag oz/ton	Cu percent	Pb percent	Zn percent	V	Description
779	Chip	3.5 ft.	<0.005	<0.2	0.01	0.04	0.03	<0.01	Brecciated granite.
780	Chip	3 ft.	<.005	1.4	.03	.10	.34	<.01	Clayey fault gouge in limestone.
781	Chip	3 ft.	<.005	<.2	<.01	.03	.08	<.01	Silicified limestone, in fault zone.
782	Chip	4 ft.	Tr	1.2	.11	.06	.36	.01	Highly brecciated, altered limestone, with malachite.

Figure 10.-Map fo the Buena Vista Mine.



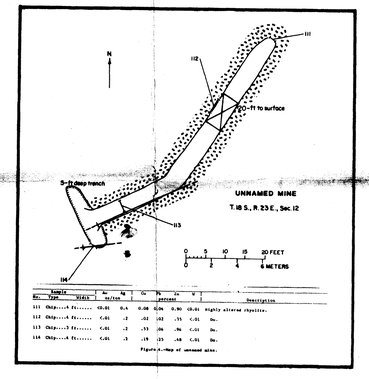
Sample No.	Type	Width	Au oz/ton	Ag oz/ton	Cu percent	Pb percent	Zn percent	V	Description
763	Chip	4 ft.	<0.005	0.4	<.01	0.11	1.0	0.02	Brecciated limestone with malachite, malachite, pyrite.
764	Chip	5.5 ft.	<.005	<.2	.01	.05	.15	<.01	Brecciated, altered limestone, limonite after pyrite.
765	Chip	4 ft.	<.005	.2	<.01	.07	.06	<.01	Do.
766	Chip	5 ft.	Tr	.2	.03	.06	.24	<.01	Do.

Figure 2.-Map of the Pittsburgh-Manhattan Mine.



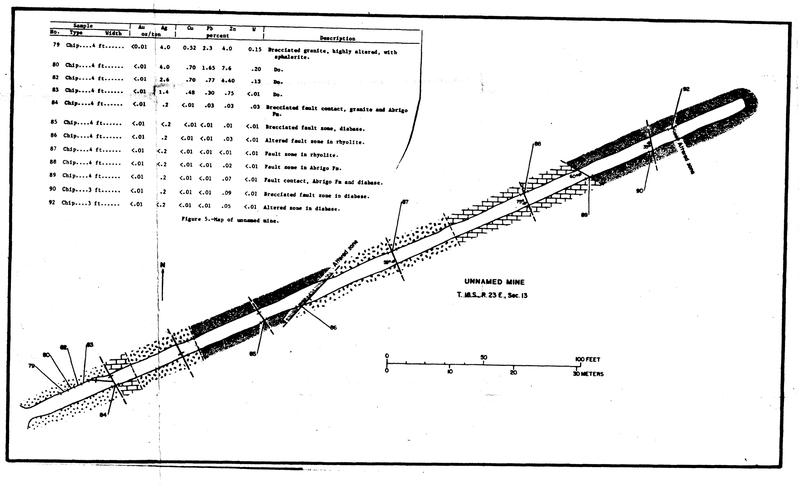
Sample No.	Type	Width	Au oz/ton	Ag oz/ton	Cu percent	Pb percent	Zn percent	V	Description
1	Chip	5 ft.	<0.01	0.4	0.01	2.0	3.4	0.01	Limestone with disseminated replacement sphalerite and galena.
2	Chip	5 ft.	<.01	.4	.01	1.4	3.0	.01	Do.
3	Chip	5 ft.	<.01	<.2	.08	.38	13.4	.01	Do.
4	Chip	4 ft.	<.01	.2	.03	.10	4.8	.11	Do.
5	Chip	4 ft.	<.01	.4	.27	.92	4.1	.11	Do.
6	Chip	5 ft.	<.01	1.4	.14	.32	3.3	.01	Do.

Figure 3.-Map of unnamed mine.



