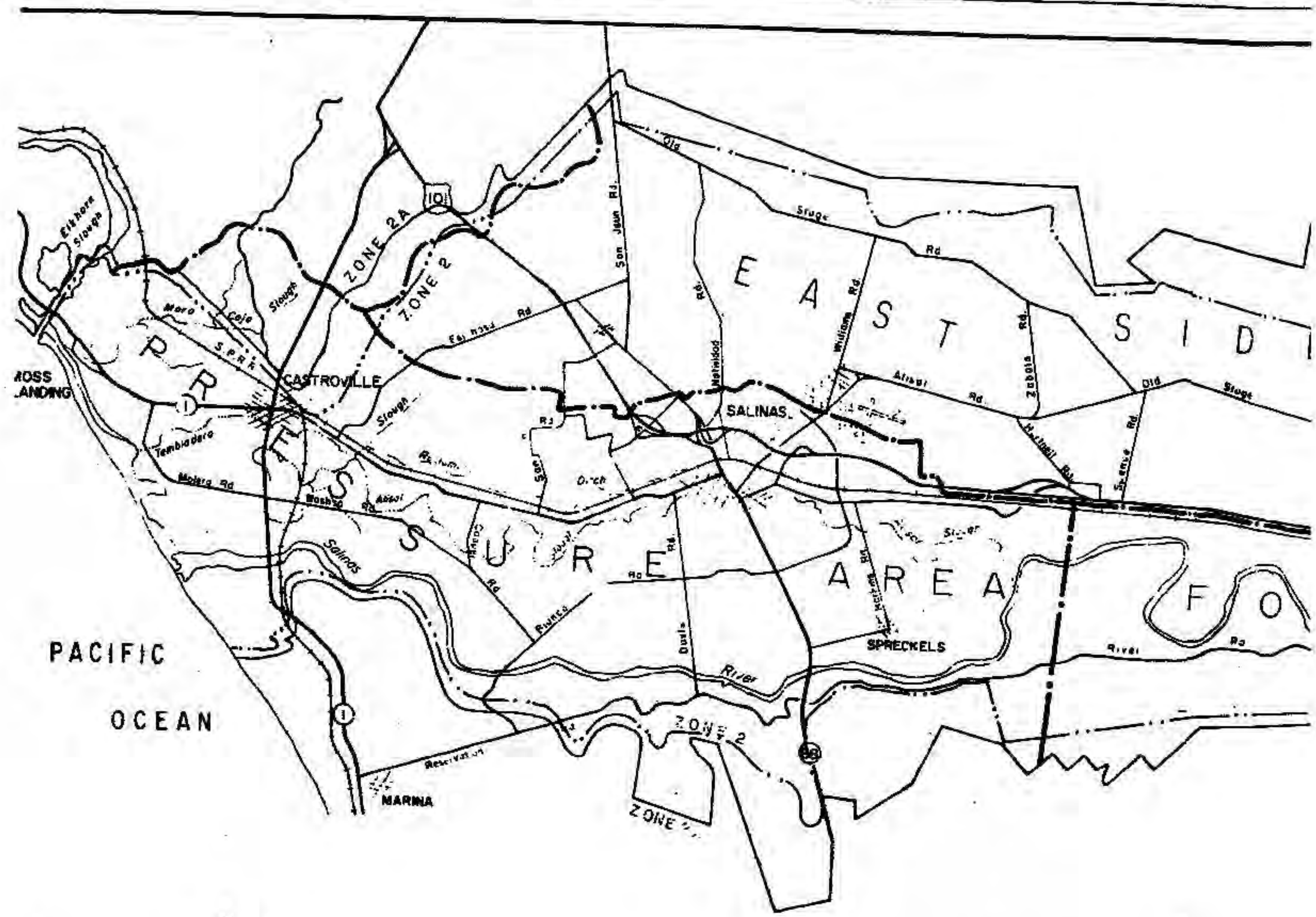
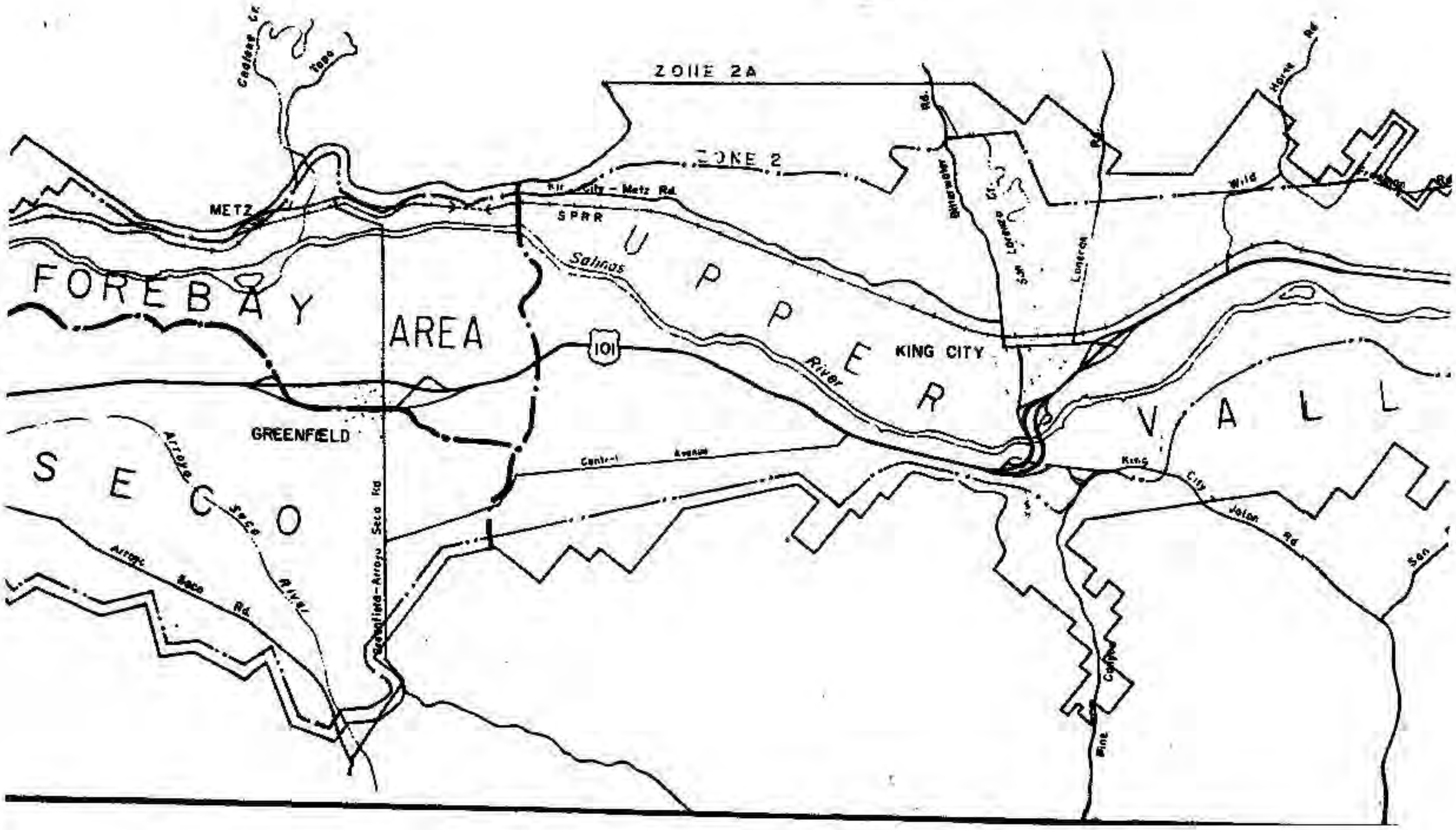
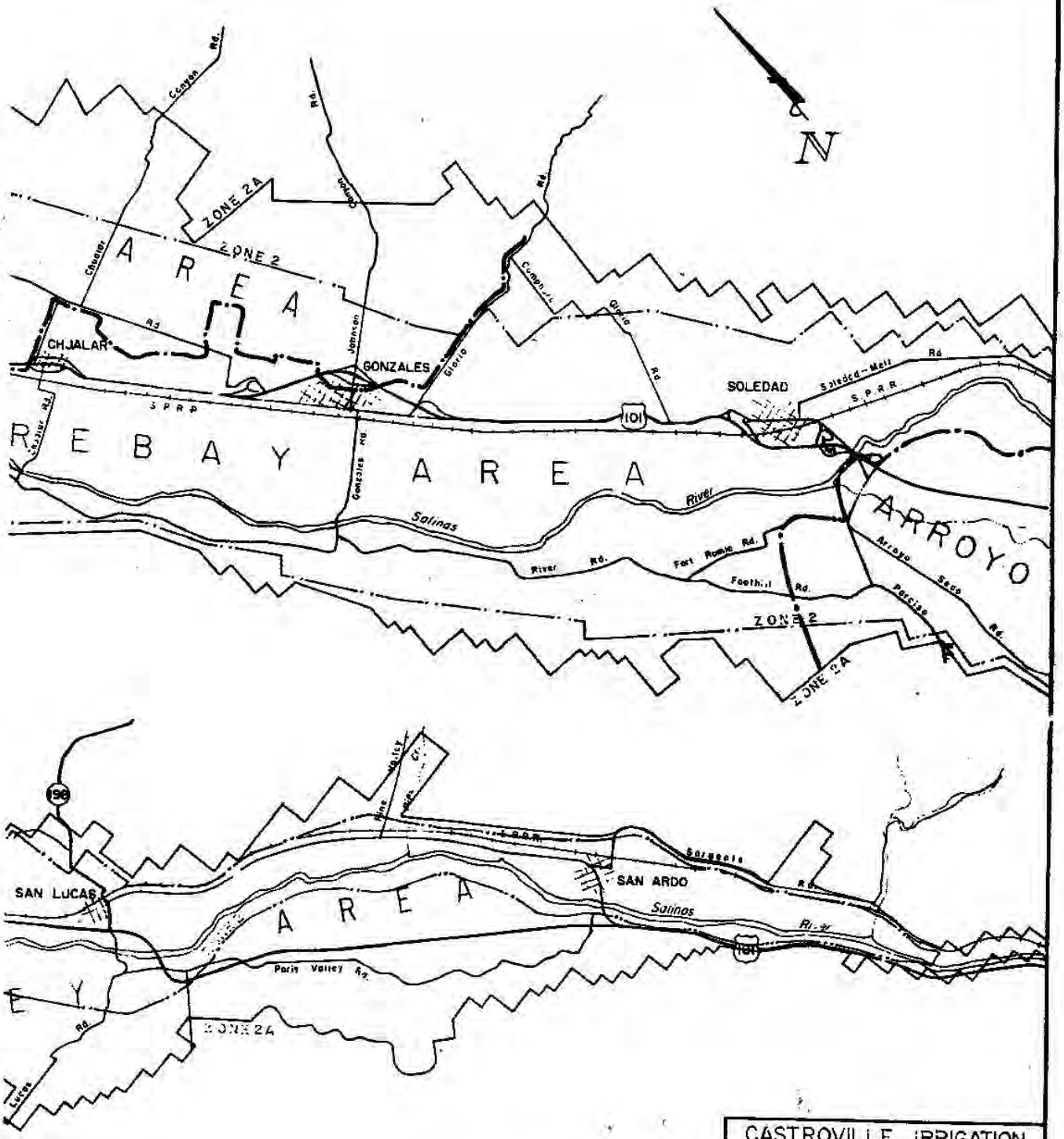

PACIFIC
OCEAN
MOSS
LANDING
CASTROVILLE
SALINAS
SPRECKELS
MARINA
ZONE 2A
ZONE 2
EAST SIDE
PRESSURE AREA
Elkhorn Slough
S.P.R.R.
Salinas River
Old Stage Rd
Alisal Rd
Blanco Rd
Davis Rd
Reservation
Molera Rd
San Juan Rd
Natividad
Williams Rd
Zabala Rd
Spreckels Rd
River Rd


ZONE 2A
ZONE 2
METZ
FOREBAY AREA
UPPER VALLEY
SECO
GREENFIELD
KING CITY
SPRR
Salinas River
Arroyo Seco River
Arroyo Seco Rd.
Central Avenue
King City - Metz Rd
Greenfield-Arroyo Seco Rd
Bitterwater Rd.
San Lorenzo Cr.
Lonoak Rd.
Wild Horse Rd
King City Jolon Rd
Pine Canyon



SUB-AREA BOUNDARY

0 1 2 3

SCALE IN MILES

CASTROVILLE IRRIGATION PROJECT		
HYDROLOGIC & LEGAL BOUNDARIES SALINAS VALLEY SUB-AREAS & ZONES 2 & 2A		
DRAWN BY	CHECKED BY	SUBMITTED BY
APPROVED District Engineer Date		
DATE	SCALE	SHEET of DRAWING NO.

to Greenfield. It covers the western half of the Salinas Valley from Spence to Soledad. Then from Soledad to a point south of Greenfield the valley is divided by the Forebay Area and Arroyo Seco Cone Area. The principal sources of groundwater replenishment are the Upper Valley and Arroyo Seco Areas.

The Arroyo Seco Cone Area extends from the point where the Arroyo Seco River enters the Salinas Valley north to the confluence with the Salinas River. It covers about half the width of the valley floor. The principal source of recharge to the groundwater is percolation from the Arroyo Seco River Channel.

