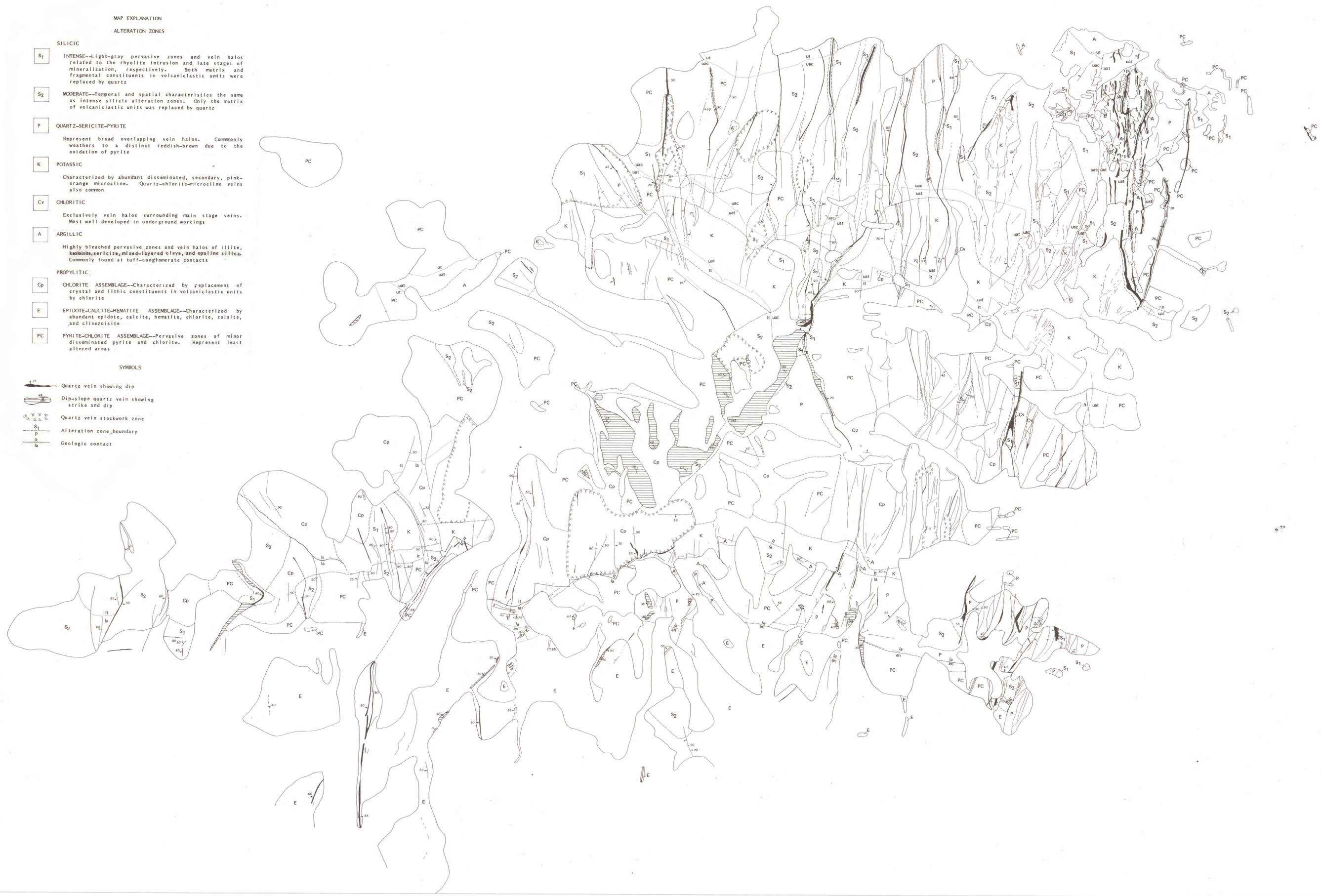


MAP EXPLANATION  
 ALTERATION ZONES

- SILICIC**
- S<sub>1</sub>** INTENSE—Light-gray pervasive zones and vein halos related to the rhyolite intrusion and late stages of mineralization, respectively. Both matrix and fragmental constituents in volcaniclastic units were replaced by quartz.
  - S<sub>2</sub>** MODERATE—Temporal and spatial characteristics the same as intense silicic alteration zones. Only the matrix of volcaniclastic units was replaced by quartz.
- P** QUARTZ-SERICITE-PYRITE  
 Represent broad overlapping vein halos. Commonly weathers to a distinct reddish-brown due to the oxidation of pyrite.
- K** POTASSIC  
 Characterized by abundant disseminated, secondary, pink-orange microcline. Quartz-chlorite-microcline veins also common.
- Cv** CHLORITIC  
 Exclusively vein halos surrounding main stage veins. Most well developed in underground workings.
- A** ARGILLIC  
 Highly bleached pervasive zones and vein halos of illite, kaolinite, sericite, mixed-layered clays, and opaline silica. Commonly found at tuff-conglomerate contacts.
- PROPYLITIC**
- Cp** CHLORITE ASSEMBLAGE—Characterized by replacement of crystal and lithic constituents in volcaniclastic units by chlorite.
  - E** EPIDOTE-CALCITE-HEMATITE ASSEMBLAGE—Characterized by abundant epidote, calcite, hematite, chlorite, zoisite, and clinzoisite.
  - PC** PYRITE-CHLORITE ASSEMBLAGE—Pervasive zones of minor disseminated pyrite and chlorite. Represent least altered areas.

SYMBOLS

- Quartz vein showing dip
- Dip-slope quartz vein showing strike and dip
- Quartz vein stockwork zone
- Alteration zone boundary
- Geologic contact



This report has not been edited or reviewed for conformity with U.S. Geological Survey standards and nomenclature.



**DISTRIBUTION OF QUARTZ VEINS AND HYDROTHERMAL ALTERATION ZONES  
 AT THE MAHD ADH DHAHAB PRECIOUS-METAL DEPOSIT, KINGDOM OF SAUDI ARABIA**

by  
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 1984