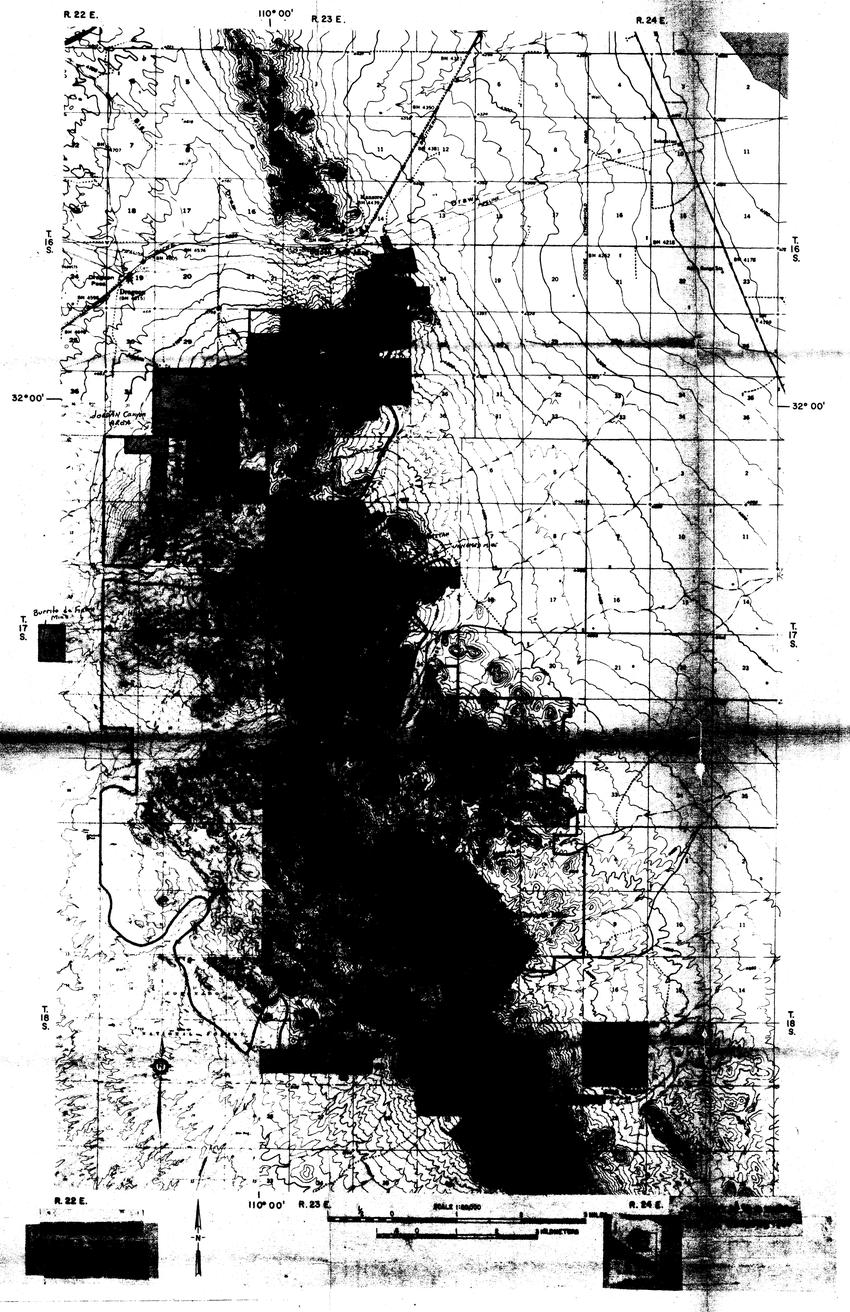
Sample No.	Type	Width	Au oz/ton	Ag oz/ton	Cu percent	Pb percent	Zn percent	V	Description
111	Chip	4 ft.	<0.01	0.4	0.08	0.04	0.90	<0.01	Slight altered rhyolite.
112	Chip	4 ft.	<.01	.2	.02	.02	.55	<.01	Do.
113	Chip	3 ft.	<.01	.2	.13	.04	.84	<.01	Do.
114	Chip	4 ft.	<.01	.3	.19	.15	.48	<.01	Do.

