

U.S. DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

Preliminary geologic map of the Piru 7.5' quadrangle,  
southern California

Compiled by

R. F. Yerkes<sup>1</sup> and R. H. Campbell<sup>2</sup>

Open File Report 95-511

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<sup>1</sup>MS 975, 345 Middlefield Road  
Menlo Park, CA 94025

<sup>2</sup>MS 922, National Center  
Reston, VA 22092

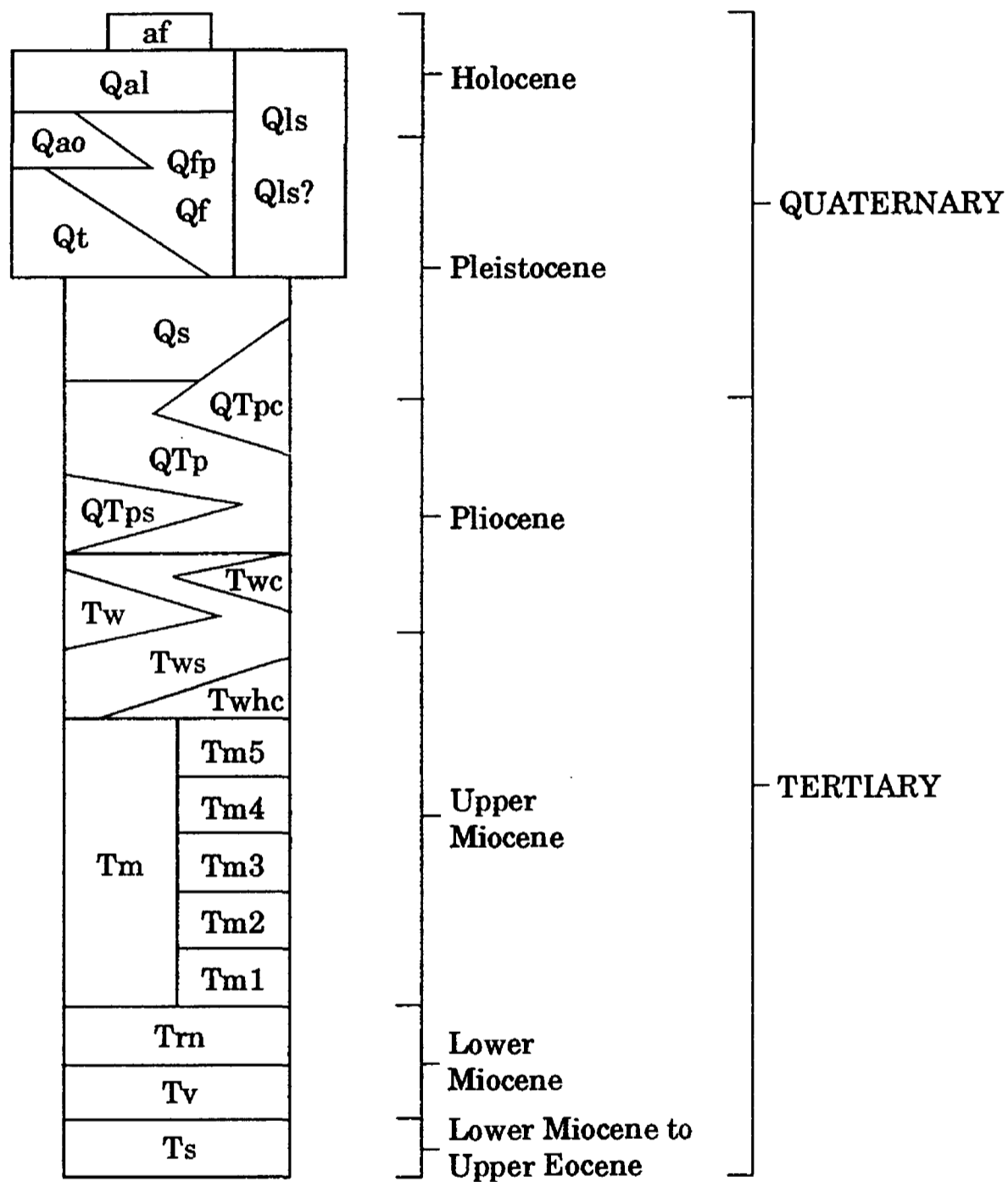
## INTRODUCTION

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 compilation was scanned and processed digitally using the U. S. Geological Survey Alacarte menu-driven adaptation (Wentworth and Fitzgibbon, 1991) of ARC/INFO, a commercial geographic information system (GIS) available from Environmental Systems Research Institute, Redlands, California. Minor adjustments have been made in geologic boundaries to conform to the metric base, which was enlarged from 1:100,000.

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

Stratigraphic nomenclature is largely that of the sources; it is subject to change as compilation progresses. The source for this compilation is Huftile and Yeats, (no date, unpub.), for geology; and Morton, 1972, for landslides..

### CORRELATION OF MAP UNITS, PIRU QUADRANGLE



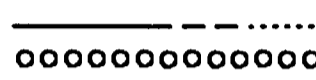



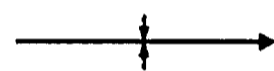

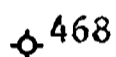
EXPLANATION, PRELIMINARY GEOLOGIC MAP, PIRU QUADRANGLE

DESCRIPTION OF MAP UNITS

- af artificial fill
- Qal Alluvium** (Holocene)--Gravel, sand, silt and clay; unconsolidated, uncemented; in modern drainages
- Qao Older alluvium** (Holocene and Pleistocene)--Gravel, sand, silt, and clay; unconsolidated to poorly consolidated, locally cemented
- Qfp Flood plain deposits** (Holocene and Pleistocene)--Sand, gravel, silt, clay, and boulders; unconsolidated and unsorted, locally cross-bedded; dissected by modern drainages
- Qf but Fan deposits** (Holocene and Pleistocene)--Chiefly mudflow deposits, locally includes alluvium; chiefly at mouths of steep, short streams; coalesced to form aprons below steep slopes