The Upper Valley Area extends from a point south of Greenfield to a point north of Bradley and covers the entire width of the valley floor. The principal sources of groundwater replenishment are percolation from the Salinas River and its tributaries between Greenfield and Bradley.

A map showing the Salinas Valley Sub-Areas is on page 37.

POLITICAL BOUNDARIES OF DISTRICT

Zones 2 and 2A were formed to provide payment through an ad valorem tax for the construction, maintenance and operation of Nacimiento and San Antonio Dams. These zones are directly benefited by the dams.

The boundary of Zone 2 delineates the area of the Salinas Valley that was under irrigation at the time of the construction of Nacimiento Dam. When Nacimiento Dam was constructed, thus creating a stable water supply and lowland flood protection, more farmlands were brought under production. The advent of the sprinkler irrigation system allowed these lands to be more easily irrigated. By the time San Antonio Dam was constructed, more irrigated lands existed within the Salinas Valley. Zone 2A then, incorporated a larger area than did Zone 2.

Today the Zones are larger because annexation of land areas to the Zones have occurred. A map showing the boundaries of Zones 2 and 2A is on page 37.

Nacimiento and San Antonio Dams were constructed for the purposes of flood control and water conservation and are maintained and operated by the Monterey County Flood Control and Water Conservation District. Water is impounded in the two reservoirs during the winter months and released during the dry season when natural flow is not present in the Salinas River to replenish the groundwater supplies in the Salinas Valley. The flow of the Salinas River percolates naturally into the groundwater supply.

Construction was completed on Nacimiento Dam in 1956 and on San Antonio Dam in 1965. The dams are located within two miles of each other about forty-five miles south of King City. While San Antonio Dam is located in Monterey

County, Nacimiento Dam is just over the county line in San Luis Obispo County. The reservoir capacity is the same for both dams, 350,000 acre feet. The average annual combined releases for percolation from both dams is approximately 145,000 acre feet.

APPENDIX B

REPORT FROM THORUP TO THE AD HOC COMMITTEE DATED AUGUST 19, 1975

Mailing Address
P. O. BOX 1058
MONTEREY, CALIF. 93940

Richard R. Thorup
CONSULTING GEOLOGIST
REGISTERED GEOLOGIST NO. 2708
STATE OF CALIFORNIA

Office
481 VIA DEL REY
MONTEREY, CALIF.
TELEPHONE (408) 372-246

August 17, 1975

TO: AD-HOC COMMITTEE FOR CASTROVILLE IRRIGATION PROJECT

Conclusions

Geological studies, including the evaluating of electric logs of several abandoned oil test wells, and a basin wide correlation with deep water wells drilled in the area between Moss Landing and Greenfield, show that approximately 12 million acre feet of unused groundwater lie below the base of the 400-foot aquifer, in an alternating series of sands, gravels and clays in the middle and lower parts of the Paso Robles formation of Pleistocene age. The water appears fresh on the Elogs, and the few wells that have been completed in these lower aquifers have yielded fresh water.

The five key deep oil test wells, and the Armstrong water well at Lapis Siding, upon which these condlusions were largely based, are as follows, from north to south:

TABLE 1

Well	Location	Total Depth	Base of Fresh Water	Approx. Top of Lower Aquifers
1. General Petr. Vierra No. 1	Moss Landing	7818	1350	750
2. Texaco Pieri No. 1	Hwy 1 between Castroville and Moss Landing	3201	1450	740
3. Texaco Davies No. 1	One mile east of Castroville	2215	1670	715
4. Armstrong	Lapis Siding	898	not reached	710
5. C. A. Luckey Marihart No. 1	Somavia Road, near river	2610	1720	770
6. Humble Oil Co. Zabala No. 1	Arroyo Seca Road and Thorne Road.	5955	2240	?

It appears from a study of the well logs, that the potentially most productive water-bearing strata, based on net thickness of sands and gravels, is in the Marihart Well on Somavia Road, near the proposed diversion point of the Castroville Plan.

At the same time, it is also apparent that about 400 net feet of untested sand and gravel strata occur within the proposed Castroville Service Area. These strata do not appear to be as coarse and well-developed as the strata in the Marihart Well, but their productivity has not been fully tested. The Armstrong water well, which is the only well producing, exclusively from the 900-foot zone, pumped 1000 gpm with a chloride content of 50 ppm.

Recommendations

A well field capable of producing 18,000 ac/ft per year is required in the Castroville Project. This requires a production of 22,500 gpm for a 6-months pumping period, or a 9-well program of 2,500 gpm per well.

A test-hole program is herein proposed to achieve this goal:

1) The first test hole to be located near the Marihart No. 1, said well to be drilleed to a depth of 1,750 feet ±. Run Elog, take sidewall samples of well, evaluate.

2) If it is desired to test the Service Area, drill a test well along southerly boundary near the easterly bank of the Salinas River. Well to be drilled to 1,750±, run E log and sidewall samples and evaluate potential. If the strata appear to have a high potential productive capacity, plan to complete. This location should conclusively evaluate the potential of the service area. Plans will be designed to produce. 18,000 acre feet per year upon achieving a successful pump test of 2,500 gpm, or better.

Total cost of test hole: $15,000
Cost of completed well: $100,000
Specs: 18" casing, ¼", louvered perforations, cement above zone for shutoff of 400-foot zone, gravel pack 18" - 26 or 28", develop well and test pump for 48 hours.

This program will effectively shut off, as nearly as possible, any water from being pumped from the 180 and 400-foot aquifers. It will develope unused groundwater from the lower aquifers without disturbing the presently producing shallower aquifers now in use south of the Service Area. These lower aquifers are subject to recharge from Soledad to King City and probably receive percolation from the South County Dams.

Very truly yours,

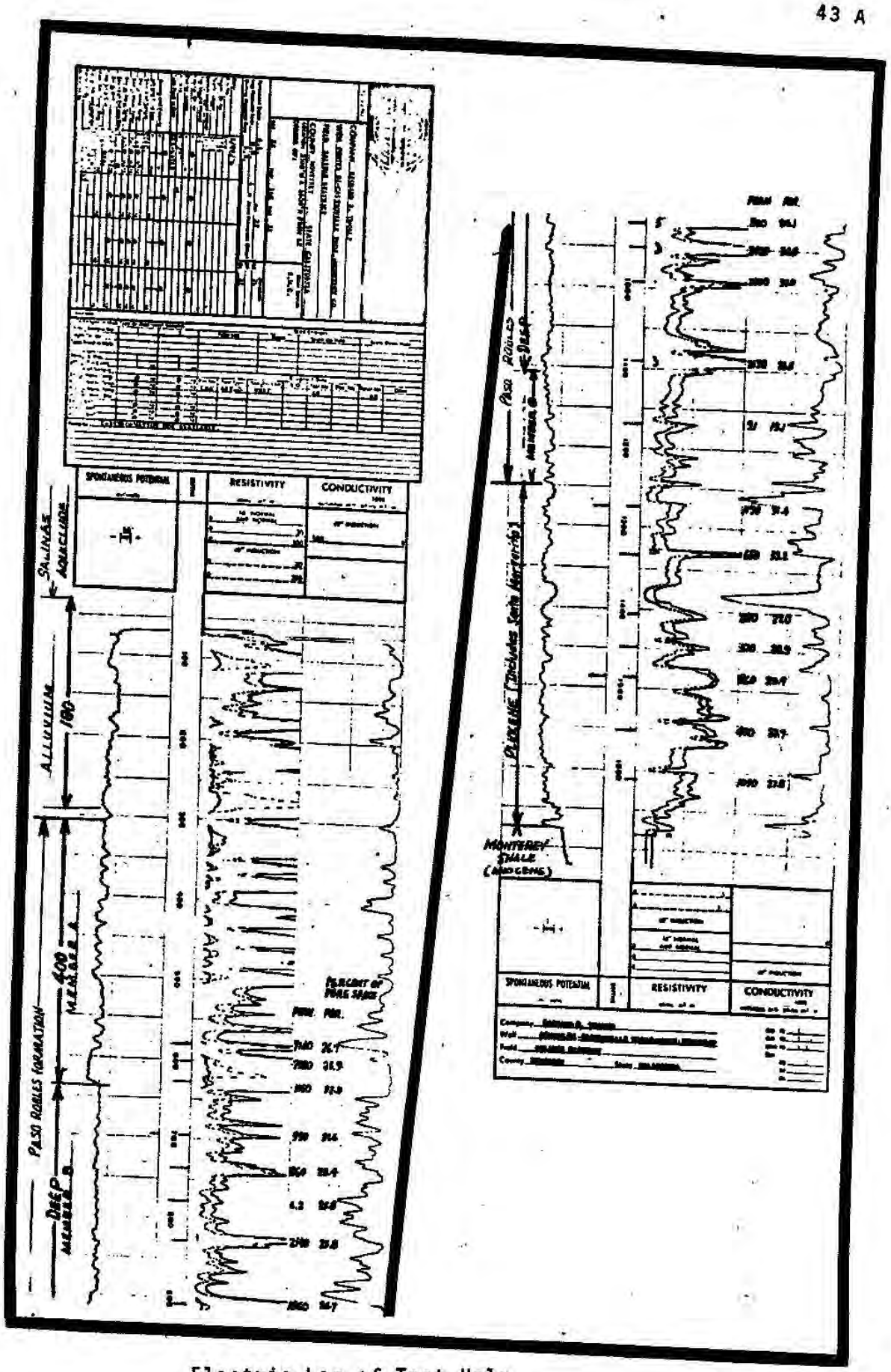
Richard R. Thorup

RICHARD R. THORUP
CONSULTING GEOLOGIST

Monterey, California

APPENDIX C

PROJECT TEST HOLE DATA



Electric Log of Test Hole

COMPANY: Richard R. Thorup.

WELL: Fontes No. 1 - Castroville Project - Monterey County FC & WCD.

LOCATION: Township 14S, Range 2E, Section 22, Monterey County, California. Elevation 26.0 feet KB

DRILLER: Salinas Valley Pump and Drilling Company, Inc.

TOTAL DEPTH: 1718 feet (523.6 meters).

INDUCTION ELECTRICAL LOG BY: Go International.

DEPTH LOGGED: 1680 feet (512.1 meters).

DRILLING FLUID: Bentonite mud and gel.

CASING DIAMETER: 10 inches.

CASING DEPTH: 65 feet.

DRILL BIT TYPE AND DIAMETER:

0' - 1360' - two cone roller 9-7/8".
1360' - 1718' - tri cone roller 9-7/8".

SAMPLE INTERVAL: 15 feet.

SAMPLE METHOD: Samples taken from cuttings at surface.

NOTES:

Grain sizes according to the Wentworth Scale.

Degree of sorting according to Compton's Manual of Field Geology.

Degree of rounding after Powers, M. C. 1953 Journal of Sedimentary Petrology, Vol. 23, p. 118.

SWS indicates "side wall samples".

Log compiled from cutting and electric logs.

Precise location is 1400 feet north and 2500 feet west of southeast section corner.

INTERVAL (Feet) From-to	FONTES NO. 1 DESCRIPTION
0 - 3	CLAY, black, organic.
3 - 30	CLAY, tan, with trace of fine sand. Fine sand increases around 30 feet with traces of dark blue clay.
30 - 90	CLAY, dark blue, streaks of tan clay, traces of fine sand.
90 -120	SAND & GRAVEL, medium to coarse sand and fine to medium pebble gravel (pea gravel).
120-170	CLAY, dark blue, traces of very fine sand.
170-195	GRAVEL, dark blue and brown clay, scattered pea gravel.
195-210	SAND & GRAVEL, clayey, tan and brown, medium to coarse.
210-290	SAND, Scattered pebbles, brown to tan, medium to coarse, increasing clay content below 270'.
290-310	SAND, clayey, tan, medium grained.
310-390	SAND, medium to coarse, scattered sub-rounded pea gravel, clay layers.
390-410	CLAY, light brown, fine to medium sand.
410-540	SAND & CLAY, fine to coarse, poorly sorted, angular clayey sand with scattered very angular fine pebbles Interbedded with a brown sandy clay.
540-585 (SWS-580)	SAND & CLAY, interbedded, sand is medium to coarse, contains pea gravel, a side wall sample (SWS) showed fine to medium pea gravel, gray, soft, loose, high permeability and porosity, clean, injected by drilling mud.
585-630	SAND, fine to coarse, predominantly quartz, silty, clayey, 75% sand.
SWS-626	SAND, medium grained, silty, softly friable, light brown to tan.
SWS-600	SAND, tan, medium to coarse, softly friable, silty.

