

U. S. DEPARTMENT OF THE INTERIOR

U. S. GEOLOGICAL SURVEY

**Preliminary geologic map of the Beverly Hills 7.5' quadrangle
Southern California**

Compiled by

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This report is preliminary and has not been reviewed for conformity with U. S. Geological Survey editorial standards or the North American Stratigraphic Code. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U. S. Government.

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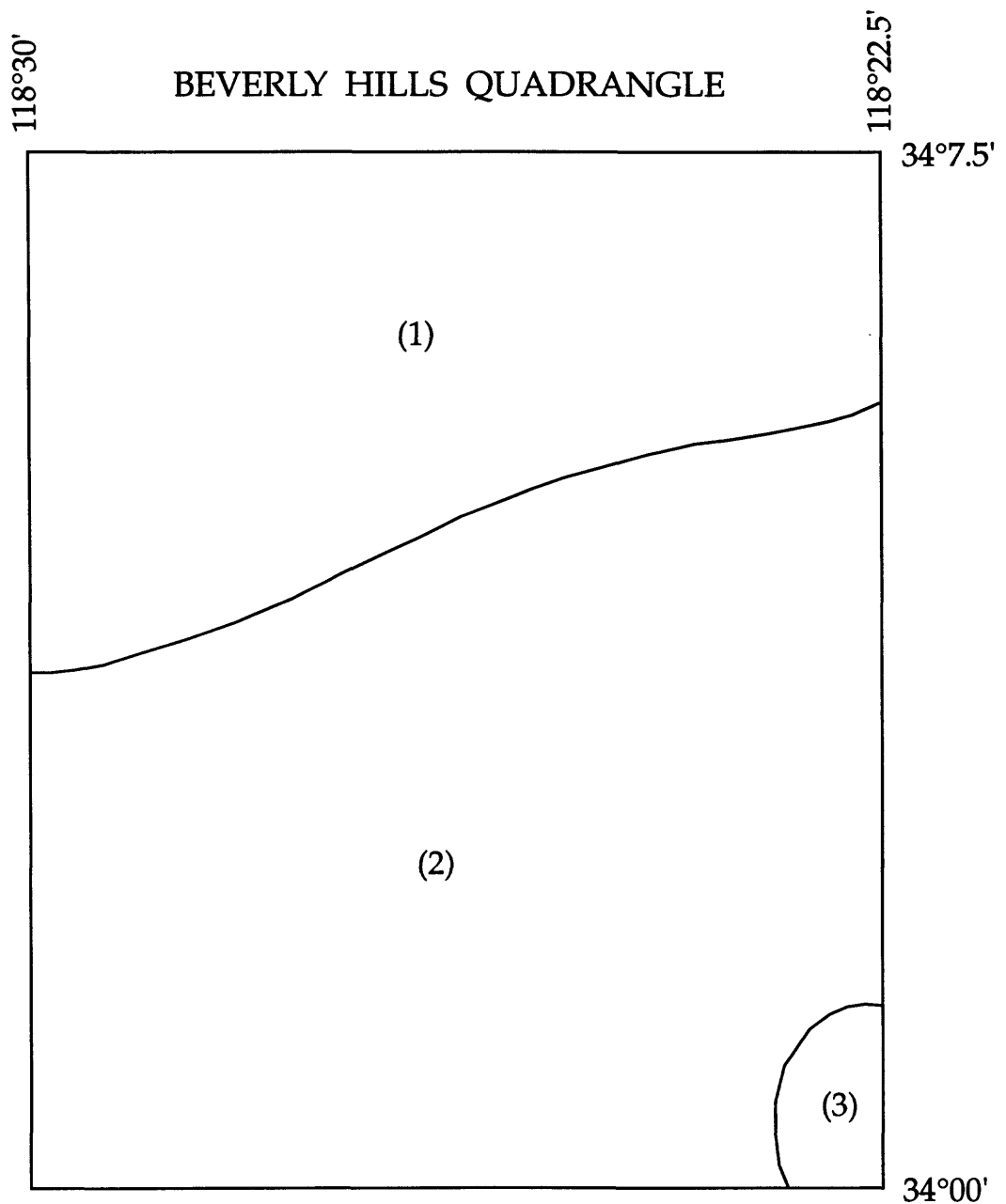
INTRODUCTION

This map is a preliminary product of the Southern California Digital 1:100, 000 Geologic Map Series (Southern California Areal Mapping Project-SCAMP; Morton and Kennedy, 1989). The 1:24,000 manuscript for this map was compiled from original sources, chiefly at 1:24,000, and scanned and processed digitally using the U. S. Geological Survey Alacarte menu-driven interface (Wentworth and Fitzgibbon, 1991) for ARC/INFO, a commercial geographic information system (GIS) available from Environmental Systems Research Institute, Redlands, California.

