U.S. DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

Preliminary geologic map of the Fillmore 7.5' quadrangle, Southern California

Compiled by

R. F. Yerkes[1] and R. H. Campbell [2]

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[1]MS 975, 345 Middlefield Road
Menlo Park, CA 94025

[2]MS 922, National Center
Reston, VA 22092

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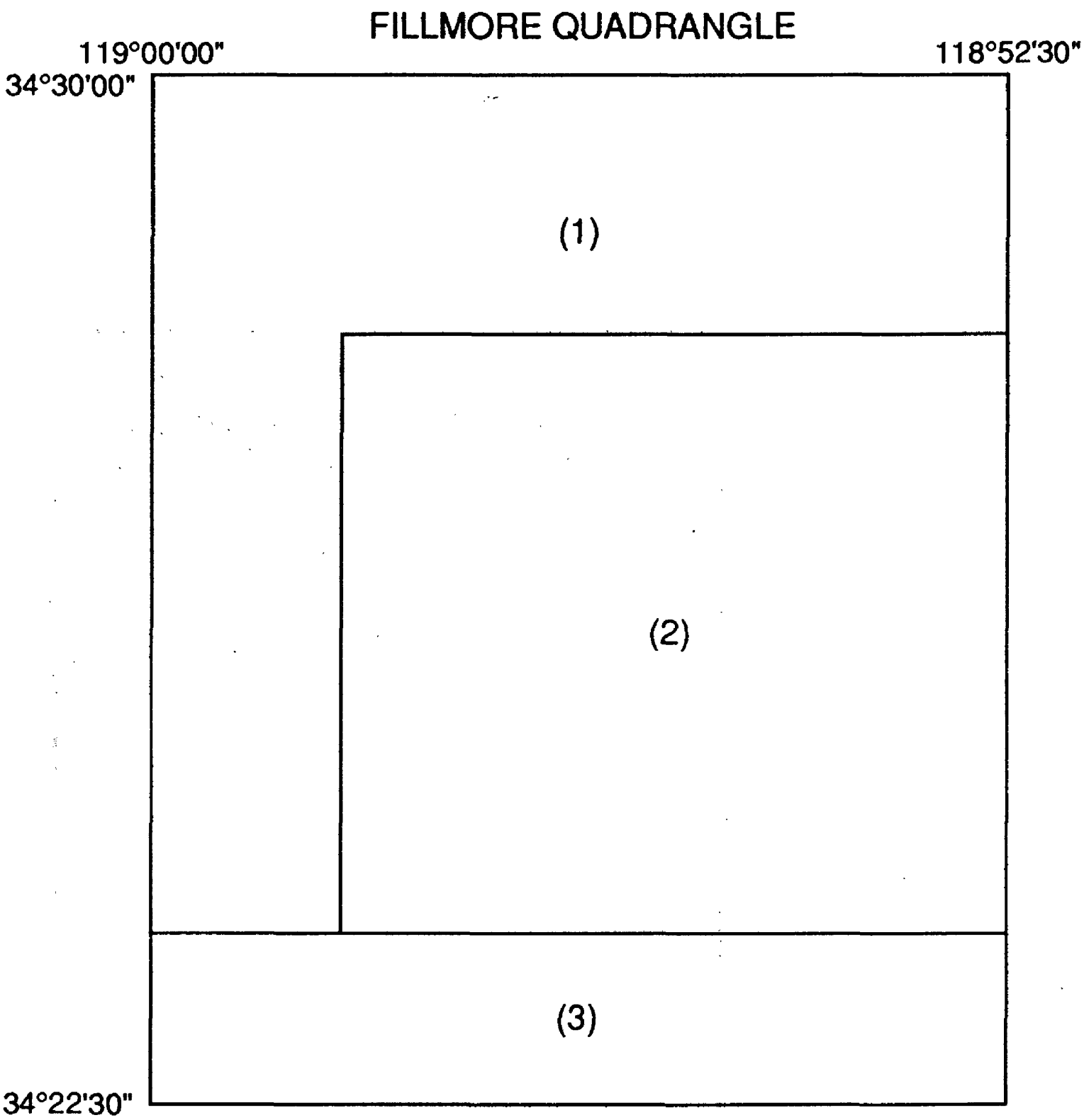
This map is a preliminary product of the southern California Digital 1:100,000 Geologic Map Series (Southern California Areal Mapping Project-SCAMP; Morton and Kennedy, 1989). The 1:24,000 compilation was scanned and processed digitally using the U. S. Geological Survey Alacarte menu-driven adaptation (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 source materials; it is subject to change as compilation progresses.