INTERVAL (Feet) From-to	FONTES NO. 1 DESCRIPTION
630-720	SAND, medium to coarse, angular to sub-rounded, very clean to 675 (95% sand); 675-720 shows increasing silt and clay content with scattered medium pebbles. Predominantly quartz with increasing chert. Approximately 80% sand at 720.
SWS-695	SAND, massive, brown, fine to medium, silty, micaceous, wet (about 80% fine sand), brown clay, approximately 10%.
720-855	SAND, medium to coarse, scattered pebbles, increasing amounts of light brown to dark gray clay from 810 to 855.
SWS-735	SAND, light brown, medium grained, silty, softly friable, wet.
SWS-777	SANDY SILT, clayey, tan, massive, softly friable.
SWS-826	SAND, tan, fine to coarse, soft, wet, injected by drilling mud.
855-900	CLAY, light brown with streaks of black to gray, containing less than 20% sand, fine to medium with scattered pebbles from 885-900.
900-925	SAND, SILT, medium to coarse pebbly sand, tan, clean soft, wet. Silt is light brown, massive, clean and wet.
SWS-907	SAND, medium to coarse, pebbly, tan in color, soft, wet and clean.
SWS-920	SILT, light brown in color, massive, clean and wet.
925-945	CLAY-SAND, fine to coarse sand (40-60%), light brown clay.
945-1065	SAND, light gray to brown in color, medium to coarse scattered fine to medium pebbles, rounded to sub-angular, streaked with black to light brown clay below 1000 feet.
SWS-950	SAND, medium to coarse, massive, light brown, softly friable, clean and wet.
SWS-992	SAND, light gray, medium to coarse, clean, softly friable, wet.

INTERVAL (Feet) From-to	FONTES NO. 1 DESCRIPTION
1065-1170	CLAY & SAND, interbedded. Sand is fine to medium, scattered coarse sand. Clay varies from tan to light brown. From 1155 to 1170 the sand becomes fine with light brown silt.
SWS-1090	SAND, yellow-brown, medium to coarse, stained with Fe_2O_3, clean, massive, softly friable, predominantly quartz, wet.
SWS-1169	SILT, clayey, light tan in color, firm with scattered pebbles.
1170-1500	CLAY, light brown, tan to black, scattered pebbles with fine to medium sand, usually less than 20%.
	NOTE: SHELL FRAGMENTS IN SAMPLE 1425-1440.
SWS-1274	SAND, green to black, massive, soft, loose, friable, clean, wet.
SWS-1332	SAND, steel-gray, fine, silty, soft, clean.
SWS-1404	SAND, dark gray, fine to medium, massive, silty, moist.
SWS-1448	SAND, medium gray, soft, clean, medium grained.
SWS-1486	SAND, white, fine to medium, clean, wet, loosely friable.
1500-1650	SAND, fine, becoming white about 1545, continuing as a white sand through 1635, silty, scattered clay lenses throughout. Clay varies from brown to tan and white.
SWS-1552	SAND, white, fine to medium, clean, soft, loose, wet, predominantly quartz.
SWS-1610	SAND, light gray to white, fine to medium, massive, soft, local stain FE_2O_3, clean.
1650-1718	CLAY, tan to gray, moderately sandy 1650-1675 with fine to medium grained sand. 1680-1695 shows fine to coarse sand with the scattered coarse pebbles, rounded to sub-rounded.
	NOTE: SHELL FRAGMENTS WERE PRESENT IN THE INTERVAL 1695-1710.

BOTTOM OF HOLE - 1718 feet.

TEST HOLE

48

ORIGINAL
File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do Not Fill In

Nº 140509

State Well No.

Other Well No.

(1) OWNER:

Name Richard Thorup
Address P.O. Box 1068
Monterey, Ca 93940

(2) LOCATION OF WELL:

County Monterey Owner's number, if any

Township, Range, and Section

Distance from cities, roads, railroads, etc.

(3) TYPE OF WORK *(check):*

New Well ☒ Deepening ☐ Reconditioning ☐ Destroying ☐

If destruction, describe material and procedure in Item 11.

(4) PROPOSED USE *(check):*

Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☒ Other ☐

(5) EQUIPMENT:

Rotary ☒
Cable ☐
Other ☐

(6) CASING INSTALLED:

STEEL: OTHER:
SINGLE ☐ DOUBLE ☐

From ft.	To ft.	Diam.	Gage or Wall
		TEST HOLE	

If gravel packed

Diameter of Bore	From ft.	To ft.

Size of shoe or well ring:

Size of gravel:

Describe joint

(7) PERFORATIONS OR SCREEN:

Type of perforation or name of screen

From ft.	To ft.	Perf. per row	Rows per ft.	Size in. x in.
	TEST HOLE			
			Changed bits	

(8) CONSTRUCTION:

Was a surface sanitary seal provided? Yes ☐ No ☐ To what depth ft.

Were any strata sealed against pollution? Yes ☐ No ☐ If yes, note depth of strata

From ft. to ft.

From 1640-1660 Fine sand, blue shale
Method of se 1660-1680 Fine sand streaks
(9) WA shale clay
Depth at wh 1680-1700 Coarse sand streaks
Standing lev shale- clay
Standing lev 1700-1718 shale, sandy clay

(10) WELL TESTS:

Was pump test made? Yes ☐ No ☐ If yes, by whom?

Yield: gal./min. with ft. drawdown after hrs.

Temperature of water Was a chemical analysis made? Yes ☐ No ☐

Was electric log made of well? Yes ☐ No ☐ If yes, attach copy

(11) WELL LOG:

Total depth 1718 ft. Depth of completed well ft.

Formation: *Describe by color, character, size of material, and structure*

0 ft. to 3 Top Soil ft.
3' - 30' Brown Clay
30' - 186' Blue Clay
186' - 210' Yellow Sandy Clay
210' - 220' Shale Gravel
220' - 250' Coarse Sand
250' - 310' Gravel Rock
310' - 390' Gravel W/yellow Streaks Cla
390' - 450' Gravel - Yellow Clay
450' - 470' Gray Clay & Gravel
470' - 610' Gravel - Streaks Gray Clay
610' - 630' Sand Gravel
630' - 670' Fine Sand
670' - 720' Coarse Sand
720' - 760' Fine Sand
760' - 780' Fine Sand - Streak Clay
780' - 820' Coarse Sand
820' - 840' Blue Clay
840' - 880' Yellow Clay
880' - 940' Blue Clay
940' - 960' Blue Clay - Gravel
960' - 1000' Gravel Streaks Blue Clay
1000' - 1100' Coarse Sand - Streaks Blue Clay
1100' - 1140' Fine Sand - Yellow Clay
1140' - 1160' Fine Sand - Streak Clay
1160' - 1200' Fine Sand
1200' - 1240' Fine Sand - Coarse Sand
1240' - 1260' Fine Sand - Streak Clay
1260' - 1280' Blue Clay - Gravel Caving
1280' - 1320' Clay - Gravel Cavings
1320' - 1340' Clay - Sand
1340' - 1360' Blue Clay - Silt
1360' - 1380' Blue Clay - Gravel - Cavings
1380' - 1440' Fine Sand - Silt
1440' - 1520' Clay - Sand Streaks
1520' - 1620' Fine Sand - Blue Clay
1620' - 1640' Shale - Fine Sand - Blue Cla

Work started 2/24 19 76 Completed 3/9 19 76

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Salinas Pump Co
(Person, firm, or corporation) (Typed or printed)

Address 1128 Madison Lane
Salinas, Ca 93901

[SIGNED] (Well Driller)

License No. 273053 Dated March 12, 1976

SKETCH LOCATION OF WELL ON REVERSE SIDE

DWR 188 (REV. 9-68)

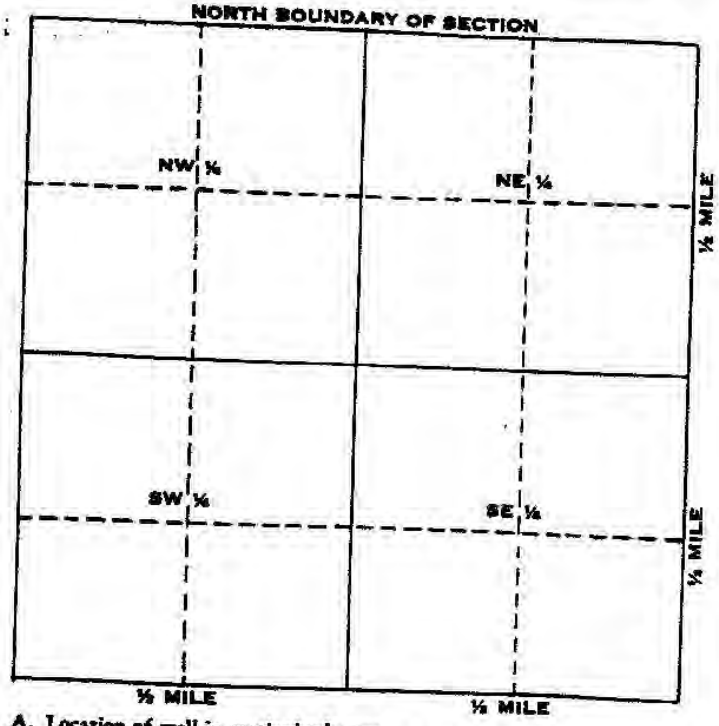
Drillers Log

OVER

R.R. THORUP

48a

WELL LOCATION SKETCH



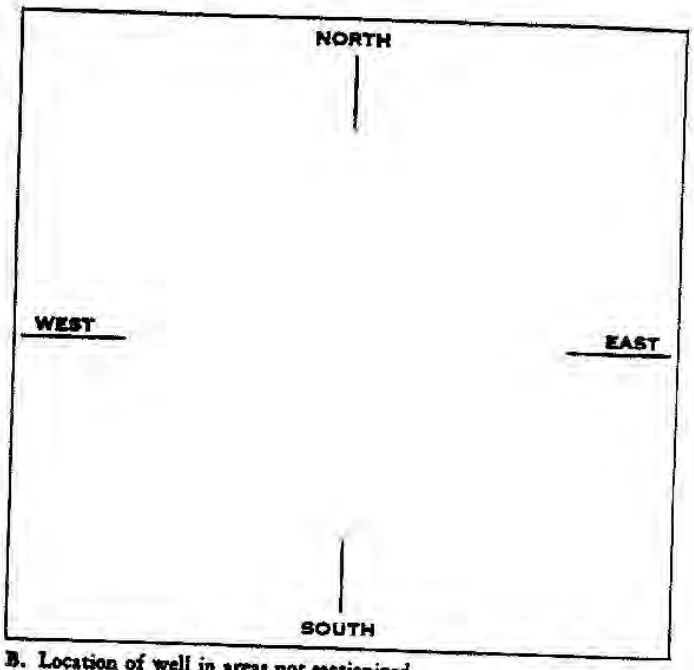
A. Location of well in sectionized areas.
Sketch roads, railroads, streams, or other features as necessary.

1640' - 1660' Fine Sand - Blue Shale
1660' - 1680' Fine Sand Streaks Shale Clay
1680' - 1700' Coarse Sand Streaks Shale - Clay
1700' - 1718' Shale - Sandy Clay

Township _____ N/S

Range _____ E/W

Section No. _____



B. Location of well in areas not sectionized.
Sketch roads, railroads, streams, or other features as necessary.
Indicate distances.

FIGURE 5 B

R.R. THORUP

CORE LABORATORIES, INC. CORE LAB *Petroleum Reservoir Engineering*

COMPANY Richard R. Thorup — DATE ON 3-9-76 — FILE NO. BP-1-5324
WELL Fontes #1 Castroville — DATE OFF 3-10-76 — ENGRS. BG
FIELD Salinas — FORMATION — ELEV.
COUNTY Monterey — STATE CA — DRLG. FLD. water base — CORES side wall
LOCATION Sec 22 - 14S - 2E — REMARKS Service #4

Side Wall Core Analysis Data

SMP. REC.	DEPTH, FEET	PERM., Md.	POR., %	% POR. SAT. OIL	% POR. SAT. TOTAL WATER	O/W		smpl. wt.	°API	DESCRIPTION
	580	7140	26.7	P &	P ONLY			7		sd; lt tan, v cgr, pbly, nostn, no flu
	600	2380	25.1					17		sd; lt tan, m-cgr, slty, nostn, no flu
	735	860	23.4					19		sd; lt tan, fgr, slty, nostn, no flu
	920	520	30.1					17		same
	992	2530	34.0					7		sd; lt gy, cgr, pbly, slty, nostn, no flu
	1090	2130	26.5					13		sd; lt tan, mgr, pbly, slty, nostn, no flu
	1274	1190	31.4					17		sd; gy, f-mgr, slty, nostn, no flu
	1486	960	23.9					16		sd; lt tan, f-mgr, cly, nostn, no flu
	1610	1030	27.8	✓		✓		17		same

Sidewall Sample Analysis Data — R. THORUP

50

CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

COMPANY Richard R. Thorup — DATE ON 3-15-76 — FILE NO. BP-1-5324

WELL Fontes #1 Castroville — DATE OFF 3-17-76 — ENGRS. BG

FIELD Salinas — FORMATION — ELEV.

COUNTY Monterey — STATE CA — DRLG. FLD. water base — CORES side wall

LOCATION Sec 22 - 14S - 2E — REMARKS Service #4

Side Wall Core Analysis Data

IN. REC.	DEPTH, FEET	PERM., Md.	POR., %	% POR. SAT. OIL	% POR. SAT. TOTAL WATER	O/W		smpl. wt.	*API	DESCRIPTION
	626	1160	32.3							sd; lt tan, mgr
	695	590	31.6							sd; tan, fgr, slty
	777	6.2	25.8							cly, gy, slty
	826	2140	25.8							sd; lt tan, cgr
	907	1860	26.7							same
	950	2420	34.8							same
	1169	9.1	19.1							sd; gy, v fgr, v cly
	1332	650	33.2							sd; gy, fgr
	1404	280	27.0							sd; gy, fgr, slty
	1448	510	28.9							same
	1552	470	27.7							sd; wh; mgr, cly

R. THORUP

Marcel Mougne
Go International, Inc.
Houston, Texas

ELECTRIC LOG ANALYSIS

WELL: Fontes #1 Castroville

SALINAS FIELD

Monterey County

California

March 23, 1976

Electrical Log Analysis

ELECTRIC LOG ANALYSIS

An overall examination of the log indicates broadly three sections.