- Qls Landslide deposits** (Holocene and Pleistocene)--Debris of bedrock, surficial deposits, and soil in jumbled, brecciated masses or relatively intact blocks; form slumps, block glides, or earth flows queried where uncertain
- Qt Terrace deposits** (Pleistocene)--Interbedded coarse-grained sand, silt, and gravel; massive to poorly bedded and poorly consolidated; generally elevated and dissected, along margins of streams
- Qs Saugus Formation** (Pleistocene)--Nonmarine pebble conglomerate, minor sandstone and siltstone
- QTp Pico Formation** (Pleistocene and upper Pliocene)--Marine siltstone, claystone, sandstone, pebble conglomerate; thickness about 1,620 m  
**QTpc**, pebble conglomerate and massive sandstone; **QTps**, siltstone and fine-grained sandstone
- Tw Towsley Formation** (lower Pliocene and upper Miocene)--Siltstone, mudstone, sandstone and conglomerate; **Tws**, chiefly mudstone, siltstone and sandstone, **Twc**, chiefly sandstone and pebble conglomerate; **Twhc**, Hasley Conglomerate, basal reddish-brown pebble conglomerate; thickness about 1,165 m
- Tm Modelo Formation** (middle and upper Miocene)--Shale, siltstone, sandstone, minor conglomerate, undivided south of Santa Clara River; thickness about 1,980 m; **Tm1**, lower shale: thin bedded soft shale with interbedded siliceous and dolomitic beds, foraminifera referred to the Relizian and Luisian Stages of Kleinpell (1938); **Tm2**, lower sandstone: medium- to coarse-grained, thick bedded; **Tm3**, middle shale: platy, thin bedded, locally cherty, lower Mohnian Stage; **Tm4**, interbedded shale and medium- to coarse-grained sandstone, lower Mohnian Stage; **Tm5**, upper shale and siltstone, upper Mohnian Stage
- Trn Rincon Shale** (Oligocene to lower Miocene)--Shale and mudstone, massive to poorly bedded, lower part with dolomitic/limonitic concretions; foraminifera referred to the late Zemorrian or early Saucesian Stages of Kleinpell (1938); thickness about 825 m

