



CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

COMPANY	BATCH A. JOHNSON	DATE	8/3 - 10/23/51	FILE	FILE 13
WELL	SINGON UNIT # 1	CORES	DIAMOND	ANALYSTS	INT
FIELD	WILCOAT	FORMATION	AS NOTED	ELEVATION	
COUNTY	RIO ARriba	DRIG. FLUID	WATER BASE MUD	LOCATION	
STATE	NEW MEXICO	REMARKS	SERVICE # 5 & 8		

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CORE ANALYSIS AND
INTERPRETATION

COMPLETION COREGRAPH

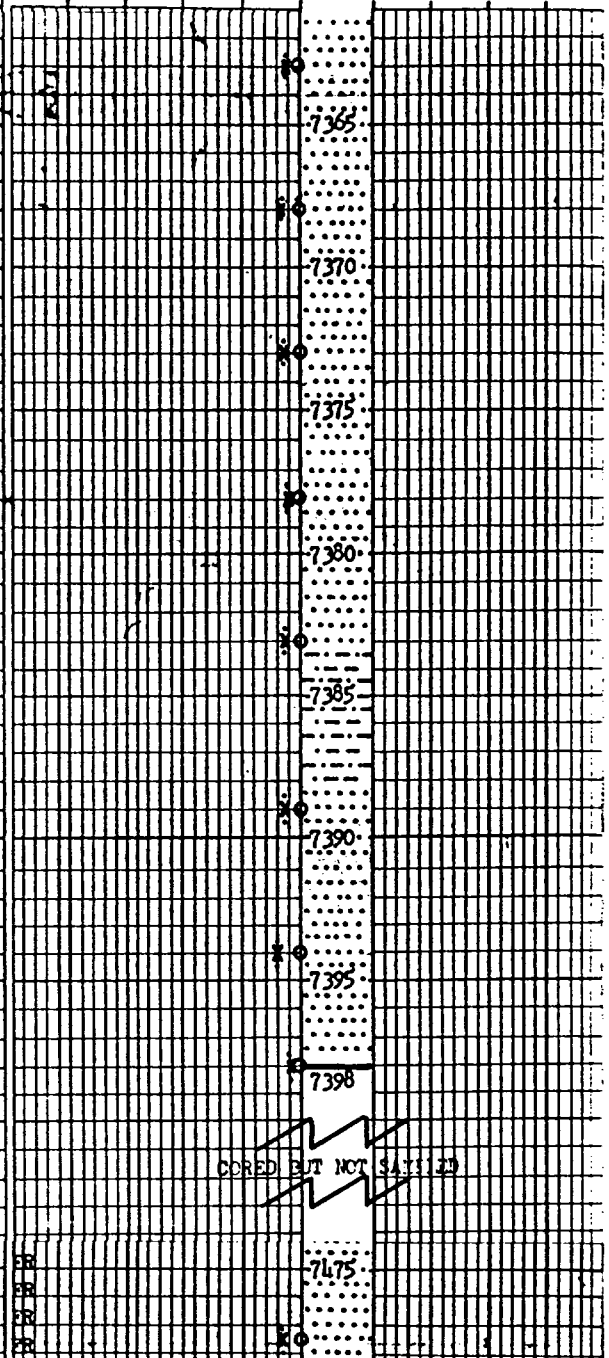
SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCS	POROSITY %	RESIDUAL LIQUID SATURATION % PORE SPACE		FEDERABLE PROD
				OIL	TOTAL WATER	
26	7363.0	0.0	2.5			
27	7368.0	0.0	3.3			
28	7373.0	0.0	3.1			
29	7378.0	0.0	2.4			
30	7383.0	0.0	2.7			
31	7389.0	0.0	2.5			
32	7394.0	0.0	4.0			
33	7398.0	0.0	1.5			
34	7475.80	0.0	3.0			

