CORE ANALYSIS RESULTS

Company AMOCO PRODUCTION COMPANY Formation COUNCIL GROVE File 3402-7898
Well R. B. FEGAN "B" NO. 2 Core Type DIAMOND Date Report 10-2-73
Field PANOMA Drilling Fluid WATER BASE MUD Analysts MAYS
County HAMILTON State KANSAS Elev. 3239' KB Location 1250' FSL & 2590' FEL SEC. 34-T26S-R39W

Lithological Abbreviations

SAND-SD, SHALE-SH, LIME-LM; DOLOMITE-DOL, CHERT-CH, GYPSUM-GYP; ANHYDRITE-ANHY, CONGLOMERATE-CONG, FOSSILIFEROUS-FOSS; SANDY-SDY, SHALY-SHY, LIMY-LMY; FINE-FN, MEDIUM-MED, COARSE-CSE; CRYSTALLINE-XLN, GRAIN-GRN, GRANULAR-GRNL; BROWN-BRN, GRAY-GY, VUGGY-VGY; FRACTURED-FRAC, LAMINATION-LAM, STYLOLITIC-STY; SLIGHTLY-SL, VERY-V/, WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS PERM. MAX.	PERM. 90°	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	TOTAL WATER	GRAIN DENS.	SAMPLE DESCRIPTION AND REMARKS
	WHOLE-CORE PERMEABILITY AND POROSITY							
1	2631-32	0.8	0.3	3.4			2.72	Lm,shy
2	32-33	<0.1	<0.1	2.7			2.72	Lm,shy
3	33-34	<0.1	<0.1	1.7			2.68	Lm,shy
4	34-35	0.5	0.2	6.4			2.64	Silty +
	35-37							Sh,silty
5	37-38	<0.1	<0.1	8.3			2.70	Sd,lmy,v/silty +
6	38-39		<0.1*	7.9			2.72	Sd,lmy,v/silty
	39-41							Sh,silty
7	41-42	<0.1	<0.1	10.9			2.72	Sd,lmy,v/silty,v/sl/anhy
8	42-43	0.2	0.2	11.5			2.69	Sd,lmy,v/silty,v/sl/anhy
9	43-44	2.3	0.5	16.5			2.71	Sd,sl/lmy,v/silty,v/sl/anh
10	44-45	4.2	2.3	17.5			2.72	Sd,sl/lmy,v/silty +
11	45-46	6.8	3.9	19.4			2.72	Sd,sl/lmy,v/silty +
12	46-47	2.4	2.4	17.5			2.70	Sd,sl/lmy,v/silty +
13	47-48	0.8	0.8	9.3			2.70	Sd,lmy,v/silty +
14	48-49	0.6	0.5	13.3			2.70	Sd,lmy,v/silty
15	49-50	2.3	1.9	16.4			2.68	Sd,lmy,v/silty +
16	50-51	0.2	0.2	11.0			2.67	Sd,lmy,v/silty,v/sl/anhy -
17	51-52	0.1	<0.1	7.6			2.68	Sd,lmy,v/silty,v/sl/anhy
18	52-53	4.2	2.3	7.9			2.72	Silt,v/sdy,v/sl/anhy +
19	53-54	0.1	<0.1	7.6			2.69	Sd,lmy,v/silty,v/sl/anhy
20	54-55	<0.1	<0.1	8.6			2.72	Sd,lmy,v/silty,v/sl/anhy
21	55-56	<0.1	<0.1	9.3			2.70	Sd,lmy,v/silty,v/sl/anhy
22	56-57	0.1	<0.1	9.2			2.70	Sd,lmy,v/silty +
23	57-58	5.9	4.5	9.0			2.68	Sd,lmy,v/silty +
24	58-59	0.2	0.1	6.5			2.69	Sd,v/lmy,v/silty +
	59-60							Sh
25	60-61	0.1	<0.1	6.0			2.75	Lm,shy,silty
26	61-62	<0.1	<0.1	4.7			2.73	Lm,sl/anhy
27	62-63	0.2	0.2	7.6			2.70	Lm
28	63-64	<0.1	<0.1	2.5			2.70	Lm
29	64-65	15	11	7.2			2.68	Lm,sdy,shy,silty +
30	65-66	9.4	9.4	4.9			2.70	Lm,sdy,shy,silty +
31	66-67	10	5.9	5.0			2.69	Lm,sdy,shy,silty +
32	67-68	0.6	0.2	3.7			2.71	Lm,v/shy,silty
33	68-69	<0.1	<0.1	1.5			2.74	Lm,sl/shy
34	69-70	0.1	<0.1	1.3			2.70	Lm,sl/shy,vert frac
35	70-71	2681	0.1	3.9			2.71	Lm,v/shy,silty,vert frac
36	71-72	<0.1	<0.1	4.0			2.68	Lm,v/shy
37	2672-73	0.1	0.1	3.6			2.70	Lm,vert frac

CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS MAX.	PERMEABILITY MILLIDARCYS 90°	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	GRAIN DENS.	SAMPLE DESCRIPTION AND REMARKS
38	2673-74		<0.1*	4.6			2.70	Lm,vert frac
39	74-75		<0.1*	4.2			2.71	Lm,shy,vert frac
40	75-76	0.3	0.2	4.3			2.69	Lm,shy,vert frac
41	76-77	2254	<0.1	3.6			2.73	Lm,shy,vert frac
	77-79							Sh,lmy
42	79-80	<0.1	<0.1	1.8			2.71	Lm,shy
43	80-81	0.3	<0.1	2.1			2.68	Lm,cherty
44	81-82	164	0.2	1.2			2.65	Lm,sl/shy,v/cherty
45	82-83	0.1	<0.1	0.5			2.70	Lm,shy
46	83-84	0.1	0.1	1.4			2.70	Lm,sl/shy
47	84-85	<0.1	<0.1	2.6			2.68	Lm,sl/shy
48	85-86	0.2	0.2	4.9			2.70	Lm,sl/shy
49	86-87	<0.1	<0.1	7.2			2.70	Lm,sl/shy
	87-91							Lost core
50	91-92		<0.1*	4.9			2.72	Silt,lmy,shy
51	92-93		0.3*	4.3			2.72	Silt,lmy,shy
52	93-94		<0.1*	4.8			2.74	Silt,lmy,shy
53	94-95		<0.1*	5.2			2.73	Silt,sl/lmy,shy
54	95-96		<0.1*	3.7			2.74	Silt,lmy,shy,anhy +
55	96-97	0.1	<0.1	3.2			2.78	Sd,lmy,v/silty,v/anhy +
56	97-98	<0.1	<0.1	4.1			2.72	Sd,lmy,v/silty,anhy +
57	98-99	<0.1	<0.1	10.8			2.70	Sd,silty,anhy
58	99-00		0.4*	11.5			2.73	Sd,silty,anhy
59	2700-01	159	0.6	8.9			2.70	Sd,silty,sl/anhy,vert frac +
60	01-02	0.3	0.2	6.4			2.69	Sd,silty,anhy +
61	02-03		0.1*	9.9			2.73	Sd,v/silty,anhy
62	03-04		0.1*	11.8			2.73	Sd,v/silty,anhy
63	04-05		3.5*	17.1			2.72	Sd,v/silty,sl/anhy
64	05-06		0.2*	10.5			2.69	Sd,v/silty,sl/anhy
65	06-07	<0.1	<0.1	10.1			2.69	Sd,v/silty,sl/anhy
66	07-08	<0.1	<0.1	6.0			2.70	Sd,v/silty,anhy
67	08-09		<0.1*	6.1			2.71	Sd,lmy,v/silty
68	09-10	2.9	2.6	6.7			2.69	Sd,lmy,v/silty,anhy +
69	10-11		<0.1*	8.3			2.67	Silt,lmy,sdy,shy +
70	11-12	<0.1	<0.1	6.5			2.69	Sd,lmy,v/silty,anhy +
71	12-13	<0.1	<0.1	5.7			2.69	Sd,lmy,v/silty,anhy +
72	13-14	<0.1	<0.1	5.9			2.69	Sd,lmy,v/silty,anhy
73	14-15	0.2	0.2	7.8			2.67	Sd,lmy,v/silty
74	15-16	<0.1	<0.1	10.6			2.68	Sd,lmy,v/silty,sl/anhy
75	16-17	<0.1	<0.1	9.1			2.68	Sd,lmy,v/silty +
76	17-18	<0.1	<0.1	10.5			2.68	Sd,lmy,v/silty,anhy
77	18-19	<0.1	<0.1	10.1			2.68	Sd,lmy,v/silty,anhy
78	19-20		<0.1*	8.2			2.73	Sd,lmy,v/silty,anhy
79	20-21		<0.1*	6.1			2.71	Lm,sdy,shy
	21-24							Lost core
80	24-25	0.2	0.1	7.3			2.71	Lm,sl/sdy,shy
81	25-26	4.1	0.2	4.0			2.69	Lm,sl/shy
82	2726-27	0.1	<0.1	1.2			2.70	Lm,sl/shy