This 1:24,000 quadrangle is one of sixteen that form the east half of the Los Angeles 1:100,000 quadrangle; the 1:24,000 quadrangles form the basic data supporting the regional-scale quadrangle, and thus include available data on exploratory oil wells and fossil collections.

Stratigraphic nomenclature is largely that of the source materials; it is subject to further modification as compilation progresses. Minor adjustments have been made in geologic boundaries to conform to the metric base, which was enlarged from 1:100,000.

The base map layers, drainage, roads, and topo contours, were prepared from publicly-available digital line graph (DLG) data for the 1:100,000 Los Angeles metric topographic map (1979 edition) by R. H. Campbell, U. S. Geological Survey, Reston, VA.



INDEX TO SOURCES OF GEOLOGIC MAPPING

1. Hoots, 1931, pl. 16; Colburn and others, 1988.
2. Tinsley and others, 1985.
3. Poland and others, 1959, pl. 2; Hsu and others, 1982, pl. 1.

CORRELATION OF MAP UNITS, PRELIMINARY GEOLOGIC MAP OF BEVERLY HILLS QUADRANGLE

af		
Qal / Qb	Qay2	Qls
	Qay1	
Qao	Qt	
Qpv		
Qsp		
Qi		
Tm	Tms	
Tt	Tb	
TK		
Kt		
Kgr		
Jsm	Jsms	Jsp

Holocene	QUATERNARY
Pleistocene	
Upper Miocene	TERTIARY
Middle Miocene	
Eocene, Paleocene, and Cretaceous	CRETACEOUS
Jurassic	JURASSIC

EXPLANATION, PRELIMINARY GEOLOGIC MAP, BEVERLY HILLS QUADRANGLE

DESCRIPTION OF MAP UNITS

- af Artificial fill, in roadways and building sites
- Qal Alluvium (Holocene)-Gravel, sand silt, and clay in active drainages; unconsolidated and uncemented; Qay2, underlies areas flooded historically; Qay1, undifferentiated Holocene deposits, age 1,000-10,000 years
- Qb Beach sand (Holocene)-fine- to medium-grained loose sand, rounded gravel locally present; thickness less than 5 m
- Qls Landslide deposits (Holocene and upper Pleistocene)-Fractured and sheared bedrock and surficial deposits
- Qao Older alluvium (upper Pleistocene)-Gravel, sand, silt, and clay; moderately to well consolidated, slightly to well cemented, dissected
- Qt Terrace deposits (upper Pleistocene)-interbedded gravel, sand, and silt,; commonly on flanks of valleys and canyons
- Qpv Palos Verdes Sand (upper Pleistocene)-Marine sand and pebble gravel; fossiliferous; includes some nonmarine terrace cover
- Qsp San Pedro Formation (lower? Pleistocene)-Marine sand, gravel, silt, and clay
- Qi Inglewood Formation (lower Pleistocene)-Marine, well-bedded siltstone and interbedded very fine-grained sandstone; locally abundant calcareous and limonitic concretions
- Tm Modelo Formation (upper Miocene)-silty shale or soft earthy siltstone and interbedded fine- to coarse-grained lithic or arkosic wacke; Tms, sandstone, massive, fine to coarse grained
- Tt Topanga Group undivided (Middle Miocene)-massive sandstone, conglomerate, and concretionary shale; mollusks locally present (Table 2); Tb, basaltic rocks, chiefly extrusive
- TK Unnamed sedimentary rocks (Tertiary and Upper Cretaceous)-presumed equivalents of Simi Conglomerate, Coal Canyon Formation, and Tuna Canyon Formation (see Colburn and others, 1988; Yerkes and Campbell, 1979)
- Kt Tuna Canyon Formation (Upper Cretaceous)-Sandstone (turbidites) with slate chips, siltstone, and locally thick, structureless pebble-cobble conglomerate

Kgr Granitic rocks (Cretaceous)-granodiorite to quartz diorite; calculated K/Ar age of biotite from sample on east wall of Nichols Canyon (about 600 m north of mountain front and 1.3 km east of east quadrangle boundary) is 98.6 my, of hornblende, 103-105 my (Miller and Morton, 1980, Table 1, spl. 1)

Jsm Santa Monica Slate (Upper Jurassic)-slate, siltstone, and fine- to coarse-grained sandstone; hard, intensely jointed, well-developed slaty cleavage; sparse Oxfordian-early Kimmeridgian pelecypods (Imlay, 1963); **Jsms**, spotted slate with abundant, well-developed spindle-shaped crystals of cordierite, inferred to be a metamorphosed facies of Santa Monica Slate; **Jsp**, mica schist and phyllite, cut by veins of white quartz

