

- EXPLANATION**
- ROCK TYPES**
- Qt Qal** QUATERNARY COVER—Unconsolidated talus and alluvium
  - rp rpb** RHYOLITE PORPHYRY INTRUSION—Gray with microcline, quartz, and albite phenocrysts in an aphanitic quartz, orthoclase, and albite groundmass. rpb = rhyolite porphyry breccia
  - ut** UPPER TUFF—Thinly bedded tuffs with intercalated calcareous chert and lapilli tuffs changing laterally along strike to the west to well-indurated, laminated tuffs and massive chert
- UNCONFORMITY**
- UPPER AGGLOMERATE**
- uac** Conglomerate member—Massive, green-gray volcanic conglomerate with fine-grained crystals of quartz, microcline, and albite, and angular to round, pebble to boulder size fragments of laminated tuff, massive chert, jasper, rhyolite, lapilli tuff, and chert pebble conglomerate in a siliceous tuffaceous matrix
  - uat** Tuff member—Massive mafic agglomerate with spherical and ovoid chloritized fragments in a siliceous matrix, overlain by well-bedded crystal-lithic tuffs and lapilli tuffs
- LOWER TUFF**
- lt** Interbedded, felsic ash-fall tuffs, crystal-lithic lapilli tuffs, siltstones, sandstones, and graywackes
  - la** LOWER AGGLOMERATE—Massive green-gray volcanic conglomerate with fine-grained crystals of quartz, orthoclase, and albite, and angular to subround, pebble to cobble size fragments of tuff, andesite, chert, and rhyolite. Changes laterally along strike to the west to well-bedded, microcline crystal tuffs and crystal-lithic lapilli tuffs. lar = area with abundant rhyolite fragments
- UNCONFORMITY**
- an** ANDESITE—Massive and moderately well-bedded andesitic flows, sills, crystal lithic tuffs and lapilli tuffs
- SYMBOLS**
- ut** **uac** GEOLOGIC CONTACT—Dashed where inferred, dotted where covered
  - SD** STRIKE AND DIP OF BEDDING
  - D** **U** FAULT—Showing sense of movement; dashed where inferred, dotted where covered
  - ▲▲▲▲** THRUST FAULT—Dashed where inferred, dotted where covered
  - SHEAR ZONE
  - ↖** **↗** ANTICLINE—Showing direction of plunge; dashed where inferred
  - ↖** **↗** SYNCLINE—Showing direction of plunge; dashed where inferred
  - TRENCH—Quarry, portal
  - \*\*\*\*\*** ANDESITE DIKE
  - A** **A'** LINE OF CROSS SECTION (refer to text)



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



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 KINGDOM OF SAUDI ARABIA**

by  
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