DIVISION OF MINES AND GEOLOGY
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THE RESOURCES AGENCY – DOUGLAS P. WHEELER, SECRETARY FOR RESOURCES
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Geology compiled 1981-1985

Graphics by BRUCE EDWARD FOGGY

ABBREVIATED EXPLANATION

Approximate stratigraphic relationships only; see Geologic Map Explanation for more accurate age determinations and unit descriptions.

CENOZOIC — QUATERNARY — Holocene

- Q — Alluvium
- af — Artificial fill
- Qi — Intertidal deposits *(Peaty mud)*
- Qdp — Dos Palos Alluvium
- Qf — Alluvial fan deposits
- Qls — Landslide deposits
- Qt — Terrace deposits
- Qsl — San Luis Ranch Alluvium
- t — Dredge or mine tailings
- Qs — Dune sand
- Qp — Patterson Alluvium

Pleistocene

- Qc — Continental and marine deposits
- Qmr — Modesto-Riverbank Formations Undivided *(Arkosic alluvium)*
  - Qm — Modesto Formation
  - Qr — Riverbank Formation
- Qo — Older alluvium
- Qtl — Turlock Lake Formation *(Nonmarine sand, silt, and gravel)*
- QTt — Tulare Formation *(Alluvium)*
- QTm — Merced Formation *(Marine sandstone)*
- QT — Plio-Pleistocene nonmarine deposits *(Sand and gravel)*
- Qlb — Los Banos Alluvium
- QTnm — North Merced Gravel *(Thin pediment veneer)*

TERTIARY — Pliocene

- Pl — Laguna Formation *(Consolidated alluvium)*
- Pt — Tehama Formation *(Sand, silt, and volcaniclastic rocks)*
- Ppu — Purisima Formation *(Marine sandstone and siltstone)*
- Pta — Tassajara Formation *(Nonmarine mudstone)*
- Pcv — Basaltic rocks
- Plt — Lawlor Tuff

Miocene / Oligocene

- Msc — Santa Cruz Mudstone *(Marine)*
- Msm — Santa Margarita Sandstone *(Marine)*
- Msp — San Pablo Group *(Marine sandstone)*
- Mmy — Monterey Formation *(Marine shale and sandstone)*
- Mlo — Lompico Sandstone *(Marine)*
- Mls — Lambert Shale *(Marine)*
- Mte — Temblor Formation *(Marine sandstone)*
- Tm — Mehrten Formation *(Andesitic conglomerate)*
- Tvs — Valley Springs Formation *(Rhyolitic tuff and sedimentary rocks)*
- ϕvq — Vaqueros Sandstone *(Marine)*
- Mcc — Contra Costa Group *(Nonmarine sedimentary rocks)*
- Mf — Fanglomerate
- Tu — Undivided Tertiary marine sedimentary rocks
- ϕk — Kirker Formation *(Marine tuffaceous sandstone)*
- Mpt — Pinole Tuff
- Mv^b — Bald Peak Basalt
- Mpm — Page Mill Basalt
- Mv — Miocene volcanic rocks *(Mv^a-andesite; Mv^b-basalt)*
- Mv^d — Dacite
- Mmb — Mindego Basalt
- Mtm — Table Mountain Latite
- Tv — Tertiary Volcanic; Tv^b Tertiary Basalt

Eocene / Oligocene

- Eϕs — San Lorenzo Formation *(Marine mudstone)*
- Epf — Poverty Flat Sandstone *(Marine and nonmarine)*
- Ek — Kreyenhagen Formation *(Marine sandstone and shale)*
- Eb — Butano Sandstone *(Marine)*
- Ed — Domengine Sandstone *(Marine)*
- Em — Meganos Formation *(Marine sandstone)*
- Eum — Unnamed Eocene marine rocks
- Emk — Markley Sandstone *(Marine)*
- En — Nortonville Shale *(Marine)*
- Ei — Ione Formation *(Quartzose sandstone and kaolinitic clay; mostly nonmarine)*
- Tg — "Auriferous" Gravels

Paleocene

- PEt — Tesla Formation *(Marine quartzose sandstone)*
- Pl — Locatelli Formation *(Marine sandstone and conglomerate)*
- Ppr — Pt. Reyes Formation *(Marine conglomerate and sandstone)*
- Pmz — Martinez Formation *(Marine sandstone)*