1. Upper Section: (Surface to 650 feet) mostly high resistivity, fresh-water sands (more than 30 ohm-meters).

2. Medium Section: (650 feet to 1320 feet) alternations of shales, shaly sands and sands.

3. Lower Section: (1320 feet to bottom) mostly medium resistivity water sands (less than 30 ohm-meters).

The static SP in the lower section is larger than in the upper section. This means that the lower section's lower resistivities are caused by more saline waters than the waters in the upper section. Besides, those changes in formation resistivities between the upper and the lower sections are not caused by formation factor variations, since the core analysis indicates a fairly uniform porosity, hence a uniform formation factor. Therefore, the resistivity changes are caused by variations in water salinity rather than by variations in formation factor.*

The water in the medium section is comparable to the water in the upper section, (resistivities and SP are comparable in magnitude).

The water resistivity was calculated for both sections, as shown later.

For each section, five values of resistivity are given; this was done on account of the lack of guiding lines regarding ion contents in waters for this area and at these depths.

All this is explained in the appendix.

The core analysis report exhibits perfect correlation between permeability and sand coarseness. There was, however, not enough precision on actual grain sizes, to enable relating permeability to formation factor.

*$S_w = \sqrt{\frac{2FR_w}{R_t}} = 1$, $R_t = FR_w$, F Constant, R_t Increases, R_w Increases

APPENDIX

I. Rwe CALCULATION

1. Calculate Rmfe/Rwe using Chart SP-1, A 10 (Schlumberger Interpretation Charts).
2. Calculate Rmfe = .85 Rmf from mud sample corrected for temperature (SO-1, A 10, #3a). The gel mud is assumed to be NaCl base mostly.
3. Calculate Rwe from Nos. 1 and 2 above.

II. Rw CALCULATION

As said previously, a five-curve network of Rw vs Rwe was established as shown on Figure #1.

Curve #1 pertains to NaCl
Curve #2 pertains to $NaHCo^3$
Curve #5 pertains to $CaCl_2$

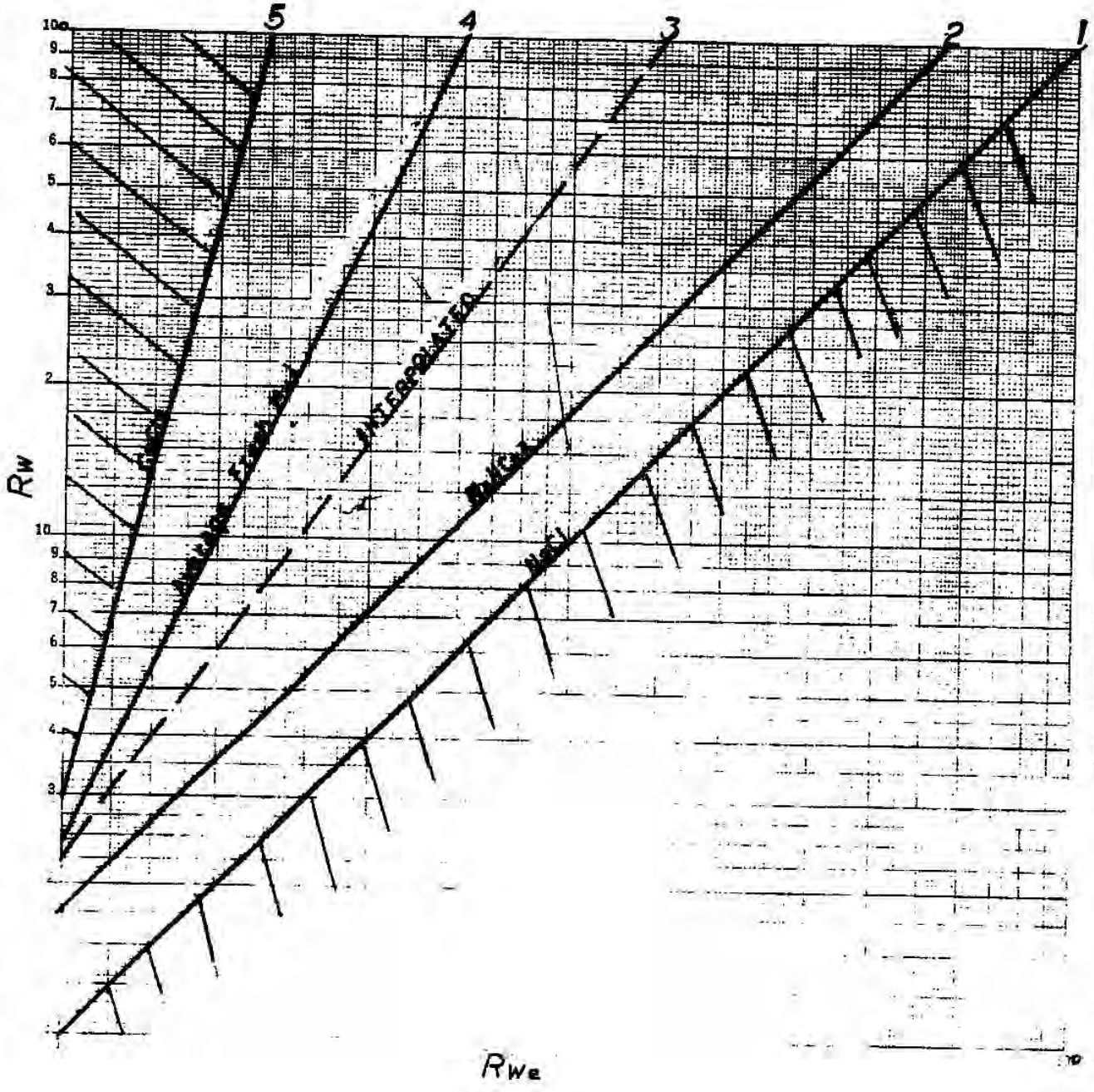
All above from "Interpretation of Electric Logs in Fresh Water Wells in Unconsolidated Formations".

Curve #4 is derived from average fresh water curves of SP-2, A 12.

Curve #3 fills the gap between curve #2 and Curve #4

		LOWER SECTION*	UPPER SECTION**
MV	SP	-15	-10
ohm - Meters	Rmfe/Rwe	1.65	1.38
	Rmf @ 42° F	9.9	9.9
	Rmf	@ 82° F 6	@ 75° F 6.6
	Rmfe	@ 82° F 5.1	@ 75° F 5.6
	Rwe	@ 82° F 3.1	@ 75° F 4.1
	Rw #1	@ 82° F 3.1	@ 75° F 4.1
	Rw #2	@ 82° F 5.5	@ 75° F 7
	Rw #3	@ 82° F 10	@ 75° F 16
	Rw #4	@ 82° F 25	@ 75° F 40
	Rw #5	@ 82° F 60	@ 75° F100

* 1320 feet to bottom
**Surface to 650 feet


5
4
3
2
1
Rw
Rwe
INTERPRETATION
WET

55

Mr. Thorup April 9, 1976

Following is a summary of the paleontologic work done on the deep well near Castroville

Bit and ditch samples from 1710 to 1716

Monterey formation, Mohnian stage, Upper Miocene with environment of deposition as outer neritic or upper slope

Sidewall core at 1552 and ditch samples 1680 to 1710

Santa Margarita formation Uppermost Miocene age

Sidewall cores at 1448, 1404, 1336 represent the Purissima formation with Shallow marine environment and probably not far from shore

Sidewall core at 1169

This represents either a different member of the Purissima formation or more likely the Paso Robles.

Sincerely

Robert E. Arnal

Paleontol...

APPENDIX D

WATER QUALITY DATA

1. Moss Landing Area
2. Kaiser
3. PG & E
4. Moss Landing Harbor District

Fresh Water Wells

Date 1976		1 Tate Well		2 Dolan Well #1		3 Dolan Well #2		4
1-28-76	NaCl	322		175		175		PPM
	CO_2	173		154		154		PPM
	PH	7.8		7.8		7.8		
	CaO	100.9		58.3		58.3		Mg/L
	MgO	30.1		22.3		23.6		Mg/L
	SO_4							
	Dis Solids	522		260		310		PPM
2-15-76	NaCl	322		193		187		PPM
	CO_2	173		161		167		PPM
	PH	7.9		7.8		7.8		
	CaO	112.6		58.2		58.2		Mg/L
	MgO	30.9		21.9		22.8		Mg/L
	SO_4							
	Dis. Solids	556		362		364		PPM
3-15-76	NaCl	322		193		183		PPM
	CO_2	154		148		148		PPM
	PH	7.9		8.0		8.0		
	CaO	103.0		58.6		58.6		Mg/L
	MgO	30.2		36.6		36.6		Mg/L
	Dis Solids	515		491		412		PPM

TATE perforated in 400 and deep

DOLAN 1 and 2 perforated in 180, 400, deep

KAISER (1976)

KAISER, INC.

138/2E/20 C4

57

Tate Well - 1961

1/5/61	CO_2	169
	NaCl	175
1/17/61	CO_2	173
	NaCl	170
1/19/61	CO_2	173
	NaCl	175
1/27/61	CO_2	166
	NaCl	170
2/13/61	CO_2	173
	NaCl	170
2/19/61	CO_2	170
	NaCl	175
2/27/61	CO_2	171
	NaCl	175
3/13/61	CO_2	173
	NaCl	175
3/22/61	CO_2	171
	NaCl	170
3/27/61	CO_2	174
	NaCl	170
4/3/61	CO_2	173
	NaCl	170
4/13/61	CO_2	171
	NaCl	170
4/20/61	CO_2	171
	NaCl	175
4/26/61	CO_2	172
	NaCl	170
5/5/61	CO_2	167
	NaCl	170
5/18/61	CO2	173
	NaCl	175
5/28/61	CO_2	172
N	NaCl	175
6/6/61	CO_2	174
	NaCl	175
6/14/61	CO_2	175
	NaCl	175
6/28/61	CO2	173
	NaCl	175
7/7/61	CO_2	167
	NaCl	170
7/14/61	CO_2	165
	NaCl	175
8/10/61	CO_2	170
	NaCl	170
8/24/61	CO_2	173
	NaCl	170
9/11/61	CO_2	167
	NaCl	170
9/24/61	CO_2	169
	NaCl	175

Perf. 19' in 400 ft. aquifer
14' in deep aquifer
I.P. 500 gpm @ 64'

Coast Valleys Division
Moss Landing Power Plant
Well Water Analysis

R.C. PUCKETT: AQUIFERS Idle shallow 400' 180, 400, deep Date: MARCH 1976

Well Number	4	5	7	8
Date of Sample	3-2	3-2	3-2	3-1
Temperature of Water, °F	72	56	73	72
Rate of Flow, GPM				
Height above Suction	23'	NO GAUGE	55'	84'
Operation	24 HRS	24 HRS	24 HRS	CONTINUOUS
Color of Water	YELLOW TINGE	NONE OBS'D.	NONE OBS'D	NONE OBS'D
Suspended Material	NONE OBS'D.	"	"	"
p^h	7.7	7.8	8.2	7.8

PARTS PER MILLION UNFILTERED SAMPLE

Bicarbonate, HCO_3	296	226	276	198
Sulfate, SO_4	46	25	39	9
Chloride, Cl	280	87	55	39
Calcium, Ca (by Titration)	74	36	25	29
Magnesium, Mg (by Diff.)	36	19	15	15
Silica, SiO_2 (Colorimetrically)	35	37	27	47
Ammonia, NH_3	2.7	1.1	2.4	TRACE
Total Ca & Mg Hardness, Expressed as $CaCO_3$	332	169	124	134
Dissolved Solids by Evap. @ 105°C	821	399	392	282
Organic & Volatile @ 310°C	77	24	26	21

HYPOTHETICAL COMBINATIONS

Calcium Bicarbonate,	$Ca(HCO_3)_2$	300	146	101	117
Calcium Sulfate,	$CaSO_4$	—	—	—	—
Calcium Chloride,	$CaCl_2$	—	—	—	—
Magnesium Bicarbonate,	$Mg(HCO_3)_2$	84	114	90	90
Magnesium Sulphate,	$MgSO_4$	58	—	—	—
Magnesium Chloride,	$MgCl_2$	39	—	—	—
Sodium Bicarbonate,	$NaHCO_3$	—	29	172	48
Sodium Sulfate,	Na_2SO_4	—	37	58	13
Sodium Chloride,	NaCl	414	143	91	64

Analysis By: G.W. Rauch

M. D. BUSH

cc. MLR-RCP-FILE

P.G.E.

18-7264 5/74 REV. (100)

Approved by State of California
MOSS LANDING HARBOR DISTRICT
SOIL CONTROL LAB
1234 HIGHWAY 1

RECEIVED

penetrates your problems!

Monterey County
FC & WCD

MOSS LANDING HARBOR DISTRICT
P. O. Box 102
Moss Landing, California 95039

Attention: Elmer L. Morton

TELEPHONES
Laboratory: 408 724 5421
KEN GALLOWAY, 688 6[illegible]
KINGSLEY PACKER 724 [illegible]

In any reference, please quote Certified Analysis Number appearing hereon

November 20, 19[illegible]

CERTIFIED DRINKING WATER ANALYSIS

WATER IDENTIFICATION: Domestic water supply, at Administration building.
SAMPLED: Nov. 1[illegible], 1970.