MAP SYMBOLS

- ——— ——— **Contact or mapped horizon**—Long-dashed where approximately located, short-dashed where inferred
- ———? ——— ——— **Fault**— Long-dashed where approximately located, short-dashed where inferred, dotted where concealed, queried where doubtful
- ← ——— ——— ——— **Anticline**— Approximately located, dotted where concealed; showing crestline
- ——— ——— ——— **Syncline**— Approximately located, dotted where concealed; showing troughline
- 70
—— **Strike and dip of inclined beds**
- ◇ 408 **Exploratory well**—Number refers to table 1, below
- * FH13 **Fossil locality**—F, macrofossil collection; f, microfossil collection; number refers to table 2, below

REFERENCES CITED

- Colburn, I.P., Jakobsen, C.M., and Novak, G.A., 1988, The Paleocene stratigraphy of the Santa Monica Mountains, Los Angeles County, California: Pac. Sec. SEPM, vol. 58, p. 59-72.
- Hoots, H.W., 1931, Geology of the eastern part of the Santa Monica Mountains, Los Angeles County, California: U.S. Geol. Survey Prof. Paper 165-C, p. 83-134, pl. 16, scale 1:24,000.
- Hsu, E.Y., Saul, R.B., Tan, S.S., Treiman, J.A., and Weber, F.H. Jr., 1982, Slope stability and geology of the Baldwin Hills, Los Angeles County, California: Calif. Div. Mines and Geol. Spec. Rpt. 152, 93 p., 1 pl. at 1:4800.
- Imlay, R.W., 1963, Jurassic fossils from southern California: Jour. Paleont. vol. 37, no. 1, p. 97-107.
- Miller, F.K., and Morton, D.M., 1980, Potassium-Argon geochronology of the eastern Transverse Ranges and southern Mohave Desert, southern California: U.S. Geol. Survey Prof. Paper 1152, 30 p., 1 pl.
- Morton, D. M., and Kennedy, M.P., 1989, A southern California digital 1:100,000-scale geologic map series: the Santa Ana quadrangle, the first release (abs.): Geol. Soc. Amer. Abstracts with Prog., vol. 21, no. 6, p. A107-A108.
- Poland, J.F., Garrett, A.A., and Sinnott, A., 1959, Geology, hydrology, and chemical character of ground waters in the Torrance-Santa Monica area, California: U.S. Geol. Survey Water-Supply Paper 1461, 425 pp., pl. 2 at scale 1:31,680.
- Tinsley, J.C., Youd, T.L., Perkins, D.M., and Chen, A.T.F., 1985, Evaluating liquefaction potential: U.S. Geol. Survey Prof. Paper 1360, fig. 141 (orig. at scale 1:24,000).
- Wentworth, C.M., and Fitzgibbon, T.T., 1991, Alacarte user manual (ver. 1.0): U.S. Geol. Survey Open File Rpt. 91-587C, 267 pp.
- Yerkes, R.F., and Campbell, R.H., 1979, Stratigraphic nomenclature of the central Santa Monica Mountains, Los Angeles County, California: U.S. Geol. Survey Bull. 1457-E, 31 p., 3 pls.
- Yerkes, R.F., and Showalter, P.K., 1990, Exploratory wells drilled in the Los Angeles, California 1:100,000 quadrangle: U.S. Geol. Survey Open File Rpt. 90-627, 1 map at scale 1:100,000.