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

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Well R. B. FEGAN "B" NO. 2

CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS MAX.	PERMEABILITY MILLIDARCYS 90°	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	GRAIN DENS.	SAMPLE DESCRIPTION AND REMARKS
83	2727-28	<0.1	<0.1	1.9			2.69	Lm
84	28-29	0.2	0.1	2.3			2.71	Lm
85	29-30	0.2	0.1	2.0			2.70	Lm,sl/shy
86	30-31	0.2	0.1	3.1			2.70	Lm
87	31-32	0.1	0.1	3.8			2.70	Lm
88	32-33		<0.1*	6.6			2.69	Lm,sdy
89	33-34		<0.1*	7.2			2.69	Sd,lmy,silty
90	34-35		<0.1*	7.2			2.69	Sd,lmy,v/silty
91	35-36		<0.1*	4.1			2.71	Sd,lmy,v/silty
92	36-37	<0.1	<0.1	3.8			2.69	Sd,lmy,v/silty
93	37-38		<0.1*	5.2			2.72	Sd,lmy,v/silty
94	38-39		<0.1*	8.3			2.72	Silt,lmy,shy +
95	39-40		<0.1*	5.4			2.73	Silt,lmy
96	40-41		<0.1*	7.4			2.73	Silt,lmy
97	41-42		<0.1*	8.5			2.75	Silt,v/lmy
98	42-43		<0.1*	6.2			2.73	Silt,v/lmy,v/shy
99	43-44	<0.1	<0.1	5.0			2.72	Sd,lmy,v/silty,sl/anhy
100	44-45	0.2	0.1	8.3			2.70	Sd,v/sl/lmy,v/silty,anhy
101	45-46	0.1	<0.1	5.4			2.71	Sd,lmy,v/silty,anhy +
102	46-47	<0.1	<0.1	3.5			2.72	Sd,lmy,v/silty,anhy
103	47-48	0.1	<0.1	8.1			2.72	Sd,sl/lmy,v/silty,anhy +
104	48-49	<0.1	<0.1	1.6			2.71	Lm,sl/anhy
105	49-50	2.4	<0.1	1.6			2.74	Lm,sl/anhy
106	50-51	<0.1	<0.1	1.5			2.70	Lm,sl/anhy +
107	51-52	<0.1	<0.1	3.2			2.70	Lm,sl/anhy
108	52-53		0.1*	10.9			2.75	Silt,shy +
109	53-54		<0.1*	9.8			2.74	Silt,v/sdy,shy +
110	54-55		<0.1*	8.2			2.66	Sd,lmy,v/silty,sl/anhy
111	55-56		<0.1*	4.3			2.66	Sd,lmy,v/silty,sl/anhy
112	56-57		<0.1*	4.7			2.66	Sd,lmy,sl/anhy
113	57-58		<0.1*	4.9			2.67	Sd,lmy,sl/anhy
114	58-59		<0.1*	4.6			2.66	Sd,lmy,sl/anhy
115	59-60		<0.1*	6.3			2.67	Silt,lmy,shy,sl/anhy +
116	60-61	0.9	<0.1	12.4			2.70	Sd,lmy,shy,v/silty,anhy +
117	61-62	0.7	0.5	13.1			2.66	Sd,lmy,v/silty,sl/anhy +
118	62-63	2.0	0.8	16.4			2.67	Sd,v/silty,sl/anhy +
119	63-64	1.6	0.6	17.6			2.67	Sd,v/silty,sl/anhy +
120	64-65	<0.1	<0.1	9.0			2.70	Sd,lmy,v/silty,anhy
121	65-66	<0.1	<0.1	6.4			2.69	Sd,lmy,v/silty,sl/anhy
122	66-67	<0.1	<0.1	7.7			2.68	Sd,lmy,v/silty,sl/anhy
123	67-68	<0.1	<0.1	11.1			2.74	Sd,lmy,v/silty,anhy
124	68-69	<0.1	<0.1	7.9			2.68	Sd,lmy,v/silty,sl/anhy
125	69-70	<0.1	<0.1	7.6			2.67	Sd,lmy,v/silty
126	70-71	2.5	0.3	7.9			2.66	Sd +
127	71-72	40	4.5	10.9			2.70	Silt,lmy,sdy,sl/anhy +
128	72-73		<0.1*	10.8			2.72	Silt,lmy,sdy +
129	73-74	<0.1	<0.1	6.6			2.68	Lm,sdy,v/silty +
130	2774-75	1.7	1.0	6.2			2.70	Lm,sdy,silty,sl/anhy +