- Tv** **Vaqueros Formation** (earliest Miocene(?) and Oligocene)-marine sandstone and siltstone; exposed south of the Santa Clara River; foraminifera referred to the Zemorrian Stage of Kleinpell (1938)
- Ts** **Sespe Formation** (late Eocene and Oligocene)-nonmarine fluvial sandstone, pebbly sandstone, minor siltstone, exposed south of the Santa Clara River; thickness about 180 m

### MAP SYMBOLS

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**Contact or mapped horizon**— Dashed where approximately located, dotted where concealed, queried where doubtful; small open circles indicate cobble-boulder conglomerate bed
- 
**Fault**— Dashed where approximately located, dotted where concealed
- 
**Thrust fault**— Dashed where approximately located, dotted where concealed; teeth on upper plate
- 
**Anticline**— Approximately located, showing crestline
- 
**Syncline**— Approximately located, showing troughline
- 
**Strike and dip of inclined beds**
- 
**Exploratory well**— Number refers to table 1 below

## REFERENCES CITED

- Huftile, G. J., and Yeats, R. S., no date, Geologic map of the Piru 7-1/2-minute quadrangle, Ventura County, California: unpub. map at scale 1:24,000.
- Kleinpell, R. M., 1938, Miocene Stratigraphy of California: Tulsa, OK., Amer. Assoc. Petroleum Geologists, 450 p., 27 pls.
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- 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.
- Wentworth, C. M., and Fitzgibbon, T. T., 1991, Alacarte User Manual (ver. 1.0): U. S. Geol. Survey Open File Rpt. 91-587C, 267 p.
- 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 Report 90-627, 46 p., 1 map at 1:100,000.