Table 1 - DATA ON EXPLORATORY WELLS, BEVERLY HILLS QUADRANGLE¹

MAP NO.	TS	RW	Sec.	OPERATOR	NAME/NUMBER	ELEV- ATION (ft)	TOTAL DEPTH (ft)	BOT- TOM ²
688	1	14	18	Chevron USA	Laurel 1B	356	6496	sl
689	1	14	20	Morgan Brown	Oil Dist. U.6-1	180	10152	gr
712	1	14	30	Occidental Pet.	Beverly Hills EH 1	202	7002	Mu
713	1	14	30	Occidental Pet.	Cresta EH 1	171	12674	Mu
714	1	14	32	Chevron USA	Adamson CH 1	115	11334	M
724	1	15	14	Consol Pet. Co.	1	400	4500	?
725	1	15	14	Hudson G. & O.	L.A.C.C. CH 1	375	1990	sl
726	1	15	15	UNOCAL	Gable 1	440	2198	?
727	1	15	22	UNOCAL	Gable 2	420	3400	?
728	1	15	22	Getty Oil Co.	Moon 1	367	3003	M
729	1	15	23	Hudson G. & O.	L.A.C.C. CH 1	375	1990	M
730	1	15	23	Hudson G. & O.	L.A.C.C. 1	280	9367	M
					L.A.C.C. 3	292	5515	sl
731	1	15	23	Consol Pet. Co.	U 18-2	300	3500	?
733	1	15	23	Getty Oil Co.	Wolfskill 1	375	2370	?
734	1	15	25	Gulf Oil Corp.	20th Cent.Fox 9	272	11838	Mm
735	1	15	25	Aminoil USA	Signal-Richfield- Hillcrest 4	222	10444	Mu
736	1	15	26	Gulf Oil Corp.	20th Cent.Fox 27F	230	12000	Mu
737	1	15	28	Argo-Aladdin Pet. Corps.	Argo & Aladdin ad hoc 179-1	354	12085	Mu
738	1	15	28	Occidental Pet.	Dowlen-Fed. 1	380	11400	sl/Mu
739	1	15	28	Nat'l Petrol. Consultants	Aladdin-Durso 1	293	11460	M
740	1	15	32	Occidental Pet.	Brentwood 1	295	11136	Mu
741	1	15	32	UNOCAL	Bundy 1	254	2510	?
742	1	15	32	Birch & Royer	1	250	4587	?
743	1	15	34	Chevron USA	Duff CH 1	224	11209	M
744	1	15	34	ARCO	Richfield-Conti- nental U.67-1	216	10690	M
745	1	15	34	Getty Oil Co.	La Ballona Div. 1	168	2867	P
746	1	15	36	Aminoil USA	Rancho Park 1	225	12688	Mm
747	1	15	36	Shell CPI	Burkhard 1	250	4810	P
863	2	14	6	E.W. Pauley	Aladdin Comm. 1	118	11810	M
864	2	14	6	The 57 Pet. Gp.	Casserini 1	80	4836	P
865	2	14	6	Chevron USA	Desilu 1	80	11319	M
867	2	14	7	R.R. Bush Oil	Smith 1	350	8673	M
868	2	14	7	R.R. Bush Oil	Merchants 1	400	8871	M
869	2	14	7	Benito-Hunting- ton Oil Co.	Signal-Smith 1	92	9620	Mm
870	2	14	7	Chevron USA	Vickers 3-1	120	5506	Pl
871	2	14	7	Chevron USA	Vickers 2-18	301	9268	Mm
872	2	14	7	Chevron USA	Culver City Unit B4-1	70	10385	M

MAP NO.	TS	RW	Sec.	OPERATOR	NAME/NUMBER	ELEV- ATION (ft)	TOTAL DEPTH (ft)	BOT- TOM ²
873	2	14	8	Brown-Shasta	2	255	5384	Pl
883	2	14	18	Gulf Oil Corp.	1	320	3900	Pl
884	2	15	2	Petrol. Secur.	Palm Crest 1	188	4600	Pl
885	2	15	2	Palm Ridge Oil	1	125	7145	Pl
886	2	15	2	Cities Sv. & Atlantic Oil	Burns 1	127	10385	M
887	2	15	3	Chevron USA	Calif. State CH 1	166	9044	P
888	2	15	4	Occidental Pet.	Centinela EH 1	168	9610	Pl
889	2	15	9	Southland Pet.	1	150	4552	Pl
890	2	15	9	Hines Pet. Co.	Happy Days 1	142	7409	Mu
891	2	15	9	Texaco Inc.	Anderson Spr. 1	34	7336	Mu
892	2	15	10	UNOCAL	Newlin 1	196	5878	Pl
893	2	15	10	Texaco Inc.	Texam 1	165	9561	Mm
894	2	15	11	Aminoil USA	Signal-Halbouty- Reserve-Culver City EH 1	62	10037	Mm
895	2	15	12	CONOCO, Inc.	M.G.M. 1	70	11128	Mm?
896	2	15	12	Vincent Pet.	Unharret 1	75	6061	P
897	2	15	13	Elbe Land Dev.	6	38	5145	Pl
899	2	135	17	Pauley Petrol- eum Inc.	Pauley Brooks Comm. 1	43	6723	sch

¹ Data from Yerkes and Showalter, 1990.

² M, Miocene; P, pliocene; gr, granitic basement; 1, lower; m, middle; sl, slate (Santa Monica?); sl/Mu, slate faulted over Mu.

Table 2 - DATA ON FOSSIL LOCALITIES, BEVERLY HILLS QUADRANGLE

MAP NO ¹	T	RW	Sec	COLL- ECTOR ²	AGE ³	MAP UNIT	SOURCE
FH2	1N	15	36	USGS	Mm	Tt	Hoots, 1931
FH7	1N	14	31	USGS	Mm	Tt	do.
FH38	1S	15	3	USGS	Mm	Tt	do.

¹ F, macrofossil collection.

² USGS, U.S. Geological Survey.

³ M, Miocene; m, middle.