DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

OPEN FILE REPORT 84-0629 B
PLATE 1 OF 1

MAP B - COPPER RESOURCE POTENTIAL

MINERAL RESOURCE POTENTIAL OF THE SILVER CITY 1°X2° QUADRANGLE, NEW MEXICO - ARIZONA

By
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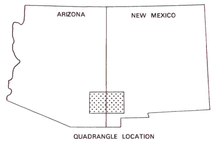
1984

SCALE 1:250 000

5 0 5 10 MILES

5 0 5 10 KILOMETRES



Notes for map B:

Areas of copper potential are outlined. Remainder of the quadrangle, hardrock terranes and basin-fill is low (L) in copper potential, or unassessed (U).

Screened base shows smoothed contacts of the basin and range physiography--hardrock terranes of the ranges; and, alluvium and basin-fill deposits.

For details refer to USGS Open-File Report 83-924.

Areas of overlap have potential in two types of deposits. See table also on this sheet.

STATEMENT

This folio of maps of the Silver City 1° x 2° quadrangle essentially duplicates resource information shown on small-scale maps in Open-File Report 83-924. They are offered here, as a supplement to that report, at scale of 1:250,000 to provide work sheets for better land and resource planning--activities that require more precise locations of resource area boundaries; and, more specific potential estimates and confidence levels with these estimates.

The various commodities generally are dealt with individually, one element to a map sheet. Exceptions are with metals that are virtually everywhere closely associated in nature.

Further insight into geologic and basic resource information can be obtained from published reports and maps listed in the Reference of Open-File Report 83-924. The published and planned sheets of the Silver City CUSMAP Folio are listed along with other resource-focused publications.

Mineral resource potential is defined as the likelihood of the occurrence of mineral deposits in a defined area; it is not a measure of the resources, their size, or their profitability.

High mineral resource potential is assigned to areas where geologic, geochemical, and geophysical characteristics indicate a geologic environment favorable for resource occurrence, where interpretations of data indicate a high degree of likelihood for resource accumulation, where data support occurrence and (or) genetic models indicating presence of resources, and where evidence indicates that mineral concentration has taken place. Assignment of high resource potential requires positive knowledge that resource-forming processes have been active in at least part of the area; it does not require that occurrences or deposits be identified.

Moderate mineral resource potential is assigned to areas where geologic, geochemical, and geophysical characteristics indicate a geologic environment favorable for resource occurrence, where interpretations of data indicate a reasonable chance for resource accumulation, where an application of genetic and (or) occurrence models indicates favorable ground.

Low mineral resource potential is assigned to areas where geologic, geochemical, and geophysical characteristics indicate the existence of resources is unlikely. This level of potential embraces areas with dispersed mineralized rock, as well as areas with few or no indications of mineralization. Use of the low potential category requires specific positive knowledge.

Unknown mineral resource potential is assigned to areas where the level of knowledge is so inadequate that classification of the area as high, moderate, or low would be misleading. The use of the phrase "no mineral resource potential" should be applied only to a specific commodity in a well-defined area. The no classification should not be used if there is the slightest possibility of occurrence; it is not appropriate as the summary rating for any area.

Unassessed potential category, in this region of the Basin/Range province, is used mostly for the basin-filled terranes. These areas can be assessed for potentials in specific commodities by lateral/vertical projection of bedrock geology, development/projection of geologic structure, cataloging and evaluating geophysical information, drilling information, and subsurface chemical data (water/core)--altogether, an involved research procedure, requiring too much time for this phase of the study.

Expressions of the certainty of the mineral resource assessment incorporate an evaluation of (1) the adequacy of the geologic, geochemical, geophysical and resource data base available at the time of the assessment, (2) the adequacy of the occurrence/genetic model used as the basis for a specific evaluation, and (3) an evaluation of the likelihood that the expected mineral endowment of the area is, or could be, economically extractable.

Levels of certainty, as used for assessments, are denoted by letters A-D:

A. - The available data are not adequate for determination of the level of mineral resource potential. Level A is used with an assignment of unknown mineral resource potential.

B. - The available data are adequate to suggest the geologic environment and the level of mineral resource potential, but evidence is insufficient to precisely establish the likelihood of resource occurrence, or occurrence and (or) genetic models are not known well enough for predictive resource assessment purposes.

C. - The available data give a good indication of the geologic environment and the level of mineral resource potential, but additional evidence is needed to precisely establish the likelihood of resource occurrence, the activity of resource-forming processes, or available occurrence and (or) genetic models are minimal for predictive applications.

D. - The available data clearly define the geologic environment and the level of mineral resource potential, and indicate the activity of resource-forming processes. Key evidence for interpretation of the presence or absence of specified types of resources is available, and occurrence and (or) genetic models are adequate for predictive resource assessment purposes.

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

COPPER AREAS

Porphyry Cu (Mo) deposits

Economic signficance - (high) The porphyry copper deposits of the Quadrangle contain about 20 percent of the total identified copper of the U.S. Three deposits are currently being mined.

Other commodities - Au, Ag.

Area of favorability	Criteria: Known deposits	Known favorable geologic environment	Inferred favorable geologic environment	Levels of potential and certainty. See plot.
A-1 Safford type	X			A-1 H/B
A-2		X		A-2 M/C
A-3		X		A-3 M/B
A-4		X		A-4 M/B
A-5			X	A-5 M/B
A-6			X	A-6 O/A
B-7 Tyrone type	X			B-7 H/B
B-8	X			B-8 H/D
B-9		X		B-9 M/C
B-10		X		B-10 M/B
B-11		X		B-11 M/B
B-12			X	B-12 O/A
B-13			X	B-14 M/B

Skarn-associated Cu-Fe-Zn replacement deposits

Economic signficance - (high) Large deposits; one currently being mined.
Other commodities - PB

Area of favorability	Criteria: Known deposits	Known favorable geologic environment	Inferred favorable geologic environment	Levels of potential and certainty. See plot.
C-14	X			C-14 H/C
C-15		X		C-15 H/B
C-16		X		C-16 H/C
C-17		X		C-17 O/A
C-18		X		C-18 M/B
C-19		X		C-19 M/B
C-20			X	C-20 O/A

Cu-Ag-Au (Pb-Zn) vein deposits

Economic significance - (high) Large veins from 1880's to 1970's. Ores in known deposits continue below level of mining.

Area of favorability	Criteria: Known deposits	Known favorable geologic environment	Inferred favorable geologic environment	Levels of potential and certainty. See plot.
D	X		D	M/D

Level of Resource Potential

Level of Certainty → A	B	C	D	
H	O/A Unknown Potential	H/B High Potential	H/C High Potential	H/D High Potential	Favorable
M		M/B Moderate Potential	M/C Moderate Potential	M/D Moderate Potential	
L		L/B Low Potential	L/C Low Potential	L/D Low Potential	Unfavorable
N				N/D No Potential	