Andesitic and dacitic flows, dikes, and sills (early Miocene)—North of Lake Havasu City. Variably

Thickness as much as 130 m

INTERIOR —GEOLOGICAL SURVEY, RESTON, VA—1999 114°00'

Geology mapped by B.E. John and D.M. Peterson, 1980–81; J.W. Goodge and

L. Hansen, 1981; K.A. Howard, J.E. Nielson (Pike), and J.K. Nakata, 1980–82;

H.G. Wilshire, 1980-83; S.L. Reneau, 1981-82; J.S. Noller, 1985; D.V. Prose,

Edited by C.L. Ostergren and Jan Zigler; cartography by Darlene A. Casebier and

1983; and K.K. Beratan, 1985–86

Manuscript approved for publication, October 1, 1991

altered intermediate lava flows and volcanic breccia capped by silicic plagioclase-bearing welded

tuff. Gently dipping. Potassium-argon numerical ages overlap age of Peach Springs Tuff: basal

pyroxene-plagioclase-biotite latite flow (SiO<sub>2</sub>, 59.5 percent; K<sub>2</sub>O, 11.2 percent—19.9±0.5 Ma

(biotite, table 1, No. 6); capping welded tuff—17.9±0.5 Ma (plagioclase, table 1, No. 5). Uncon-

formably overlies steeper dipping Miocene volcanic rocks (Tfls, Tfla) and Proterozoic rocks.

flow tuff with salmon-pink matrix. Commonly contains adularescent blue sanidine crystals; also

biotite, plagioclase, and hornblende; rarer pyroxene, sphene, and quartz. Rich in large fiamme,

relatively poor in lithic fragments. Black vitrophyre locally present near base. Extensively exposed

in northern Mohave Mountains and Aubrey Hills, where tuff commonly is partly to highly silici-

fied and contains zones of secondary brecciation. Unit dips 30° to 60° southwest. Age of Peach Springs Tuff determined by argon-argon (<sup>40</sup>Ar/<sup>39</sup>Ar) techniques is 18.5±0.2 Ma (Nielson and

others, 1990). Potassium-argon numerical ages on unit are more variable (Glazner and others,

stratified air-fall tuff, interbedded flows and domes, and intrusions of plagioclase biotite±horn-

blende rhyolite. Attitudes highly variable. In area north of Lake Havasu City tuff is commonly sili-

cified and (or) oxidized and invaded by compositionally equivalent domes; underlies unit Tadf. Northeast of Lake Havasu City rocks are silicified and oxidized tuff, partly perlitic rhyolite flows,

Rhyolite tuff, flows, and domes—In Aubrey Hills and east and north of Lake Havasu City. White

1986: table 1 Nos 4 7) Thickness in man area as much as 100 m

Flows, tuff, and sedimentary rocks (early Miocene),—Divided into:

Peach Springs Tuff of Young and Brennan (1974) (early Miocene)—Welded crystal-lithic ash-

TKqp \ Quartz porphyry dikes (Tertiary or Cretaceous)—Near northwest corner of map area. Granodior-

TKI Biotite lamprophyre dikes (Tertiary or Cretaceous)—In northwest corner of map area. Dark

TKg Granite (Tertiary or Cretaceous)—In north-central part of map area (6 km southeast of Boulder

cludes a small intrusion in Standard Wash area (sec. 23, T. 13 N., R. 19 W.)

Kpg Porphyritic granite (Late Cretaceous)—Near center of map area. Small stock of medium-grained

and plagioclase. Cuts biotite granodiorite unit (Kbg). Dikes trend northeast

probably a minimum age

ite porphyry having phenocrysts of sphene, hornblende, biotite, alkali feldspar, prominent quartz,

northeast-trending dikes, having chilled margins against biotite granodiorite unit (Kbg). Biotite

phenocrysts conspicuous. Also contains plagioclase phenocrysts and groundmass alkali feldspar

Mine, in and near sec. 20, T. 15 N., R. 19 W.). Light-gray sphene-bearing hornblende-biotite

monzogranite (fig. 5). Color index 5-8 percent. Locally granophyric. Forms a small pluton and

satellitic dikes. Resembles in outcrop biotite granodiorite unit (Kbg). Intrudes and is closely associ-

ated with diorite (TKd). Angular xenoliths in intrusion breccia are pictured in figure 10 of Howard and others (1982a). Potassium-argon numerical biotite age of 18.1±0.5 Ma (table 1, No. 26) is

Diorite (Tertiary or Cretaceous)—In north-central part of map area (6 km southeast of Boulder

Mine, in T. 15 N., R. 19 W.). Hornblende diorite. Ranges to quartz monzodiorite and grano

ite. Contains small amounts of biotite and clinopyroxene. Texture and grain size vary widely.

Cuts ophitic diabase dikes (Yd) and Proterozoic gneiss; cut by granite (TKg). Potassium-argon nu-

merical age on hornblende (32 Ma; table 1, No. 27) is of uncertain significance. Unit also in-

muscovite-biotite monzogranite to granodiorite intrudes Proterozoic gneiss. Coarse-grained alkali-

GEOLOGIC MAP OF THE MOHAVE MOUNTAINS AREA, MOHAVE COUNTY, WESTERN ARIZONA K.A. Howard, J.E. Nielson, H.G. Wilshire, J.K. Nakata, J.W. Goodge, S.L. Reneau, B.E. John, and V.L. Hansen

CONTOUR INTERVAL 20 AND 40 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 192

Base from U. S. Geological Survey, 1;24,000: Standard Wash, 1959; Buck

Havasu City North, 1970; Lake Havasu City South, 1975; 1:62,500: Parker

Mts., Buck Mts. NE, Buck Mts. SE, Crossman Peak, Franconia, Lake

Any use of trade, product, or firm names in this publication is for descriptive

 $\triangle$  3 **Locality of dated sample(s)**—Listed in table 1

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