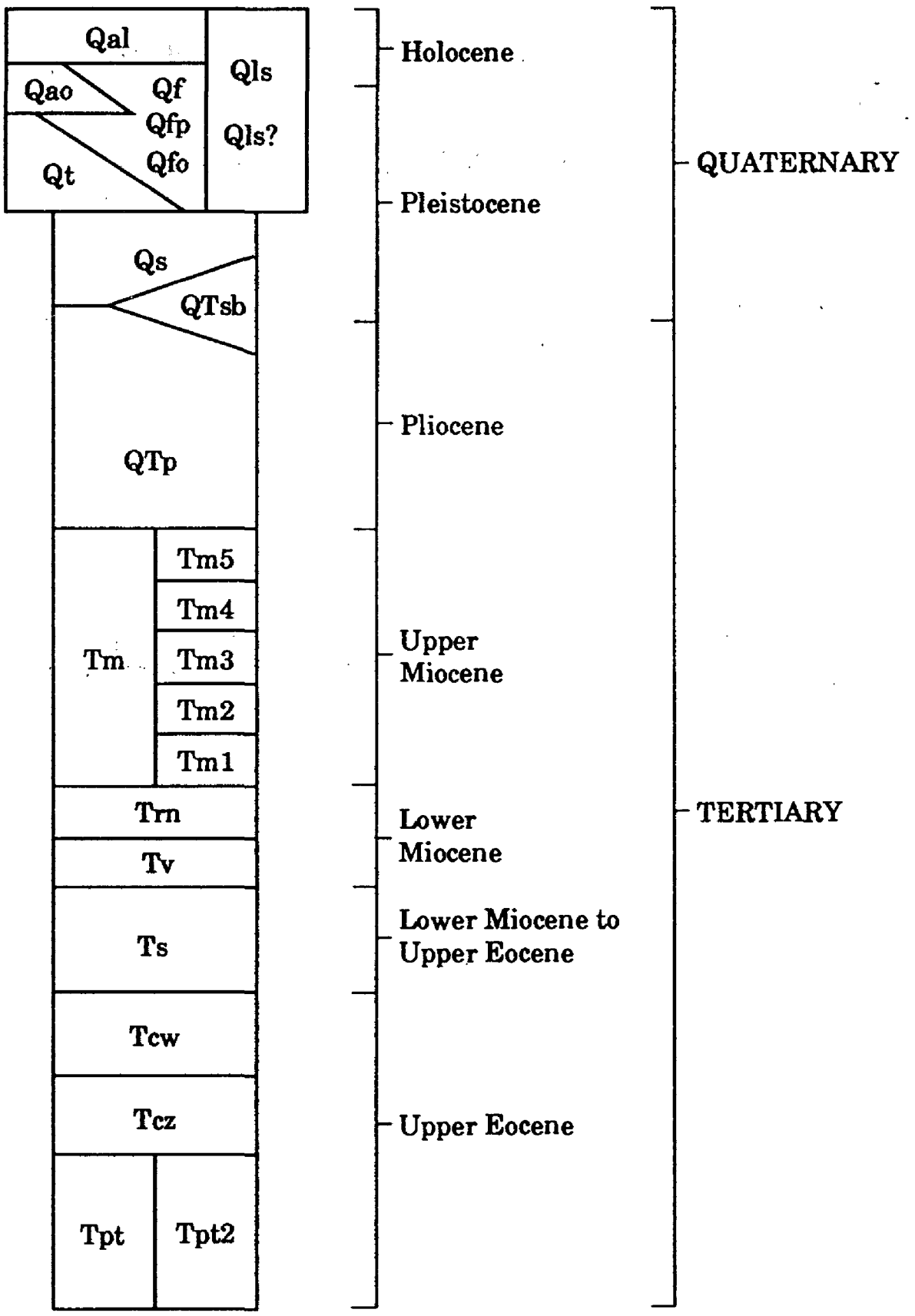


EXPLANATION

1. Bailey, 1951; Morton, 1972
2. Cemen, 1977; Morton, 1972
3. California Division of Mines and Geology, 1972

Figure 1-- Index map showing sources of geologic mapping

CORRELATION OF MAP UNITS, FILLMORE QUADRANGLE



EXPLANATION, PRELIMINARY GEOLOGIC MAP, FILLMORE QUADRANGLE

DESCRIPTION OF MAP UNITS

Qal **Alluvium** (Holocene)--Gravel, sand, silt, and clay; unconsolidated, unsorted, in modern drainages

Qao **Older alluvium** (Holocene and Pleistocene)--Gravel, sand, silt, and clay; unconsolidated to poorly consolidated, unsorted; locally cemented

Qf **Fan deposits** (Holocene and Pleistocene)--Chiefly bouldery gravel, but locally includes alluvium and mudflows; chiefly at mouths of steep, short streams; coalesced to form aprons below steep slopes

Qfp **Flood plain deposits** (Holocene and Pleistocene)--Sand, gravel, silt, clay, and boulders; unconsolidated and unsorted, locally cross bedded; dissected by modern drainages

Qls **Landslide deposits** (Holocene and Pleistocene)--Debris of bedrock, surficial deposits, and soil in jumbled, brecciated masses or large blocks; form slumps, block glides, or earth flows; queried where uncertain

Qfo **Older fan/pediment deposits** (Pleistocene)--Boulder gravel, moderately consolidated, dissected

Qt **Terrace deposits** (Pleistocene)--Gravel, boulders, sand, and silt; poorly to roughly stratified, unsorted, poorly to moderately consolidated, locally cemented by caliche; generally elevated, dissected

Qs **Saugus Formation** (Pleistocene)--Nonmarine sandstone, conglomerate, and siltstone; poorly sorted, loosely consolidated

QTsb **Santa Barbara Formation** (Pleistocene? and upper Pliocene)--Marine siltstone, mudstone, and marl, with lenses of sandstone and pebble conglomerate