QUANTITATIVE ANALYSIS: (parts per million when not otherwise stated)		PUBLIC HEALTH DRINKING WATER STANDARDS, not to exceed:	QUALITY at time sampled
Certified Analysis Number:	- 136906 -		
pH value, units:	8.3	10.6	Calc.
Conductivity, millimhos/cm:	0.42	-	-
Color, APHA color units:	Less than: 5.	20	Calc.
Turbidity, APHA units:	0.	10	Calc.
Odor, APHA system symbols:	0.	III	Calc.
Carbonate Alkalinity (as $CaCO_3$)	0.		
Bicarbonate Alkalinity " "	178.	120	Calc.
Total Alkalinity " "	178.	-	-
Total Hardness " "	128.	35 + hardness*	Calc. since not due to chemical treatment.
Total Salts (electrometric):	294.	-	-
Chlorides (Cl):	50.	500	Calc.
		250	Calc.
Sulfates (SO_4):	5.0		
Nitrates (NO_3):	0.9	250	Calc.
Fluorides (F):	Less than: 0.1	45	Calc.
		1.5	Calc.
Calcium (Ca):	32.		
Magnesium (Mg):	12.	-	-
Potassium (K):	2.0	125	Calc.
		-	-
Sodium (Na):	36.		
Iron, total (Fe):	0.03	-	-
Manganese (Mn):	Less than: 0.01	0.30	Calc.
		0.05	Calc.

*when due to chemical treatment.

The undersigned certifies that the above is a true and accurate report of the findings of this Laboratory.

Analyst

Interpretation: This water complies in all respects for which tests were applied, with the requirements of the United States Public Health Service for drinking water and domestic use.

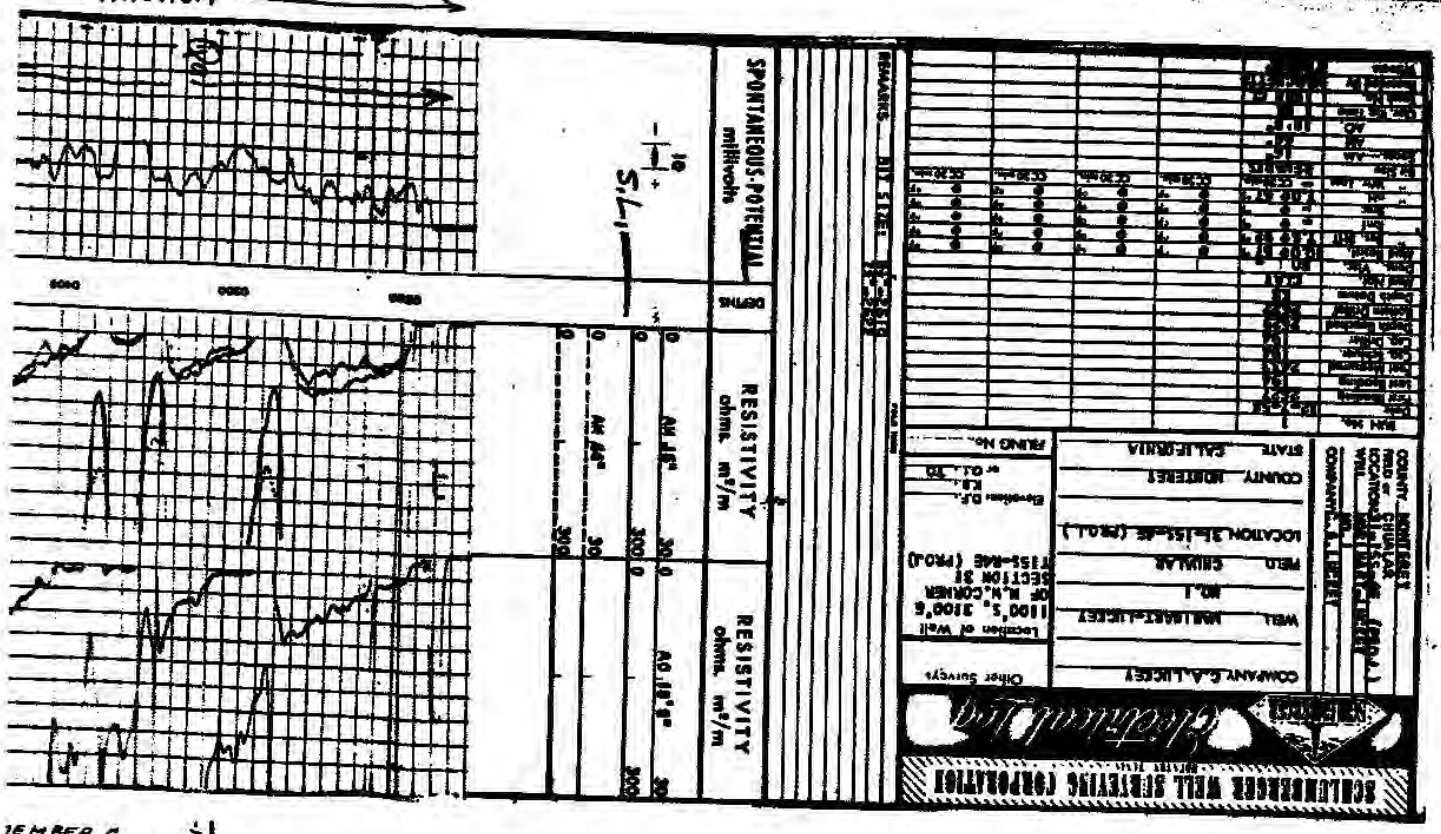
Perforated in 400 and deep aquifers

MOSS LANDING HARBOR DIST.

APPENDIX E

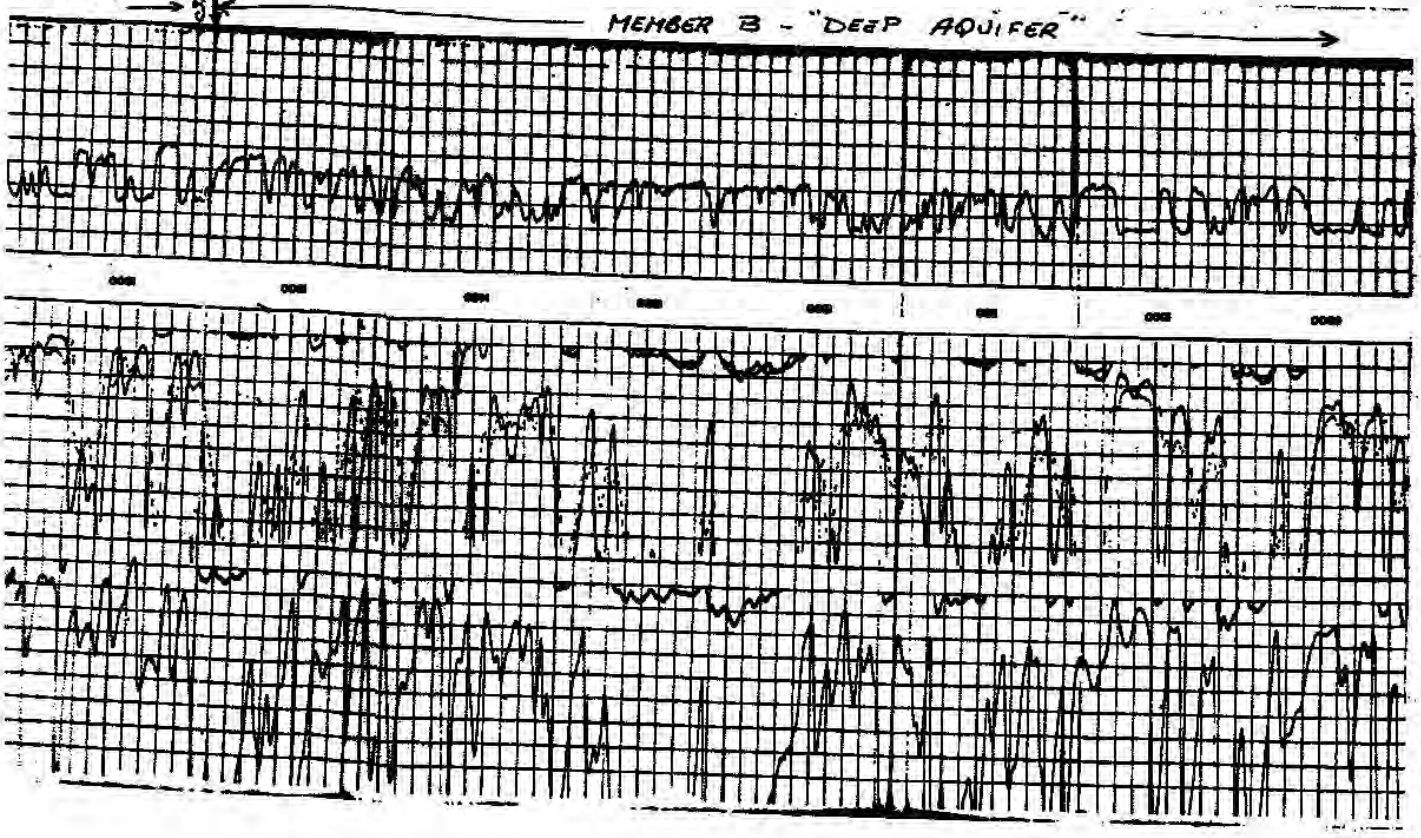
ELECTRIC LOG, C.A. LUCKEY MARIHARD No. 1 (REDUCED SCALE)