Figure 4.-Map of unnamed mine.



Sample No.	Type	Width	Au oz/ton	Ag oz/ton	Cu percent	Pb percent	Zn percent	V	Description
79	Chip	4 ft.	<0.01	4.0	0.52	2.3	4.0	0.15	Brecciated granite, highly altered, with sphalerite.
80	Chip	4 ft.	<.01	4.0	.70	1.45	7.6	.20	Do.
82	Chip	4 ft.	<.01	2.6	.70	.77	4.40	.13	Do.
83	Chip	4 ft.	<.01	1.4	.48	.30	.75	<.01	Do.
84	Chip	4 ft.	<.01	.2	<.01	.03	.03	.03	Brecciated fault contact, granite and Abrigo Fm.
85	Chip	4 ft.	<.01	<.2	<.01	<.01	.01	<.01	Brecciated fault zone, diabase.
86	Chip	4 ft.	<.01	.2	<.01	<.01	.03	<.01	Altered fault zone in rhyolite.
87	Chip	4 ft.	<.01	<.2	<.01	<.01	<.01	<.01	Fault zone in rhyolite.
88	Chip	4 ft.	<.01	<.2	<.01	<.01	.02	<.01	Fault zone in Abrigo Fm.
89	Chip	4 ft.	<.01	.2	<.01	<.01	.07	<.01	Fault contact, Abrigo Fm and diabase.
90	Chip	3 ft.	<.01	.2	<.01	<.01	.09	<.01	Brecciated fault zone in diabase.
92	Chip	3 ft.	<.01	<.2	<.01	<.01	.05	<.01	Altered zone in diabase.

Figure 5.-Map of unnamed mine.



MINE AND PROSPECT MAP OF THE DRAGOON MOUNTAINS ROADLESS AREA, COCHISE COUNTY, ARIZONA

By

Terry J. Kreidler, U. S. Bureau of Mines

1981

Table 1.--Mineral Deposits of the Dragoon Mountains Roadless Area

[Numbers correspond to sample location shown on map. Workings labeled inactive have had no exploration or development work since 1978]