QTp **Pico Formation** (Pleistocene and upper Pliocene)--Marine fine- to medium-grained sandstone, silty sandstone, sandy siltstone, and siltstone, thin bedded to massive, poorly to moderately sorted; lenses of coarse-grained sandstone and pebble conglomerate; thickness about 1,625 m; sequence includes Olduvai normal paleomagnetic event (Cemen, 1977, p. 25); sequence in Balcom Canyon to east contains the 1.3 my-old Bailey Ash near the center and the 0.70 my-old Bishop Ash near the top (Lagoe and Thompson, 1988)

Tm **Modelo Formation** (middle and upper Miocene)-shale, siltstone, and sandstone, and minor conglomerate; **Tm1**, lower shale and mudstone: thin-bedded to laminated, moderately to well indurated, cherty to porcellaneous, calacareous, diatomaceous, clastic; thickness about 214 m; foraminiferal fauna referred to the Relizian and Luisian Stages (middle Miocene) of Kleinpell (1938); **Tm2**: lower sandstone: fine- to medium-grained, locally interbedded massive siltstone and claystone; thickness about 458 m; **Tm3**, middle shale: cherty, porcellaneous, calcareous or carbonaceous shale and mudstone, interbedded fine-grained, hard sandstone and local red-brown hard dense chert; thickness about 152 m; foraminifera referred to the Mohnian Stage (late Miocene) of Kleinpell (1938); **Tm4**, upper sandstone: fine to coarse grained, arkosic, thin to thick bedded, minor interbedded siliceous, silty clay shale; thickness up to 458m; **Tm5**, upper shale: thin bedded to laminated silty shale, locally siliceous, moderately compacted; foraminiferal fauna referred to the upper Mohnian and lower Delmontian Stages of Kleinpell (1938); thickness about 458 m;

Trn **Rincon Formation** (lower Miocene)-marine shale and mudstone locally with dolomitic and limonitic concretions up to 0.65 m in diameter; thickness about 275 m; foraminiferal fauna referred to the Zemorrian/Saucesian Stages (Eschner, 1969; Kleinpell, 1938)