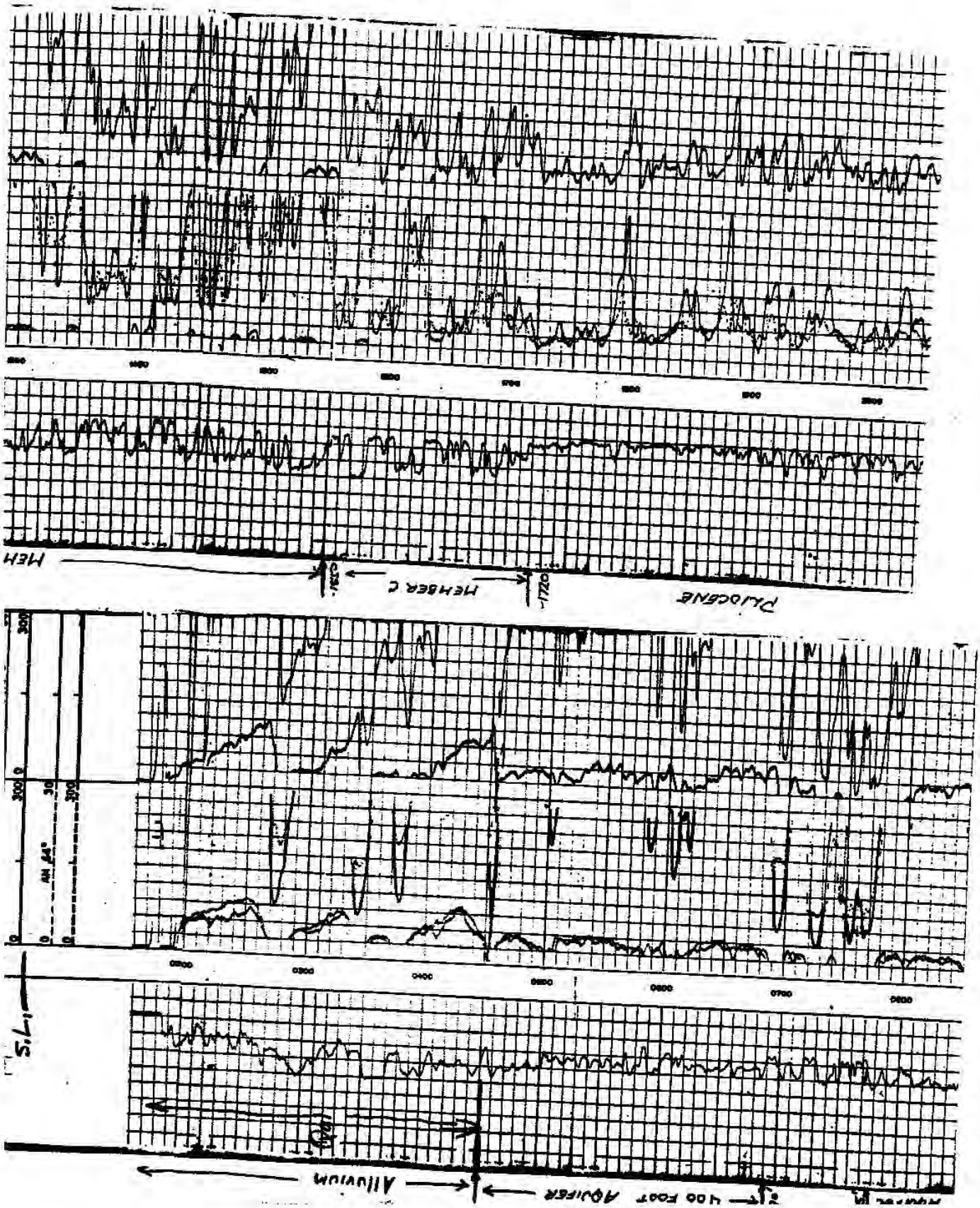
Alluvium

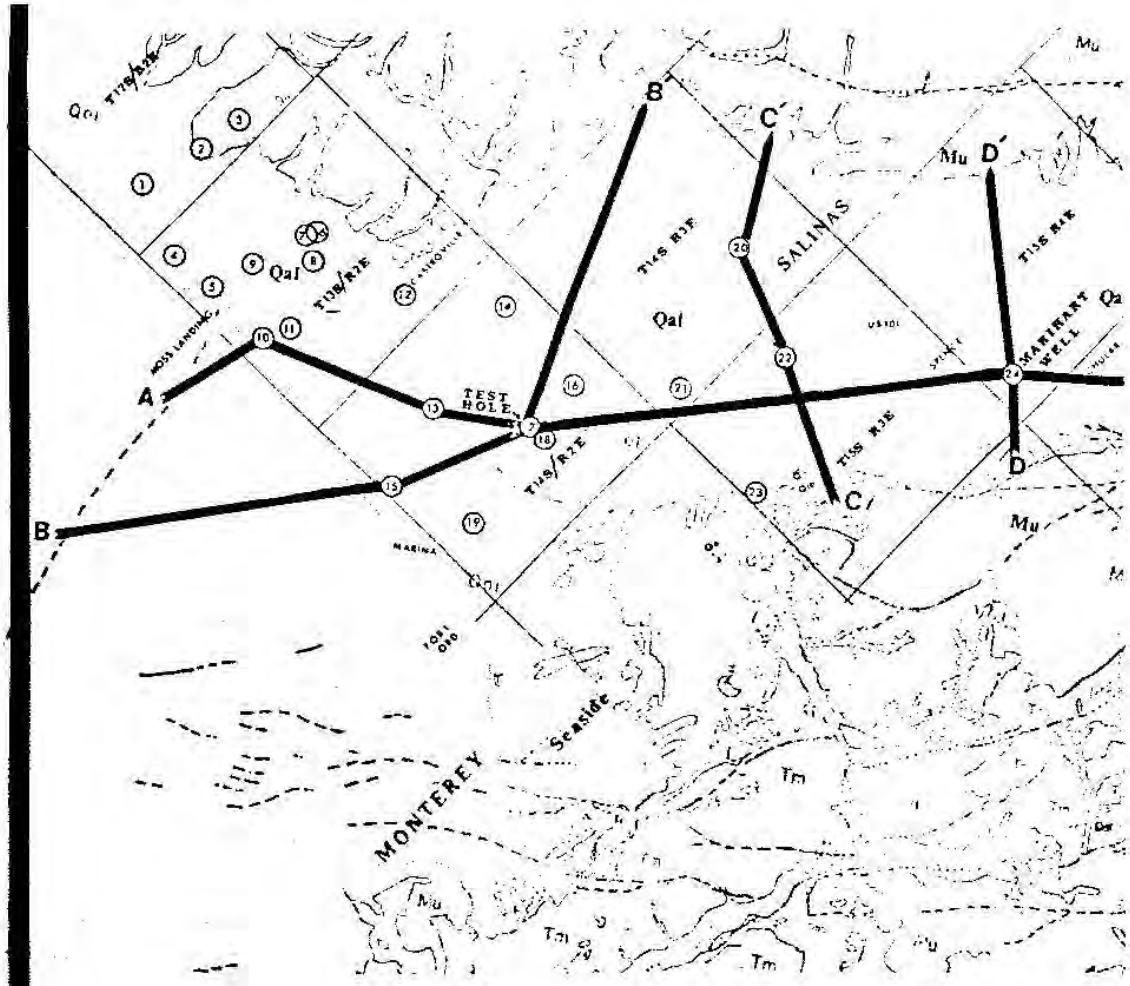


MEMBER C

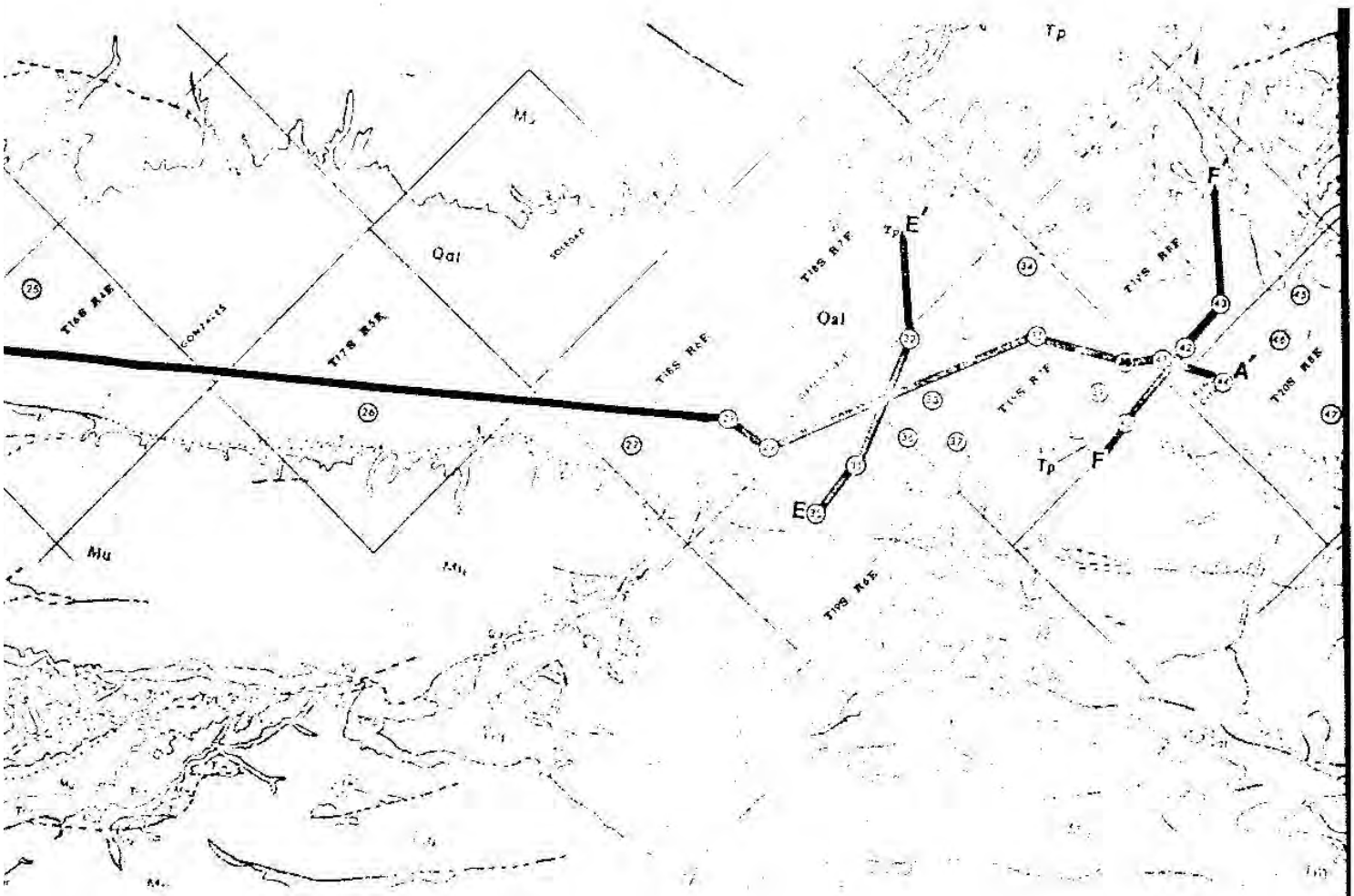
MEMBER B - "DEEP AQUIFER"




MEH
MEHBER C
PLIOCENE
ALLUVIUM
100 FOOT AQUIFER



Qal
Qls
Qa
Qtp
Tp
Tps
Tm
Tms
Mu
(22)



LEGEND

Alluvium Landslide	}	RECENT
Aromas Sand Paso Robles Formation	}	PLEISTOCENE
Pliocene Undifferentiated Pliocene Sand Monterey Shale	}	PLIOCENE
Basal Monterey Sand	}	MIOCENE
Basement Rock	}	PRE-TERTIARY

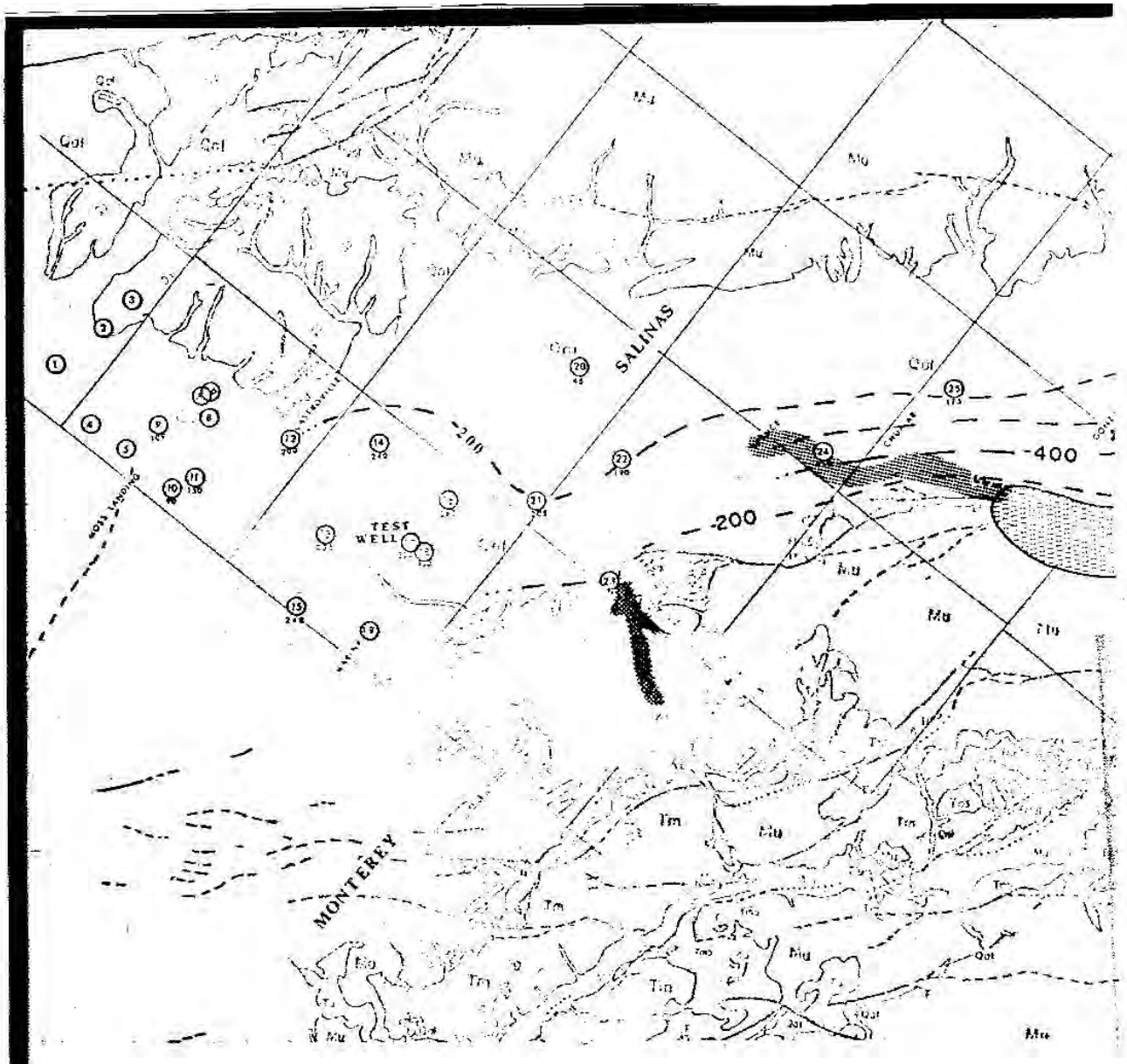
Well Location & No. (See Table 1.)