Map No.	Prospect Name	Location	Commodity	Type deposit	Development category	Brief description	References
1-6	None	NW1/4 sec. 13, T. 17 S., R. 23 E.	Pb, Zn, Ag	Replacement	Mine; inactive.	Lead and zinc sulfide replacement in faulted area of Abrigo Formation.	None.
9-11, 24-32	None	Sec. 27, 33, 34, T. 16 S., R. 23 E.	Marble	None----------	Quarries; inactive.	Fractured and folded white and colored marble.	Keith, 1973.
16-23	None	Sec. 23-26, T. 16 S., R. 23 E.	None known	None----------	Prospect pits and shafts; inactive.	Various prospect areas near Golden Rule Mine, most in Abrigo Formation or at contact with igneous rock.	None.
33-43	Jordan Canyon Prospects.	S1/2 sec. 32, T. 16 S., R. 23 E; N1/2 sec. 5, T. 17 S., R. 23 E.	Possible Cu, Pb, Zn.	Vein and replacement.	Prospect pits and shafts; inactive.	Precambrian igneous and metamorphic rocks, and Paleozoic limestone with pyrite, chalcopyrite and secondary copper staining.	None.
44-48	Jordan Canyon Adit.	N1/2 sec. 5, T. 17 S., R. 23 E.	Possible Cu, Pb, Zn.	Vein and replacement.	Mine; inactive.	Highly faulted marble with areas of brecciation; minor chalcopyrite mineralization; entire adit not accessible.	None.
49-53	Sala Ranch Pr.	NW1/4 sec. 15, T. 18 S., R. 23 E.	Possible Cu, Pb, Zn.	Vein	Mine; inactive.	Coarse grained granite with some marble on dump (seen in adit) minor oxidization. No mineralization seen.	None.
54-60	Sala Ranch Pr.	SE1/4 sec. 15, T. 18 S., R. 23 E.	Possible Cu, Pb, Zn.	Vein	Mine; inactive.	Silicified Abrigo Formation in completely faulted area. Minor oxidization.	None.
61-62, 65-70	Golden Rule Mine; Golden Rule Adit; Golden Rule Pr.	S1/2 sec. 12, N1/2 sec. 13, T. 18 S., R. 23 E.	Possible Ag, Cu, Pb, Zn.	Vein and replacement.	Prospect pits and shafts; inactive.	Limestone and granite in fault zone. Some alteration of limestone. Secondary copper minerals in fault zones.	None.
71-78	[illegible]	[illegible]	Cu, Pb, Ag.	Vein and replacement.	Shafts, pits, trenches; inactive.	Faulted limestones and quartzite near contact with Stronghold Granite. Sparse mineralization schmidite with minor barite replacement pods and veins.	Keith, et. al., 1980. Blount, et. al., 1980.
8, 73	Seneca	SE1/4 sec. 10, T. 17 S., R. 23 E.	Ag, Pb, Ag, Cu.	Vein and replacement.	Mine; inactive.	Faulted limestone cut by barite also, adit caved.	Keith, 1973. Wilson, 1951.
79-92	None	NW1/4 sec. 13, T. 18 S., R. 23 E.	Pb, Zn, Ag, Cu.	Vein	Mine; inactive.	Granite, limestone, rhyolite and barite in fault zone barite. Mineralization in brecciated zones. Galena, sphalerite.	None.
97-98	Sunset Mine.	NE1/4 sec. 14, T. 17 S., R. 23 E.	Possible Pb, Zn, Ag, Cu.	Replacement	Mine; inactive.	Altered, faulted limestone with secondary copper minerals and minor azurite.	None.
101-107	San Juan Mine.	Sec. 10, T. 18 S., R. 23 E.	Zn, Pb, Ag, W, Cu.	Replacement	Mine; inactive.	Irregular replacement bodies of sphalerite, minor galena, and scheelite in fault zone. Mineral deposit Abrigo formation surrounded by Stronghold Granite.	Keith, 1973. Wilson, 1951.
111-114	None	NE1/4NE1/4 sec. 12, T. 18 S., R. 23 E.	Possible Pb, Zn, Ag, Cu.	None	Mine; inactive.	Highly altered rhyolite with secondary copper minerals abundant at period. Epidote present throughout.	None.
742-747	Pittsburg-Manhattan.	NE1/4 sec. 14, T. 17 S., R. 23 E.	Zn, Pb, Ag, Cu.	Replacement	Mine; inactive.	Highly brecciated limestone with replacement bodies of sphalerite, galena, pyrite, and chalcopyrite. Highly brecciated.	None.
748-771	Burrito de Fierro.	NW1/4 sec. 24, T. 17 S., R. 22 E.	Pb, Zn, Cu, Ag, W.	Replacement	Mine; inactive.	Bedded replacement deposits of base metal sulfides in Abrigo Formation near Stronghold Granite.	Keith, 1973.
772-777	Hubbard Mine.	NW1/4 sec. 20, T. 17 S., R. 23 E.	Zn, Pb, Cu, Ag.	Replacement	Mine; inactive.	Sphalerite with minor galena and chalcopyrite in tabular replacement bodies in faulted limestone of Abrigo Formation with Stronghold Granite.	Keith, 1973. Wilson, 1951.
778-783	Buena Vista.	SE1/4 sec. 8, T. 17 S., R. 23 E.	Pb, Zn, Ag, V.	Replacement	Mine; inactive.	Bedded replacement deposits of lead and zinc mineralization in brecciated Abrigo Formation.	Do.
Workings Not Examined							
Abril Mine.	NW1/4 sec. 34, T. 16 S., R. 23 E.	Zn, Cu, Pb, Mo, Ag.	Replacement	Mine; inactive.	Bedded pyrometasomatic deposits of sphalerite, chalcopyrite, minor galena, molybdenite, with associated garnet and epidote in Martin Group cut by Stronghold Granite and rhyolite dikes.	Do.	
Middle-march Cabin Lode.	Sec. 11, sec. 14, T. 18 S., R. 23 E.	Cu, Zn, Ag, Au.	Vein and replacement.	Mine; active.	Copper, zinc, and minor lead carbonates and sulfides in fault zone cutting rhyolite in Hugh Phillips Member of the Cloudburst Formation and Paleozoic and Cretaceous limestone beds.	Keith, 1973.	
Golden Rule.	Sec. 12, T. 18 S., R. 23 E.	Pb, Zn, Ag, Au.	Vein	Mine; under renovation.	Cerrusite, anglesite, galena, pyrite, oxidized zinc minerals in quartz, calcite and barite veins in Hugh Phillips member of the Cloudburst Formation intruded by rhyolite dikes.	Keith, 1973. Wilson, 1951.	