Tv **Vaqueros Formation** (lowest Miocene)-marine sandstone, interbedded siltstone, thin limy oyster reefs; sandstone thick to thin bedded, coarse to fine grained, well sorted, massive; contains Turritella inezana and is referred to the Zemorrian Stage, earliest Miocene (Eschner, 1969), thickness 165m;

Ts **Sespe Formation** (Oligocene)-nonmarine thick-bedded medium- to coarse-grained arkosic pebbly sandstone, sandstone, and siltstone; thickness about 430 m

Tcw **Coldwater Formation** (upper Eocene)-marine arkosic sandstone and interbedded siltstone, mudstone, and shale, scattered pebble conglomerate lenses and oyster reefs; thickness about 393 m;

Tcz **Cozy Dell Formation** (middle to upper Eocene)-shale, silty shale, and mudstone, minor interbedded sandstone; massive to laminated, well indurated, thickness 142 m; foraminifera referred to the Narizian Stage (Eocene) of Mallory (1959)

Tpt **Topatopa Formation** (lower to middle Eocene)-marine sandstone, hard, arkosic, highly compacted and indurated; **Tpt2**, sandstone and minor interbedded mudstone and shale; thickness more than 1074 m, base not exposed or drilled; foraminifera referred to Ulatisian and Narizian Stages (Eocene) of Mallory (1959)

MAP SYMBOLS

Contact or mapped horizon--dashed where approximately located, short-dashed where inferred, queried where doubtful

Fault--long-dashed where approximately located, short-dashed where inferred, dotted where concealed

Thrust fault--approximately located, teeth on upper plate, dotted where concealed

Anticline--approximately located, showing crestline

Syncline--approximately located, showing troughline

70 **Strike and dip** of inclined beds

2 **Exploratory well**--number refers to table 1 below

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Table 1--DATA ON EXPLORATORY WELLS, FILLMORE QUADRANGLE[1]

MAP NO.	T	RW	Sec	OPERATOR	NAME/NUMBER	ELEVATION (FT)	TOTAL DEPTH (FT)	BOTTOM[2]
1	4N	20	10	Chevron U.S.A.	Sta. Paula Unit 1	1854	11132	Pl
2	4N	20	10	Tiger Oil Co.	McFarland 10-1	1900	8339	C
38	4N	20	1	Est. of A.B. Cross	Supreme 1	1750	1707	E
39	4N	20	1	G.R. Nance, Inc.	Cochrane 1	1469	1488	E
40	4N	20	1	Est. of A.B. Cross	1	900	2564	O
41	4N	20	1	C.F. Braun & Co.	Carlsberg V.T. 1	620	9481	C
42	4N	20	1	MCOR O. & G.	Van Trees 1	750	9200	Pl
43	4N	20	2	Searchlight Oil Co.	1	1150	650	E
44	4N	20	11	Shell CPI	Pagenkopp 1	1435	15208	Pl
45	4N	20	12	Flagstaff Oil Co.	1	1500	1400	M
46	4N	20	12	Mobil Oil Corp.	Burson 1-12	635	7380	Pl
47	4N	20	16	ARCO O & G Co.	Loel Maxwewll 3	1952	8538	Pl
48	4N	20	21	Chevron U.S. A.	C.W. West et al. 2	1256	15221	Pl
49	4N	20	22	Claran Oil Co.	Harwdison 1	1000	2910	Pl
50	4N	20	24	Chevron U.S.A.	Sespe Ck. Comm. 1	503	16100	Pl
51	4N	20	24	Chevron U.S.A.	Fillmore Comm. 2	412	14512	Pl
52	4N	20	25	UNOCAL	URS Fillmore Unit A-1	430	15117	Pl
53	4N	20	26	Perkins, Wileman, & Couget	1	388	1947	Pl
54	4N	20	27	Chevron U.S.A.	Hardison Rch. 2-2	700	15979	Pl
55	4N	20	27	Chevron U.S.A.	Hardison Rch. 2-1	563	15630	Pl
56	4N	20	29	J.R. Tweedy	Firestone-O'Leary 1	900	1506	Pl
57	4N	20	29	Chevron U.S.A.	Yuba Consol. 1	1121	15500	Pl
59	4N	20	32	Chevron U.S.A.	Culbertson-Strickland U. 1	604	14381	Pl
60	4N	20	33	Chevron U.S.A.	Kuestler Unit 1	539	14500	Pl
61	4N	20	33	Sespe Oil Co.	Dudley 1	500	4177	Q
62	4N	20	33	Superior Oil Co.	Sespe 1	428	4437	Q
63	4N	20	35	Ito Oil Co.	1	540	2054	Q
64	4N	20	35	Chevron U.S.A.	King 1	384	14527	Pl
64A	3N	20	2	UNOCAL	Howarth 1	390	14131	Pl
65	4N	20	36	Texaco, Inc.	Kenneth H. Hunter-River Ranch 1	416	10110	Pl
66	4N	20	36	ARCO O & G Co.	Richfield-Texas-Hunter 1	420	14979	Pl
70	4N	19	6	J. W. Aidlin	Blinn-Sespe 1	650	1525	O
71	4N	19	7	Crown Oil Co.	1	1025	1200	O
72	4N	19	7	Chevron U.S.A.	Goodenough 1	779	14501	Pl
73	4N	19	7	Golden Gate Oil	1	1160	1500	O
74	4N	19	7	C.W. Colgrove	Goodenough 28	808	3242	O
75	4N	19	8	Beach Oil Co.	1	2000	950	M?
76	4N	19	8	Chevron U.S.A.	N.W. Arundell 1	2711	11695	Pl
87	4N	19	17	Texaco, Inc.	Standard-Arundell 1	1124	15505	Pl