Table 1--DATA ON EXPLORATORY WELLS, PIRU QUADRANGLE<sup>1</sup>

MAP NO.	T	RW	Sec	OPERATOR	NAME/NUMBER	ELEVA- ATION (FT)	TOTAL DEPTH (FT)	BOT- TOM <sup>2</sup>
67	4N	19	1	UNOCAL	Moran 1	1633	7665	O
68	4N	19	1	Oil Ridge Oil & Refin. Co.	3	1830	2772	M
69	4N	19	1	Oil King Oil Co.	1	1500	600	M
77	4N	19	11	MCOR O & G Corp.	McCulloch-Hopper Canyon DU 1-A	1160	Pl	
78	4N	19	12	Ibex Oil Co.	6	1000	1100	M
79	4N	19	12	Ibex Oil Co.	8	1750	1400	M
80	4N	19	13	E.H.A. Andrews- United	A-13-8	1586	3230	M
81	4N	19	13	Bradley Oil Co.	2	820	800	M
82	4N	19	13	Lake Oil Co.	Union-Elkins 1	1765	3152	M
83	4N	19	13	Bradley Oil Co.	1	425	1100	M
84	4N	19	14	Richards & Rowan	Cosby 1	1400	3880	M
85	4N	19	14	St. Louis Oil Co.	1	1460	1000	M
86	4N	19	16	Texaco, Inc.	Fillmore Fee 1-16	1792	3730	C
97	4N	19	22	Argo Pet. Co.	Hickler 1-22	2022	3205	C
98	4N	19	22	Texaco, Inc.	Lynn 1	1871	2550	M?
99	4N	19	22	Southland Oil Co.	1	2000	1000	M
100	4N	19	23	Central Lease, Inc.	Elkins 1	761	4159	Pl
101	4N	19	23	Exxon Corp.	L. & G. 1	2050	2320	M
102	4N	19	23	Sovereign Oil Corp.	Leavens- Goodenough 1	1775	3157	Pl
103	4N	19	23	Buckhorn Oil & Mining Co.	3	675	800	M
104	4N	19	24	Mobil Oil Corp.	Cosby State 1	1080	12150	Pl
105	4N	19	24	Argo Pet. Corp.	Smith Ranch 4	750	971	C
106	4N	19	24	Standard Holding Co.	1	800	1107	M
107	4N	19	25	Chevron U.S.A.	Piru 1	690	1186	Pl
108	4N	19	26	Argo Pet. Corp.	Smith Ranch 3	1075	1100	C
109	4N	19	26	United Oil Co.	1	1225	1200	M
110	4N	19	27	Texaco, Inc.	Lawton 1	1111	17485	Pl
111	4N	19	27	Fairview Expl. Co.	Edwards 3	850	1633	Pl
112	4N	19	27	Kirk Oil Co.	Edwards 1	1096	3190	Pl
113	4N	19	27	Argo Pet. Corp.	Smith Ranch 2	1058	1172	C
114	4N	19	28	Argo Pet. Corp.	Smith Ranch 1	610	370	C
121	4N	19	33	ARCO O & G Co.	Laura Lawton 1	539	16936	Pl
122	4N	19	34	UNOCAL	Wm. Shiells 1	521	5277	Q
123	4N	19	34	Ken Cal	Calumet 1	661	5300	Pl
124	4N	19	35	H.L.S. Oil Corp.	1	602	1394	Q
125	4N	19	36	Shell CPI	C. H. 1	555	2285	Pl
126	4N	19	36	Petrominerals Corp.	Barrington 1	650	6450	M?
127	4N	19	36	Shell CPI	C. H. 3	660	3499	Pl
133	4N	18	5	Delcalta Int'l.	Hidden 3	2416	3894	M
134	4N	18	5	Getty Oil Co.	Hidden 2	2348	8248	M
135	4N	18	7	Getty Oil Co.	Crown 4	2000	1800	M
137	4N	18	8	Diamond Valley Oil	4	1550	1065	M
138	4N	18	8	Getty Oil Co.	F. W. Byers 1	2000	2280	M