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

File 3402-7898 Page No. 4
Well R. B. FEGAN "B" NO. 2

CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS MAX.	PERMEABILITY MILLIDARCYS 90°	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	GRAIN DENS.	SAMPLE DESCRIPTION AND REMARKS
131	2775-76	<0.1	<0.1	6.2			2.69	Lm,sl/sdy,silty +
132	76-77	<0.1	<0.1	9.3			2.67	Sd,v/lmy,v/silty +
133	77-78	0.4	0.2	11.3			2.69	Sd,sl/lmy,v/silty,anhy
134	78-79	0.1	<0.1	9.9			2.67	Sd,sl/lmy,v/silty,anhy
135	79-80	0.2	0.1	13.3			2.71	Sd,lmy,silty
136	80-81	0.1	<0.1	13.3			2.70	Sd,lmy,silty
137	81-82	<0.1	<0.1	7.9			2.65	Sd,sl/lmy,silty
138	82-83	<0.1	<0.1	6.9			2.65	Sd,sl/lmy,silty
	83-84							Lost core
139	84-85	0.1	<0.1	11.8			2.62	Sd,sl/lmy,silty
140	85-86	0.4	0.4	13.6			2.64	Sd,sl/lmy,silty
141	86-87	1.2	1.2	15.8			2.67	Sd,lmy,silty
142	87-88	0.6	0.5	14.4			2.66	Sd,sl/lmy,silty
143	88-89	0.3	0.3	11.4			2.64	Sd,sl/lmy,silty
144	89-90	0.3	0.2	12.4			2.66	Sd,v/sl/lmy,silty +
145	90-91	0.2	0.2	10.4			2.66	Sd,v/sl/lmy,silty
146	91-92	0.1	<0.1	7.0			2.64	Sd,sl/lmy,silty +
147	92-93	<0.1	<0.1	8.9			2.60	Sd,lmy,v/silty +
148	93-94	329	181	9.4			2.65	Silt,sl/lmy,v/sdy +
149	94-95	67	34	8.0			2.69	Silt,lmy +
150	95-96	4.1	0.1	4.7			2.76	Lm,anhy
151	96-97	1.8	0.1	6.7			2.76	Lm,sl/silty,anhy
152	97-98		<0.1*	11.1			2.75	Silt,lmy,shy,sl/anhy +
153	98-99	163	135	12.6			2.75	Silt,lmy,shy,sl/anhy +
154	99-00	27	15	6.4			2.69	Silt,lmy,sl/sdy,shy,sl/anhy +
155	2800-01	153	127	10.7			2.70	Silt,v/lmy,sl/sdy,shy +
156	01-02	0.2	0.1	1.3			2.72	Lm
157	02-03	0.3	0.3	3.5			2.71	Lm,sl/anhy
158	03-04	4.9	4.3	3.5			2.71	Lm,sl/shy
159	04-05	2.7	2.5	12.3			2.71	Lm,sl/anhy
160	05-06	2.5	2.3	16.7			2.75	Lm,sl/dol