MAP NO.	T	RW	Sec	OPERATOR	NAME/NUMBER	ELEV-ATION (FT)	DEPTH (FT)	BOT-TOM[2]
88	4N	19	19	Chevron U.S.A.	Arundell 5	1760	15400	?
89	4N	19	18	John's Oil Co.	Goodenough 1	900	2206	M
90	4N	19	18	C.W. Colgrove	Bursin 46-18	1457	3678	Pl
92	4N	19	19	W.E. McCaslin	Burson 1	1200	2039	Pl
93	4N	19	19	ARCO O & G Co.	ROCO-G.P. Arundell Comm. A-1	715	14890	Pl
94	4N	19	19	Black Pearl Oil	1	760	1000	M
95	4N	19	20	Reeves Aylmore Jr.	1	1225	1858	M
96	4N	19	20	Texaco, Inc.	Faulkner 1	900	2170	M
115	4N	19	29	Texaco, Inc.	Fillmore Unit 2-1	453	6565	Q
116	4N	19	29	Oil Search Corp.	1	452	1818	Q
117	4N	19	31	ARCO	Hamburg 1	437	16015	Pl
118	4N	19	31	H.C. Long	Basolo 1-31	490	4096	Pl
119	4N	19	32	H.C. Long	Shiells 1	464	3074	Pl
120	4N	19	32	K.S. Senness	Snodgrass 1	550	1306	O
262	3N	19	6	Getty Oil Co.	Burson 1	467	3253	O
467	5N	19	28	Zuni Oil Co.	Tar Creek 1	2918	1425	O
472	5N	19	28	UNOCAL	Tar Creek 3	3020	775	O
473	5N	19	29	Coast Supply Co.	Mitchell 1	2900	1621	O
475	5N	19	32	UNOCAL	Maple Creek 2	2650	2000	O
476	5N	19	32	Sespe Expl's.	1	3100	2800	O
477	5N	19	33	Cosmopolitan Oil Co.	4	3350	3550	O
478	5N	19	33	Santa Fe Energy	White Star 15	3000	3092	O
483	5N	20	35	Sespe Crude Oil	1	11540	1120	E
485	5N	20	36	UNOCAL	U.S.L. 1	2650	2190	E
486	5N	20	36	Eastern Interior Oil Co.	Coldwater 1	2410	4557	E
487	5N	20	36	Aminoil	1	2262	2824	E
488	5N	20	36	J.F.Howells, Jr.	Chieftan 1	2185	2147	E

[1]Data from Yerkes and Showalter, 1990.
[2]C, confidential; E, Eocene; M, Miocene; Pl, Pliocene; Q, Quaternary; O, Oligocene nonmarine; ?, not available.