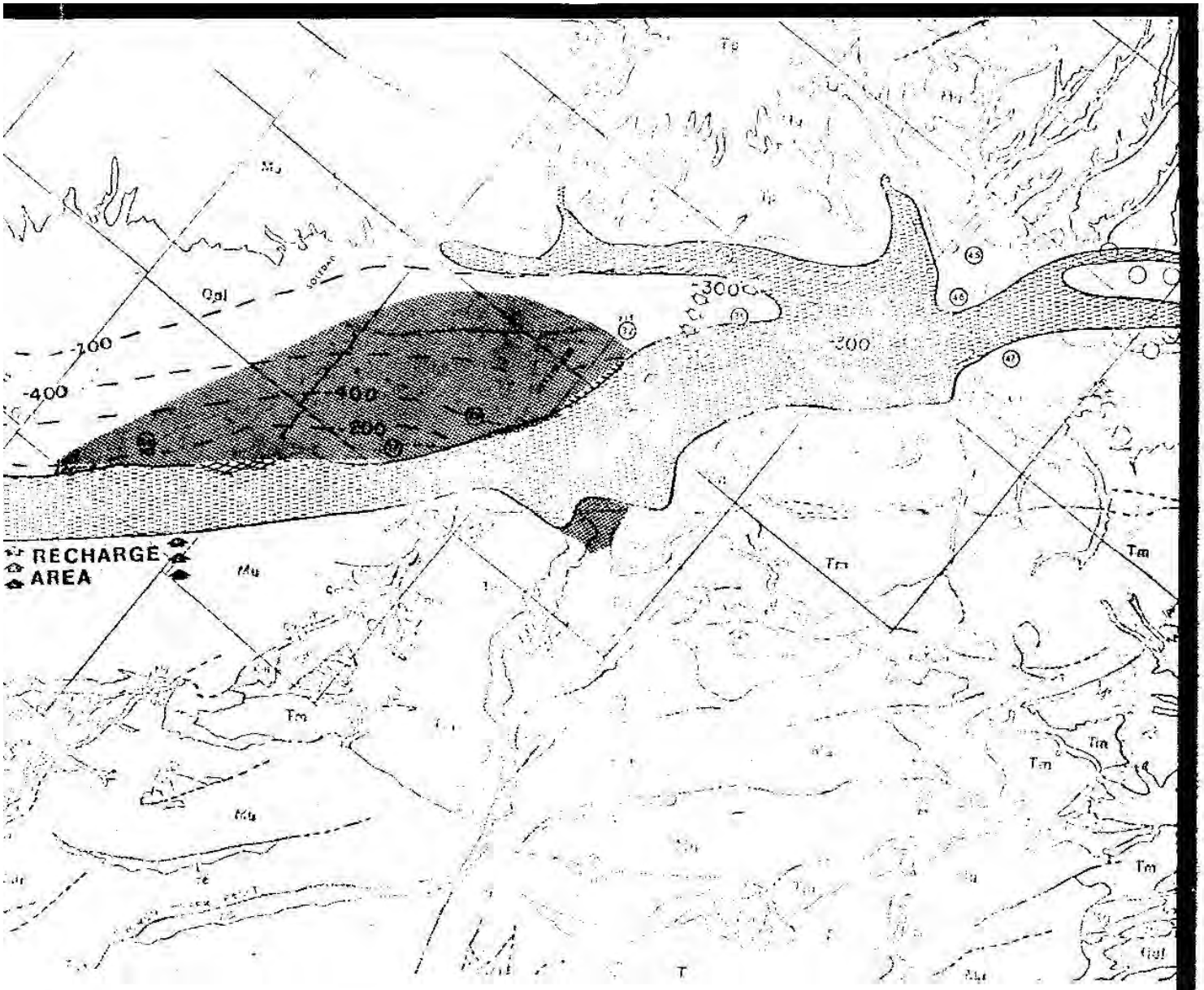
PLATE 1 AA

RICHARD R. THORUP
CONSULTING GEOLOGIST MONTEREY, CALIFORNIA

GEOLOGIC MAP

Date 4-8-70 Drawn by D. Schmidt
Approved CASTROVILLE PROJECT


SALINAS
MONTEREY
TEST WELL
-200
-400
Qal
Mu
Tm



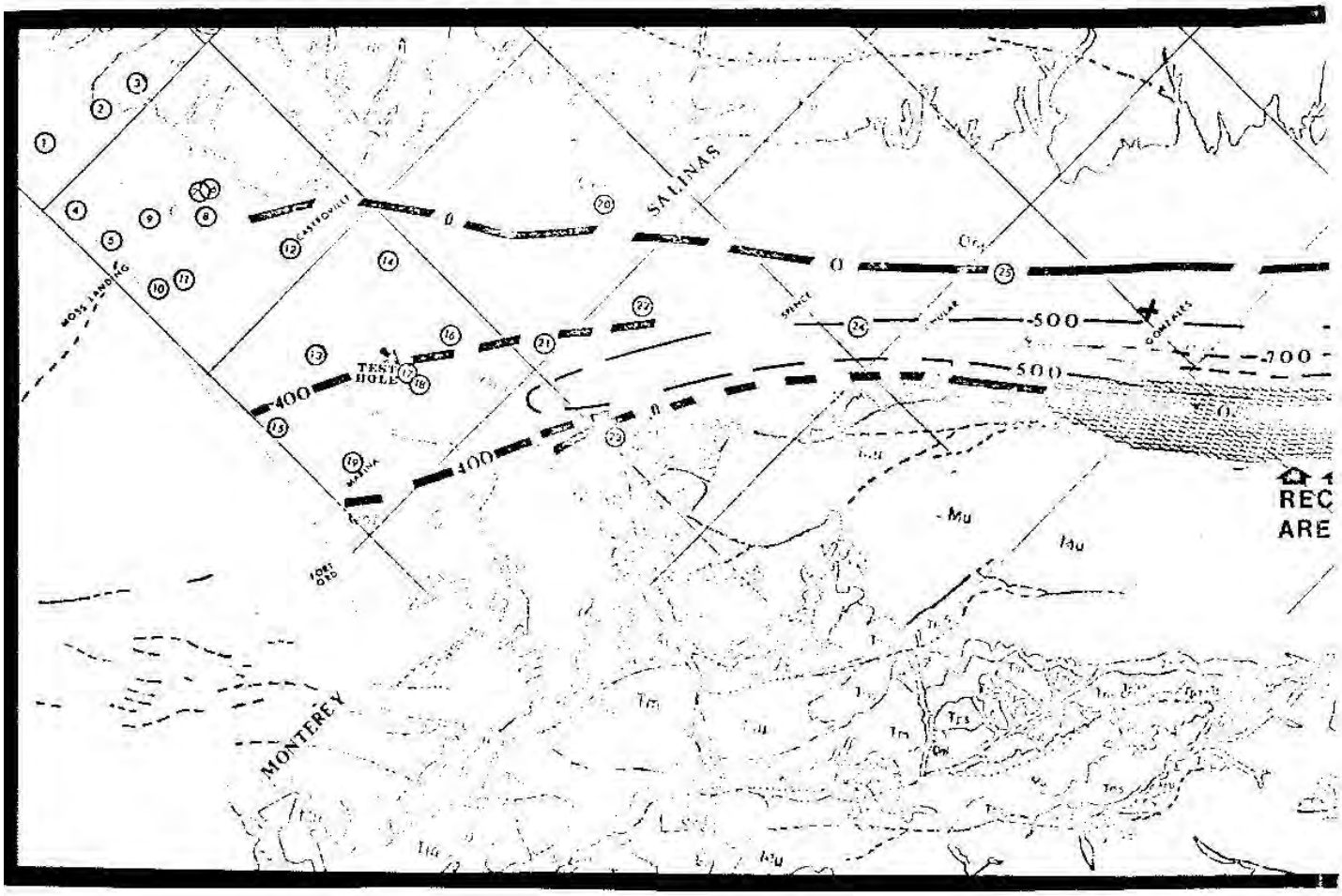
LEGEND

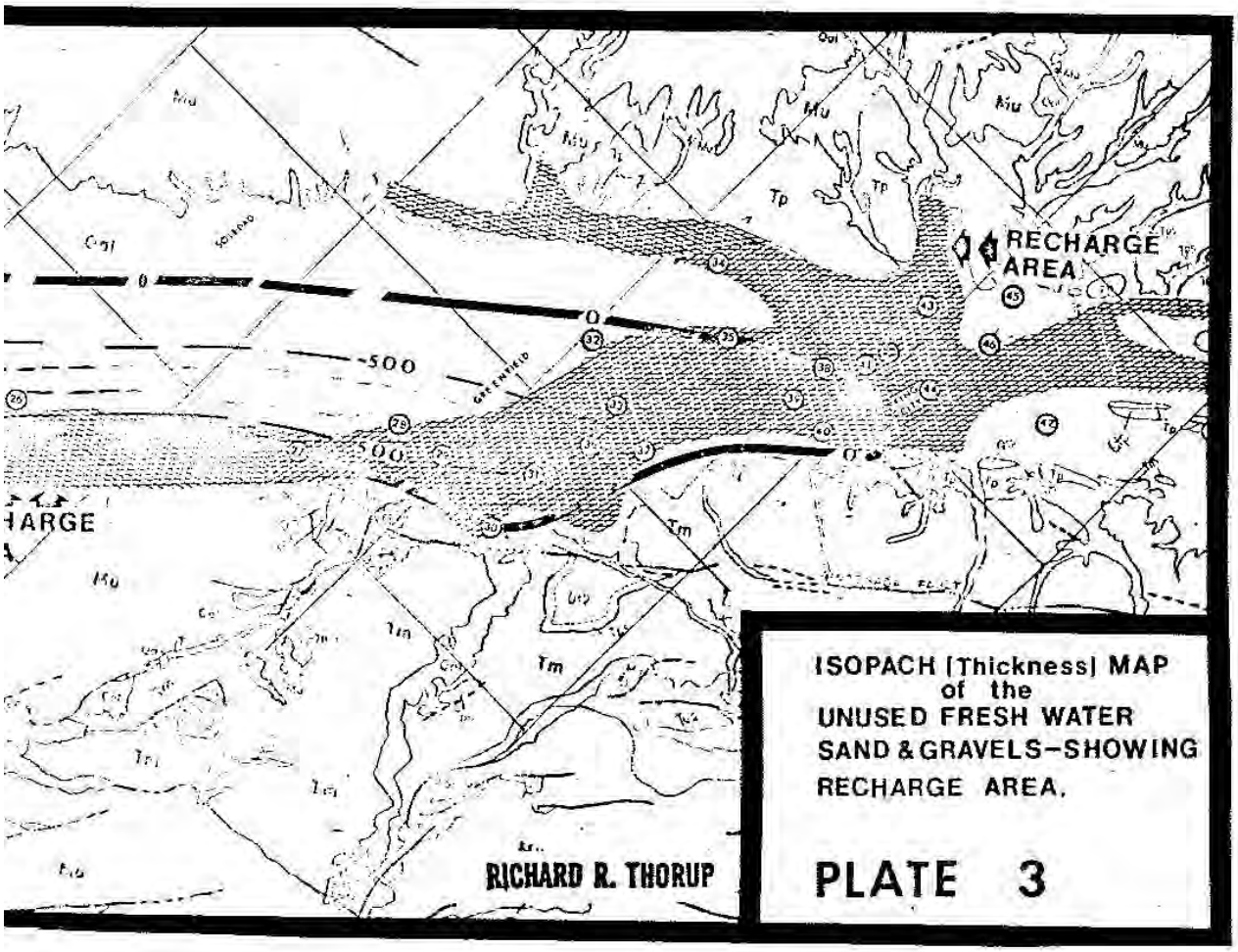
Recharge Area For The Paso Robles Formation (Qtp).

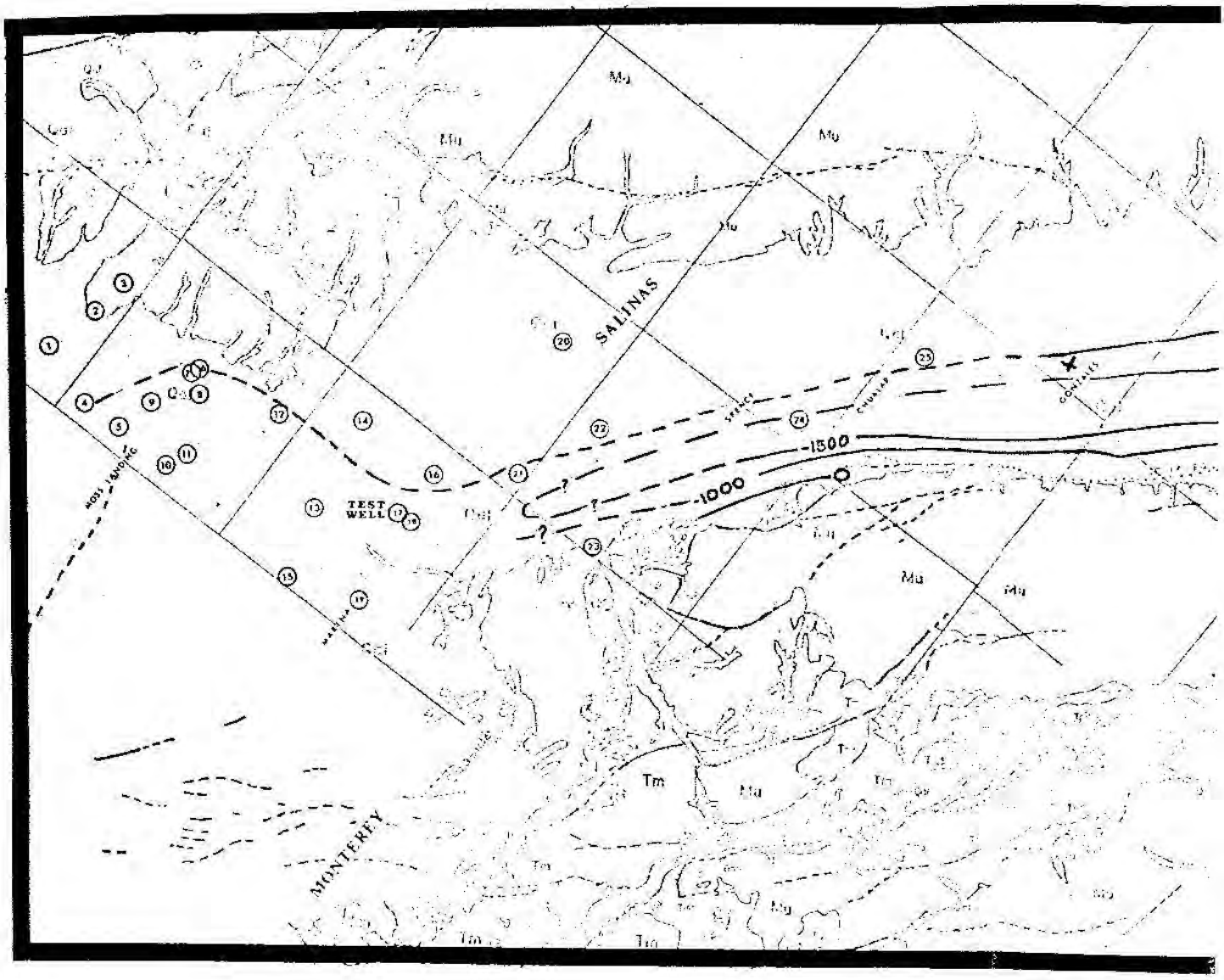
-400 Estimated Thickness Of Alluvium To The Base Of The 180 Ft. Aquifer.