MESOZOIC — CRETACEOUS / JURASSIC

- TKu — Tertiary-Cretaceous marine sedimentary rocks
- Kpp — Pigeon Point Formation *(Marine sandstone and conglomerate)*
- Kc — Chico Formation *(Marine sandstone, shale, and conglomerate)*
- Km — Moreno Formation *(Marine shale)*
- Ku — Upper Cretaceous marine sedimentary rocks
  - Kuss — Sandstone
  - Kush — Shale
- Kv — Cretaceous volcanic rock
- Kp / Kb — Kb Berryessa Formation *(Marine sandstone and shale)*; Kp Panoche Formation *(Marine sandstone and shale)*
- Kl — Lower Cretaceous marine sandstone and shale
- KJu — Upper Jurassic-Lower Cretaceous marine sandstone and shale
- KJf — Franciscan Complex*
  - gs — greenstone
  - ss — sandstone, shale, conglomerate
  - mg — metagraywacke
  - ls — limestone
  - ch — chert
  - um — serpentinized ultramafic rock
  - ♦ blueschist blocks
- Kgr — Cretaceous granitic rocks
- Kqd — Cretaceous quartz diorite
- Mzg — Granitic rocks
- Mzd — Dioritic rocks
- Mzgb — Gabbroic rocks
- um — Ultramafic rocks

Coast Range Ophiolite

- Mzv — Rhyolite of uncertain age
- Jlc — Lotta Creek Tuff
- Jv — Volcanic rocks, mainly basalt
- Jgd — Gabbro and diabase
- um — Ultramafic rocks

JURASSIC / PALEOZOIC

- Jm — Mariposa Formation *(Slate, graywacke, and conglomerate; marine)*
- Jjp — Jasper Point Formation *(Chert, tuff, pillow basalt; marine)*
- ms — Metasedimentary rocks*
- ls — Crystalline limestone and dolomite*
- Pzcc — Calaveras Complex *(Metasedimentary rocks)*
- Pzsf — Shoo Fly Complex *(Metasedimentary rocks)*
- Jsm — Salt Springs and Merced Falls Slates
- Jms — Jurassic(?) metasedimentary rocks
- PzMz — Metamorphic rocks of uncertain age
- gb — Gabbro*
- Jch — Copper Hill Volcanics
- Jlr — Logtown Ridge Volcanics
- Jgo — Gopher Ridge Volcanics
- Jpb — Penon Blanco Volcanics
- Jmv — Jurassic metavolcanic rocks
- mv — Metavolcanic rocks*

* Horizontal line pattern denotes melange terrane

MAP SYMBOLS

Contact
(Observed or dashed where approximately located; queried where gradational or inferred.)

Overturned fold
(Dashed where inferred; dotted where concealed by younger rocks.)

Fault

Blueschist blocks

EXPLANATION

method** — mineral***

1-KA 82.0 (B) ●

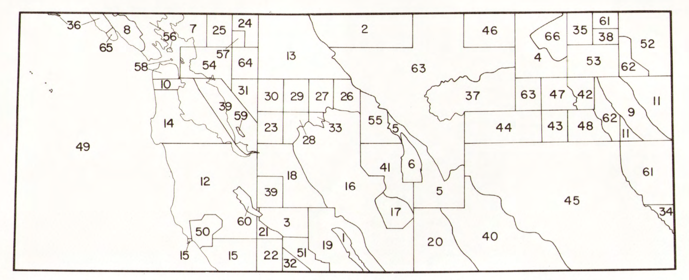
location no.* — age (m.y.) — Sample location

*See accompanying tables in separate pamphlet.

**method
KA = Potassium/Argon;
FT = Fission-track;
UPb = Uranium/Lead;

***mineral or material
A = Amphibole; B = Biotite;
G = Glaucophane and other blue amphiboles;
H = Hornblende; M = Muscovite; Pl = Plagioclase;
Px = Pyroxene; S = Sanidine; Sp = Sphene;
WR = Whole rock; Z = Zircon

ABBREVIATED INDEX TO GEOLOGIC SOURCE DATA
(Cómplete Index on Sheet 3)



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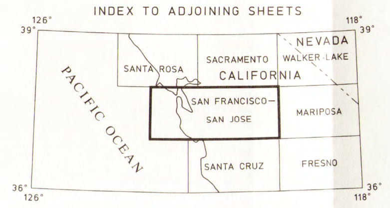
BASE MAP

Base map is a composite of part of the San Francisco 1:250,000 scale map (reference code 37122-A1-TF-250-00; 1980) and the San Jose 1:250,000 scale map (reference code 37120-A1-TF-250-00; 1969). For cartographic details, refer to these maps. Bathymetric information is not intended for navigational purposes.

Transverse Mercator Projection. 10,000-meter Universal Transverse Mercator grid, zone 10.

Minor corrections and additions to culture by California Division of Mines and Geology 1987.

INDEX TO ADJOINING SHEETS



Scale 1:250,000

5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometres
5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS
TRANSVERSE MERCATOR PROJECTION

LOCATION MAP OF ROCK SAMPLES DATED RADIOMETRICALLY, SAN FRANCISCO-SAN JOSE QUADRANGLE, CALIFORNIA, 1:250,000

Compilation by T. A. Lindquist, J. D. Morgenthaler, and E. J. Bortugno

Published 1991