Table 1.--Sample and assay data for samples not shown in mine figures

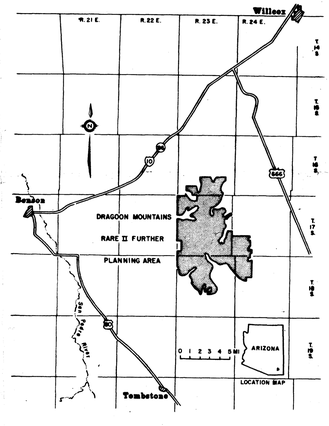
[Gold and silver determined by fire assay; values reported in ounces. Copper, lead, zinc, and tungsten determined by atomic absorption; values reported in percent. Spectrographic analysis; Tr indicates trace. Sample numbers 14, 15, 23, 44, 73, 93 were not used.]

Sample No.	Type	Width	Au oz/ton	Ag oz/ton	Cu percent	Pb percent	Zn percent	V	Description
1	Chip	5 ft.	<0.01	0.4	<0.01	0.10	0.06	<0.01	Limestone-rhyolite contact; prospect pit.
4	Grab		<.01	.8	.24	1.0	.72	.01	Limestone, marble, basalt, rhyolite; adit dump.
9	Chip	5 ft.	<.01	.2	<.01	.01	.04	<.01	Silicified limestone; quarry.
10	Chip	10 ft.	<.01	.2	<.01	.02	.03	<.01	Altered, cherty, limonite stained limestone; quarry.
11	Chip	3 ft.	<.01	.2	.01	.01	<.01	<.01	Clayey, limonite stained limestone; quarry
12	Grab		<.01	.2	<.01	.25	<.01	<.01	Crystalline limestone with limonite stain; prospect pit.
13	Chip	3 ft.	.05	.4	.07	.75	6.5	.12	Faulted clayey, limonite, limonite after pyrite; prospect pit.
16	Grab		<.01	.04	.01	.11	.05	<.01	Altered limestone and diabase, limonite after pyrite; prospect pit.
17	Grab		<.01	.4	.02	.16	.17	<.01	Limestone-granite contact; prospect pit.
18	Chip	3 ft.	<.01	.2	.02	.56	.68	<.01	Faulted limestone; prospect pit.
19	Grab		<.01	.2	<.01	.02	.01	.32	Unaltered limestone; prospect pit.
20	Chip	3 ft.	<.01	.4	.07	.21	19.4	.29	Altered limestone in fault zone; prospect pit.
21	Chip	4 ft.	<.01	.2	<.01	.01	.01	<.01	Limestone breccia in fault zone; adit.
22	Grab		<.01	.4	.01	.01	.48	.18	Limestone with limonite staining; prospect pit
23	Grab		<.01	.2	.01	.02	<.01	<.01	Brecciated limestone; prospect pit.
24	Chip	4 ft.	<.01	.4	.04	.31	.32	<.01	Limestone breccia in fault zone; prospect pit.
25	Grab		<.01	.4	.03	.48	.50	.01	Limestone, quartz and granite; prospect pit.
26	Chip	3 ft.	<.01	.2	.01	.01	.02	<.01	Altered, clayey, faulted limestone; trench.
27	Chip	4 ft.	<.01	.4	<.01	.01	.02	<.01	Do.
28	Chip	5 ft.	<.01	<.2	<.01	.01	.03	<.01	Slight altered, clayey limestone; with pyrite cubes to 1/2 in.; quarry.
29	Chip	5 ft.	<.01	.4	<.01	.01	.04	<.01	Do.
30	Chip	5 ft.	<.01	<.2	<.01	.01	.03	<.01	Do.
31	Select grab		<.01	.2	<.01	<.01	.02	<.01	Gray crystalline limestone; quarry.
32	Chip	3 ft.	<.01	<.2	<.01	.03	<.01	<.01	Dark limestone with altered zone with pyrite; quarry.
33	Chip	5 ft.	<.01	<.2	<.01	.02	<.01	<.01	Gneissic granite; prospect pit.
34	Chip	5 ft.	<.01	<.2	.1	<.01	.01	<.01	Biotite granite cut by quartz veins with malachite; shaft.