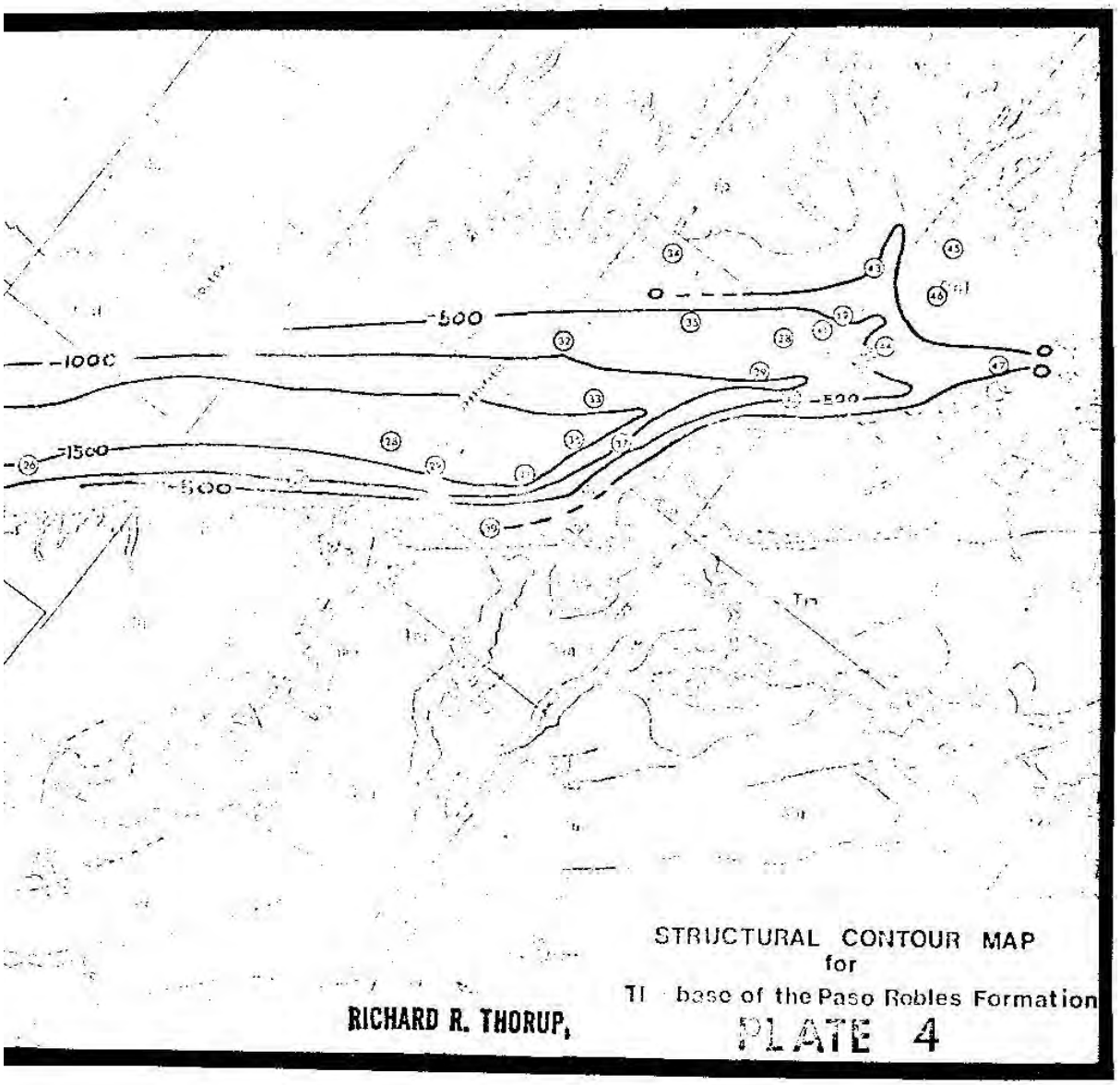
RICHARD R. THORUP

PLATE 2


SALINAS
MONTEREY
TEST HOLE
0
400
500
700
REC
ARE


RECHARGE AREA
0
-500
-500
0
GREENFIELD
ISOPACH (Thickness) MAP
of the
UNUSED FRESH WATER
SAND & GRAVELS—SHOWING
RECHARGE AREA.
PLATE 3
RICHARD R. THORUP


SALINAS
MONTEREY
TEST WELL
-1500
-1000
Mu
Tm
Qal

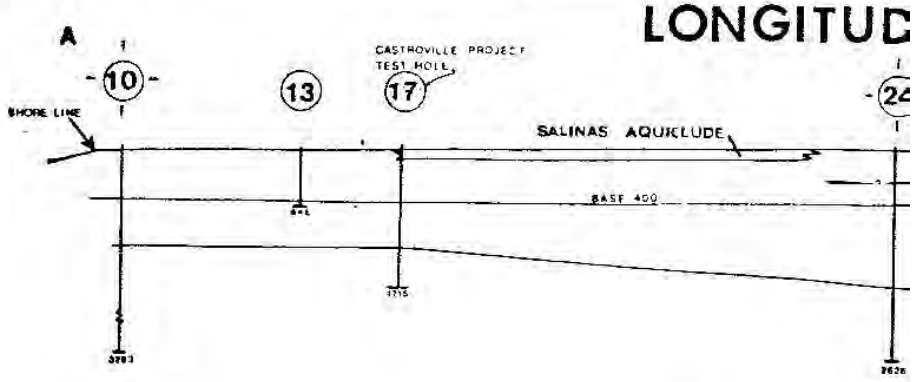


STRUCTURAL CONTOUR MAP
for
Tl base of the Paso Robles Formation

RICHARD R. THORUP,

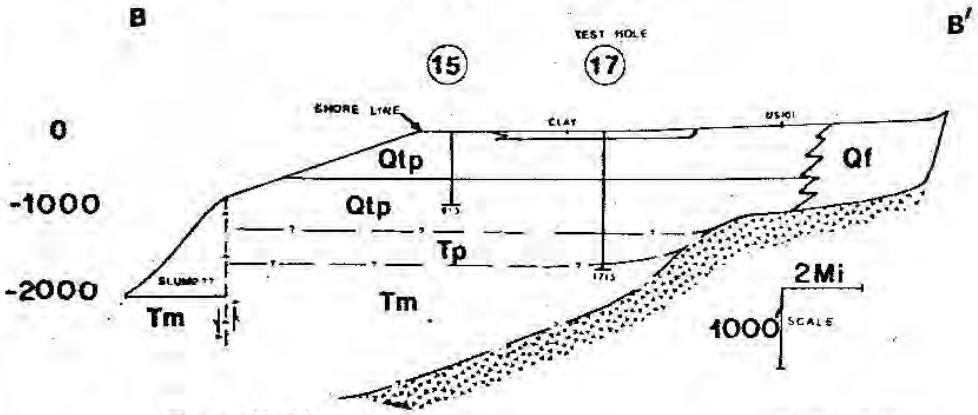
PLATE 4

LONGITUD

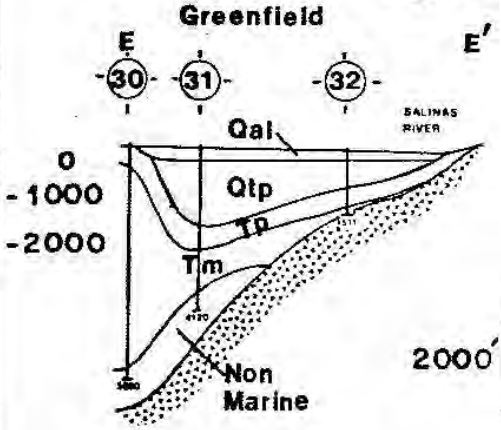


TRANSVERS

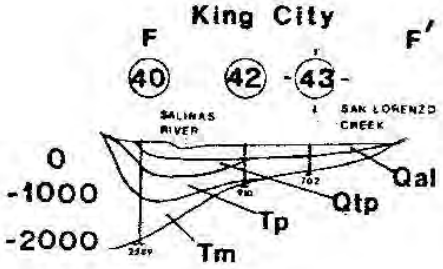
Monterey Bay - Lapis - Natividad



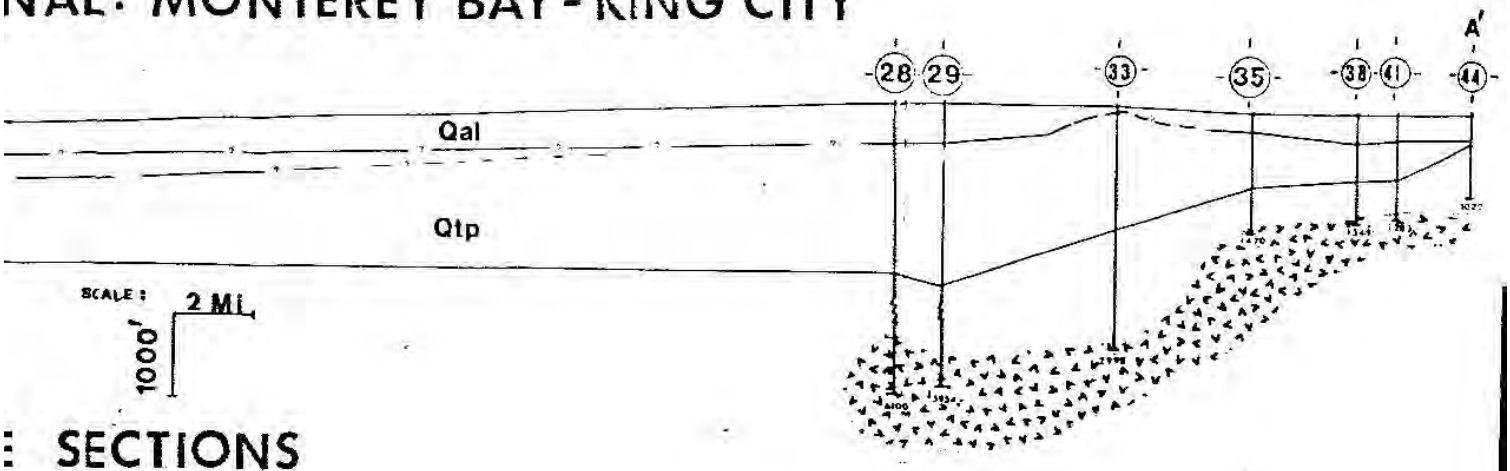
Greenfield



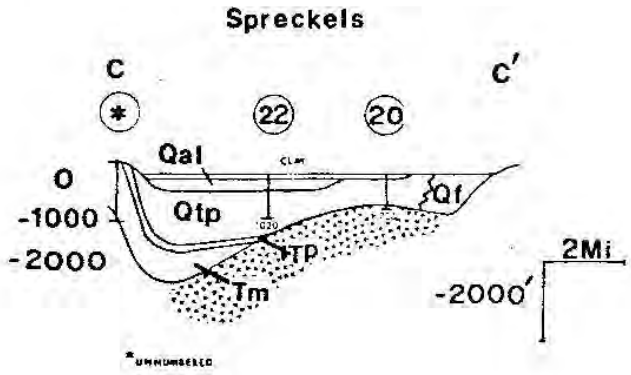
King City

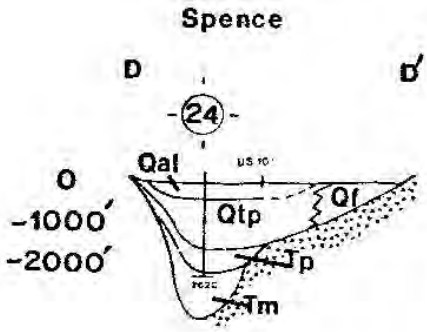


NAL: MONTEREY BAY - KING CITY



: SECTIONS





LEGEND

Qf	ALLUVIAL FAN
Qal	ALLUVIUM
Qtp	PASO ROBLES-AROMAS
Tp	PLIOCENE
Tm	MIOCENE
	BASEMENT ROCKS
(9)	WELL I.D. – SEE TABLE 1.
-(8)-	ABAND. OIL TEST WELL

PLATE 5

RICHARD R. THORUP
CONSULTING GEOLOGIST MONTEREY CALIFORNIA
CASTROVILLE PROJECT
GEOLOGIC CROSS SECTIONS
date April 1976 drawn by
for MC & WCD