161	06-07	1.6	1.4	16.4			2.74	Lm,sl/dol
162	07-08	1.4	1.4	15.3			2.75	Lm,sl/dol
163	08-09	3.7	3.2	18.6			2.77	Lm,dol,pp vugs
164	09-10	3.6	3.3	20.8			2.74	Lm,sl/dol,pp vugs
165	10-11	1.9	1.8	20.1			2.73	Lm,sl/dol,pp vugs
166	11-12	4.2	3.9	12.2			2.74	Lm,sl/dol,sl/anhy,pp vugs
167	12-13	11	11	18.8			2.72	Lm,sl/anhy,pp vugs
168	13-14	7.3	6.7	19.2			2.69	Lm,pp vugs
169	14-15	1.0	0.8	13.5			2.71	Lm,sty
170	15-16	0.8	0.8	12.7			2.71	Lm
171	16-17	0.8	0.7	13.3			2.71	Lm,sl/anhy,vert frac
172	17-18	124	0.5	11.6			2.73	Lm,anhy,vert frac
173	18-19	2972	0.3	11.1			2.69	Lm,vert frac
174	19-20	4503	0.1	4.5			2.71	Lm,sl/shy,silty,vert frac
175	20-21		<0.1*	3.8			2.70	Lm,silty,vert frac
176	21-22	3161	<0.1	2.7			2.69	Lm,silty,vert frac
177	2822-23	<0.1	<0.1	8.8			2.73	Silt,v/lmy,shy +

CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS MAX.	90°	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	TOTAL WATER	GRAIN DENS.	SAMPLE DESCRIPTION AND REMARKS
178	2823-24		<0.1*	8.5			2.74	Silt,v/lmy
179	24-25		<0.1*	8.3			2.73	Silt,v/lmy,anhy
180	25-26		<0.1*	10.0			2.74	Silt,lmy,shy +
181	26-27		<0.1*	9.3			2.73	Silt,lmy,shy +
182	27-28		<0.1*	9.5			2.74	Silt,lmy,shy +
183	28-29		<0.1*	9.5			2.74	Silt,lmy,shy +
184	29-30		<0.1*	9.3			2.73	Silt,lmy,shy +
185	30-31		<0.1*	10.8			2.72	Silt,lmy,shy +
186	2831-32		<0.1*	11.0			2.74	Silt,lmy,shy +

* DENOTES PLUG PERMEABILITY
+ DENOTES SOLID SAMPLES EXHIBITING FISSURES OR CRACKS

CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

COMPANY	AMOCO PRODUCTION COMPANY	FIELD	PANOMA	FILE	3402-7898
WELL	R. B. FEGAN "B" NO. 2 1250' FSL & 2590' FEL	COUNTY	HAMILTON	DATE	10-2-73
LOCATION	SEC. 34-T26S-R39W	STATE	KANSAS	ELEV.	3239' KB

CORE-GAMMA CORRELATION

VERTICAL SCALE: 5" = 100'

