

**EXPLANATION**

**Area class boundary**

**AREA CLASS**

(Size in millions of dollars: A, >\$1,000; B, \$1-\$1,000; C, <\$1)

The exploration potential of an area (area class) is judged by the size, type, and number of known deposits. The extent of each area is determined by extrapolating into localities of equivalent host rock without regard for accessibility or present restrictions on land use. The area class of each outlined area is likely to remain fairly stable for several years or decades; it could be raised by new discoveries, but it is unlikely to be lowered since it is based on known deposits and on production records for more than 100 years. Because exploration potential is not necessarily proportional to future discovery ratios, it is only a rough guide to production potential.

**1 - Producing area; continuing exploration**

1A - Large deposits known or probable (none in Needles quadrangle)  
1B - Medium deposits known or probable  
1C - Small deposits known or probable

**2 - Known deposits inactive or depleted; intermittent exploration<sup>1</sup>**

2A - Large deposits known or possible (none in Needles quadrangle)  
2B - Medium deposits known or possible  
2C - Small deposits known or possible

**3 - Favorable geologic setting; mineral potential indicated; exploration probable<sup>2</sup>**

**4 - Favorable geologic setting; little or no indication of mineralization; exploration possible<sup>3</sup>**

**5 - Unfavorable geologic setting; exploration unlikely<sup>3</sup>**

**D - Covered area; bedrock of varied mineral potential; intermittent prospecting; exploration possible<sup>3</sup>**

(2C) - Parentheses: denotes area class of bedrock underneath Quaternary cover.

**MINES AND PROSPECTS**

(To nearest section within a township)

Excludes small deposits of leasable minerals (fuels, salines, phosphates) and geothermal resources. Lands of known value and of prospective value for these resources are classified by the Conservation Division, U.S. Geological Survey and are shown on separate overlays prepared by Conservation Division. Locatable minerals are included on the map and in the accompanying table.

● - Production. Numbered deposits have significant production, reserves, or potential; see table  
○ - No known production. Numbered deposits have significant potential; see table  
△ - Commodity unspecified; see table

<sup>1</sup>No known reserves of ore at current prices. Reserves of lower grade are known and (or) undiscovered ore bodies near depleted deposits are suspected. Periodic re-examination; exploration during times of high prices.

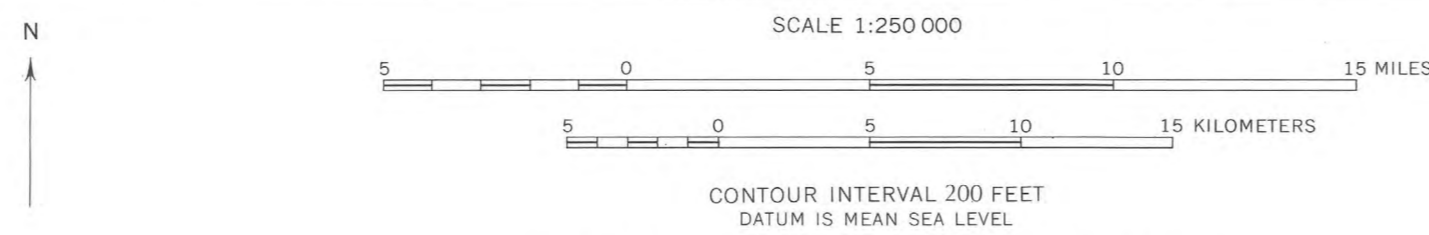
<sup>2</sup>Favorable host rock, undeveloped prospects, and (or) untested geophysical-geochemical anomalies indicate a mineral potential of unknown magnitude. Exploration probable during times of high prices.

<sup>3</sup>Exploration depends upon indications, if any, that may or may not be detected by use of new prospecting concepts, methods, or tools.

<sup>4</sup>The only localities in class 5 are those that have been unsuccessfully explored for commodities in current demand. Since all rock types of all ages are host to valuable mineral deposits somewhere on earth, and since exploration is rarely so exhaustive that all possibilities are eliminated, class 5 localities are rare or absent.

<sup>5</sup>As most of the metalliferous ores were deposited before the valleys were formed, it is possible that the parts of the bedrock formations beneath Quaternary valley fill and volcanic rock contain about the same proportion of ore deposits as the parts exposed in the mountain ranges. Prospecting in areas of relatively thin cover is feasible by geophysical, geochemical, and remote-sensing techniques.

BASE FROM U.S. GEOLOGICAL SURVEY, 1956



COMPILED BY R. M. SMITH, 1978

**MINERAL EXPLORATION POTENTIAL**

**MAPS SHOWING MINERAL LANDS CLASSIFICATION AND MINERAL EXPLORATION POTENTIAL**

**IN THE NEEDLES 1° BY 2° QUADRANGLE, CALIFORNIA AND ARIZONA**

COMPILED BY  
**JAMES P. CALZIA AND ROSCOE M. SMITH**

1978



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