35	Grab		<.01	<.2	.05	.01	.04	<.01	Mica schist-granite-diorite contact with pyrite, chalcopyrite; shaft dump.
36	Grab		<.01	.4	.02	<.01	.01	<.01	Do.
37	Grab		<.01	.4	.06	1.40	.18	<.01	Altered basalt with pyrite, galena, sphalerite, shaft talus.
38	Chip	5 ft.	<.01	.2	.03	1.79	3.4	<.01	Do.
39	Grab		<.01	.4	<.01	<.01	<.01	<.01	Faulted, altered granite; shaft dump.
40	Grab		<.01	.4	.04	<.01	.01	<.01	Granite with quartz veins, diabasite, aerolite; shaft dump.
41	Chip	4 ft.	<.01	.4	1.20	<.01	.01	<.01	Granite with malachite, azurite, sphalerite; trench.
42	Chip	5 ft.	<.01	.2	.08	<.01	.05	<.01	Quartz vein in altered granite; prospect pit.
43	Grab		<.01	.2	.14	<.01	.03	<.01	Faulted granite, with malachite, azurite; shaft dump.
44	Chip	5 ft.	<.01	.2	.04	<.01	.01	<.01	Faulted granite with malachite, azurite, pyrite, chalcopyrite, Jordan Canyon Adit.
45	Chip	5 ft.	<.01	.2	.15	<.01	.1	<.01	Do.
46	Chip	4 ft.	<.01	.2	.03	<.01	.04	<.01	Do.
47	Grab		<.01	.2	.17	<.01	.03	<.01	Dump sample, Jordan Canyon Adit.
48	Select grab		<.01	2.2	3.8	<.01	.75	.02	Select grab from core meter at above adit.
49	Chip	5 ft.	<.01	.4	<.01	<.01	.03	<.01	Faulted cataclasized granite, with azurite; Sala Ranch Mine #1.
50	Chip	5 ft.	<.01	.4	<.01	.05	.44	.01	Fractured granite, Sala Ranch Mine #1.
51	Chip	5 ft.	<.01	<.2	<.01	.04	.04	<.01	Biotite zone in faulted granite; Sala Ranch Mine #1.
52	Chip	5 ft.	<.01	.2	<.01	.06	.09	<.01	Faulted granite with azurite; Sala Ranch Mine.
53	Grab		<.01	<.2	.02	<.01	.02	<.01	Granite and marble with malachite; prospect pit.
55	Chip	5 ft.	<.01	.4	.01	.14	.5	<.01	Limestone, minor limonite stain; prospect pit.
62	Chip	5 ft.	<.01	3.7	<.01	1.3	2.8	<.01	Fault, limestone - granite contact; prospect pit.
63	Chip	5 ft.	<.01	.2	.01	.04	.24	<.01	Limestone; prospect pit.
64	Chip	5 ft.	<.01	.2	.05	<.01	<.01	<.01	Limestone; prospect pit.
67	Grab		<.01	<.2	<.01	<.01	<.01	<.01	Limestone - granite contact, shaft dump.
68	Chip	4 ft.	<.01	.2	<.01	.01	.18	<.01	Limestone; prospect pit.
69	Grab		<.01	<.2	.02	<.01	.01	<.01	Limestone with malachite, azurite, shaft dump.
70	Grab		<.01	<.2	.01	<.01	.03	<.01	Do.
71	Grab		<.01	<.2	.11	.01	1.15	<.01	Limestone, marble with malachite, azurite, shaft dump.
72	Grab		<.01	.2	.57	.21	10.5	.27	Limestone and Marble with malachite, azurite, shaft dump.
73	Chip	5 ft.	<.01	5.2	1.35	9.7	1.24	.03	Faulted intermediate volcanic rock, malachite, azurite, galena, caved adit.
74	Grab		<.01	.2	<.01	.04	.07	<.01	Limestone and altered volcanic rock, prospect pit.
76	Chip	4 ft.	<.01	.2	.01	.01	.04	<.01	Weathered, clayey limestone; caved adit.