CORE-GAMMA SURFACE LOG
PATENT APPLIED FOR

GAMMA RAY
RADIATION INCREASE →

COREGRAPH

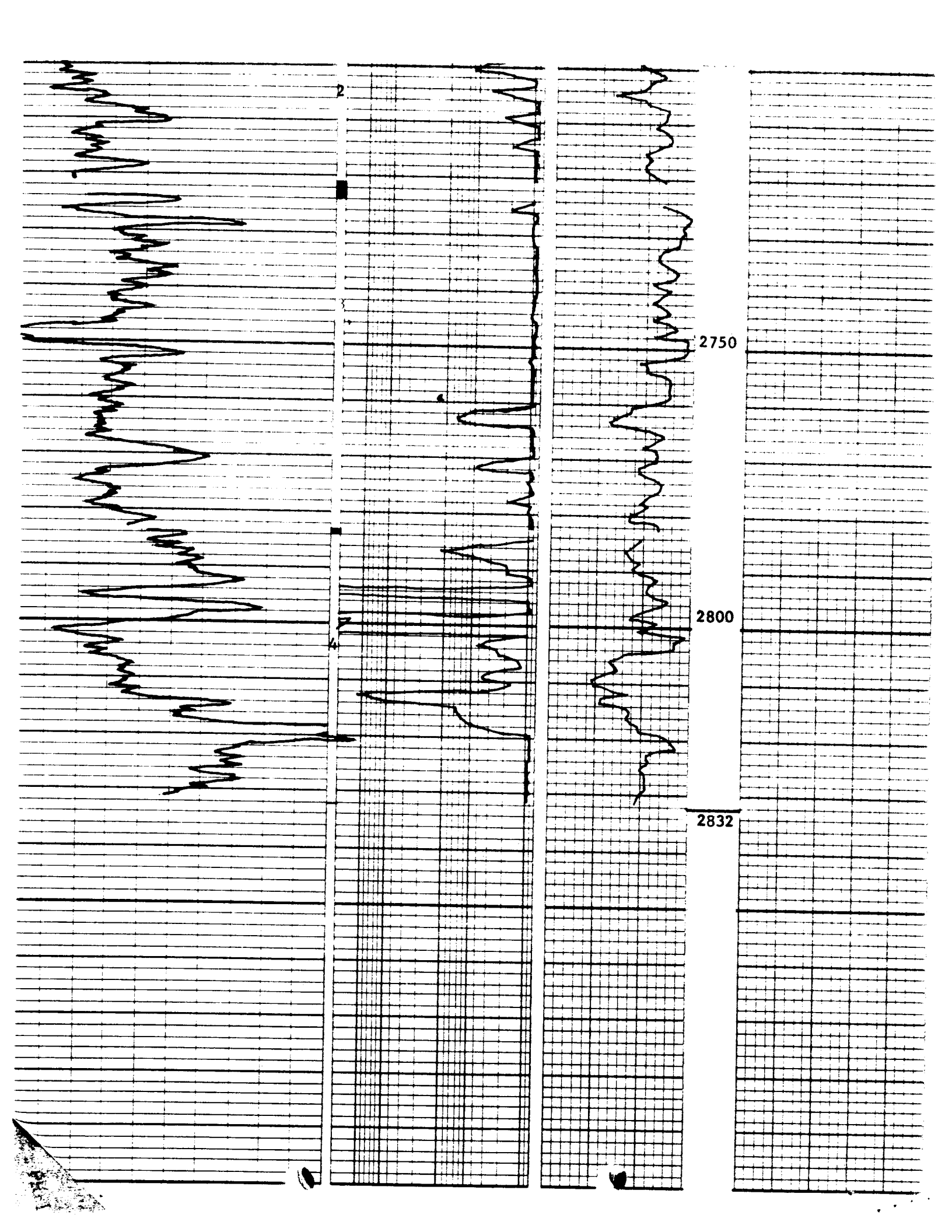
TOTAL WATER — — —
PERCENT TOTAL WATER
80 60 40 20

PERMEABILITY ———
MILLIDARCYS
100 50 10 5 1

POROSITY ———
PERCENT
20 10

OIL SATURATION - - - - - -
PERCENT PORE SPACE
0 20 40 60 80

2631
2650
2700


2
2750
2800
2832