MAP NO.	T	RW	Sec	OPERATOR	NAME/NUMBER	ELEVATION (FT)	DEPTH (FT)	BOTTOM <sup>2</sup>
137	4N	18	8	Diamond Valley Oil	4	1550	1065	M
138	4N	18	8	Getty Oil Co.	F. W. Byers 1	2000	2280	M
139	4N	18	9	Piru Oil & Land Co.	3	1500	1680	M
140	4N	18	10	Piru Oil & Land Co.	6	815	1000	M
152	4N	18	16	Piru Oil & Land Co.	5	1630	1250	M
153	4N	18	16	MCOR O & G Corp.	McCulloch IDA 1-16	1218	6945	M
154	4N	18	18	Getty Oil Co.	Temescal 1-16	772	3500	M
155	4N	18	16	Piru Oil & Land Co.	2	850	1220	M
156	4N	18	17	K. H. Hunter, Jr.	Colonia 1	1049	7510	Pl
157	4N	18	18	Ventura Oil Dev't.	2	1840	1000	M
158	4N	18	18	Santa Ana Oil Co.	1	1400	600	M
159	4N	18	18	Chevron U.S.A.	Piru 3	915	2828	Pl
161	4N	18	19	UNOCAL	Real C. H. 1	889	2579	Q?
162	4N	18	19	Norden Corp.	Warring Bros. 1-19	850	2503	Pl
163	4N	18	19	C.W. Ginter Assoc.	Warring 1	880	2650	Pl
164	4N	18	19	Chevron U.S.A.	Piru 2	890	1441	Pl
165	4N	18	19	Mobil Oil Corp.	Edwards 1	916	16075	Pl
166	4N	18	20	Getty Oil Co.	Camulos Ranch 1	690	11500	Pl
167	4N	18	21	Mobil Oil Corp.	Camulos Ranch 1	792	9138	Pl
168	4N	18	21	Crown Central Petroleum Corp.	Rubel 1	800	3208	Pl
169	4N	18	21	Piru Monarch Oil	2	880	1170	M
170	4N	18	22	UNOCAL	Camulos Ranch 1	861	5157	Pl
171	4N	18	22	Gulf Oil Corp.	Rubel 1	753	7096	Pl
179	4N	18	27	Exxon Corp.	A.E. Sloan et ux. 1	703	11986	Pl
180	4N	18	28	Shell CPI	Sloan 1	676	17440	M?
181	4N	18	28	MCOR O & G Corp.	McCulloch-Burger 1	672	6450	Pl
182	4N	18	28	Glenn A. Martin	1	670	1200	Q
183	4N	18	29	Exxon Corp.	C.M. Warren et ux 1	655	11008	Pl
184	4N	18	29	Texaco, Inc.	Sloan B-1	687	9032	Pl
185	4N	18	29	Trinitas Oil Co.	Eureka 1	759	840	Pl
186	4N	18	30	Exxon Corp.	C.S. Johnson 1-H2	626	14922	Pl
187	4N	18	31	Texaco, Inc.	Baker-Hunter 1	683	12518	Pl
188	4N	18	31	Texaco, Inc.	Baker-Hunter 2	746	10129	Pl
189	4N	18	32	Texaco, Inc.	Sloan 1	802	10038	Pl
190	4N	18	32	Doheny Pacific Petroleum Co.	Torrey Canyon 1	870	1962	M
192	4N	18	33	C. V. Stephens	3	900	1280	M
193	4N	18	33	Phillips Pet. Co.	Sloan Ranch 1	1295	16019	C
195	4N	18	34	C. V. Stephens	1	1528	1930	M
209	3N	18	6	Texaco, Inc.	Hunter 2	1489	9971	Mu
210	3N	18	6	Gulf Oil Corp.	Hunter 2	1604	9875	Pl
244	3N	19	1	Hopland Oil Co.	1	880	4634	M
249	3N	19	2	Shell CPI	Shell-Sunray USL-1	909	10043	Pl
455	4N	19	3	Hopper Can. Oil	1	2350	5001	M
457	5N	18	20	E.B. Hall & Co.	1	1940	2011	M
458	4N	19	3	K.H. Hunter, Jr.	Hunter-Rehart 3-13X	3636	4250	O



MAP NO.	T	RW	Sec	OPERATOR	NAME/NUMBER	ELEVATION (FT)	DEPTH (FT)	BOTTOM <sup>2</sup>
463	5N	18	32	U.S. Natural Resources, Inc.	Bolsa Chica 76-32	1848	4659	M
465	5N	18	33	Henry. R. Dabney	Kaar 1	1640	1276	M
466	5N	18	33	Jacob F. Kaar	V-27	1600	2043	M
468	5N	19	28	Anaconda Pet. Co.	1	3580	2000	O
469	5N	19	28	Sta. Fe Energy	Tar Creek 50	2990	1215	Pl
470	5N	19	28	Garmack Oil Co.	Orcutt 1	3100	452	M
471	5N	19	28	UNOCAL	Outlook 1-A	3195	2309	O
479	5N	19	33	Spiek Oil Co.	1	4020	3933	O
480	5N	19	33	Topa Topa Oil Co.	3	3560	4670	O
481	5N	19	34	R. J. Bishop	1	3770	1110	M
482	5N	19	34	Wasibi Oil Co.	B	3400	3862	M

<sup>1</sup>Data from Yerkes and Showalter, 1990.

<sup>2</sup>C, confidential; M, Miocene; Pl, Pliocene; O, Oligocene nonmarine; Q, Quaternary; l, lower; u, upper.