77	Grab		<.01	<.2	.01	.01	<.2	<.01	Limestone and volcanic rock, shaft dump.
78	Chip	4 ft.	<.01	.4	.24	.01	.15	<.01	Limestone; prospect pit.
94	Grab		<.01	.2	<.01	<.01	.18	<.01	Rhyolite with some limonite staining; prospect pit.
95	Grab		<.01	1.0	1.4	.02	.15	<.01	Probable skarn, with pyrite, chalcopyrite, aerolite; prospect pit.
96	Grab		<.01	.4	<.01	<.01	.09	<.01	Granite from dump of caved adit.
97	Chip	3 ft.	<.01	.2	.37	.03	.03	<.01	Altered fault zone in limestone, with azurite bubbles; manual mine.
98	Chip	3 ft.	<.01	.2	.05	.02	.34	<.01	Do.
99	Grab		<.01	<.2	.01	<.01	.06	<.01	Limestone and felsic volcanic rock, altered zone; prospect pit.
100	Grab		<.01	<.2	.13	<.01	.10	<.01	Granite-diabase contact, minor malachite, aerolite; prospect pit.
107	Grab		<.01	.2	.02	<.01	.20	<.01	Limestone cut by basic dike, with sphalerite-galena; prospect pit.
108	Grab		<.01	<.2	<.01	<.01	.06	<.01	Limestone in shear zone; prospect pit.
109	Grab		<.01	<.2	<.01	<.01	.72	<.01	Limestone; prospect pit.
110	Grab		<.01	2.8	.07	1.47	1.04	<.01	Limestone with limonite staining; prospect pit.
*742	Grab		Tr	1.4	.10	.82	3.2	.05	Brecciated limestone, with pyrite, minor malachite and azurite; prospect pit.
747	Chip	4 ft.	<.005	.08	.14	.21	.15	.02	Limestone with quartz veins; prospect pit.
772	Grab		<.005	.4	<.01	.16	4.5	.08	Rhyolite altered limestone, flooded adit dump.
777	Grab		<.005	.2	.01	.02	.15	<.01	Limestone, with limonite staining, minor azurite; caved adit dump.
778	Grab		<.005	<.2	<.01	.03	.07	<.01	Silicified, limestone; flooded adit dump.
783	Chip	3 ft.	<.005	.8	.01	.10	3.3	.07	Vein in fault zone in silicified limestone, prospect pit.

*Samples 742 - 783 were assayed at a later date with lower detection limits for gold.

STUDIES RELATED TO WILDERNESS

The Wilderness Act (Public Law 88-577, September 3, 1964) and related acts require the U.S. Geological Survey and the U.S. Bureau of Mines to survey certain areas on Federal lands to determine their mineral resource potential. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a mineral survey of mines, prospects, and mineralized areas of the Dragoon Mountains Roadless Area in the Coronado National Forest, Cochise County, Arizona. The Dragoon Mountains Roadless Area was classified as a further planning area during the Second Roadless Area Review and Evaluation (RARE II) by the U.S. Forest Service, January 1979.

EXPLANATION FOR MAP

APPROXIMATE BOUNDARY OF THE DRAGOON MOUNTAINS ROADLESS AREA
PATENTED MINING CLAIMS
UNPATENTED MINING CLAIMS
SURFACE OPENINGS--Showing sample locality number
8 Adit
778 Caved adit
41 Trench
54 Shaft
9 Quarry