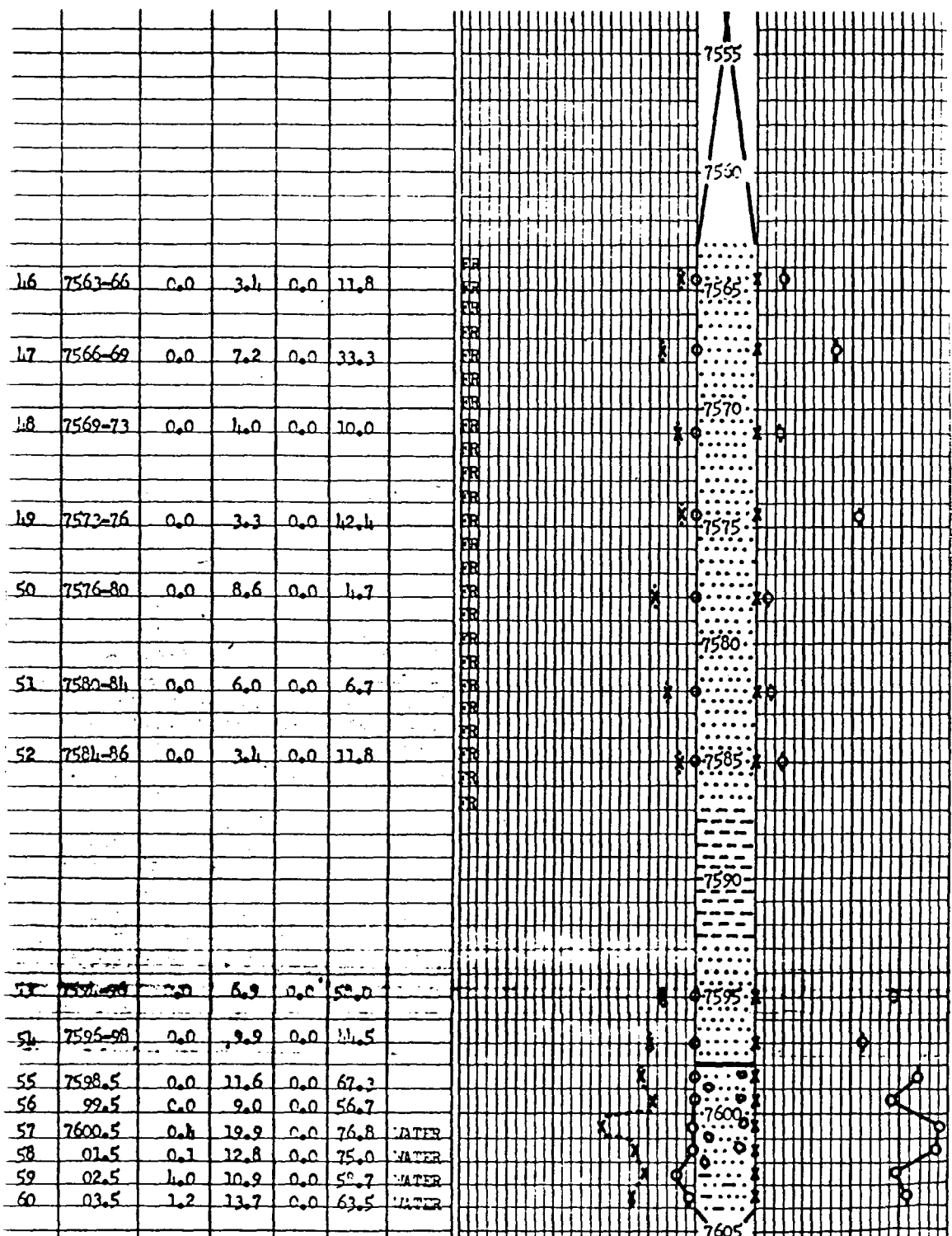
PERMEABILITY ○—○
MILLIDARCSTOTAL WATER ○—○
PERCENT PORE SPACE

10 30 20 10 0

POROSITY X---X
PERCENTOIL SATURATION X---X
PERCENT PORE SPACE

40 30 20 10 0 0 20 40 60





CORE LABORATORIES, INC.



Petroleum Reservoir Engineering

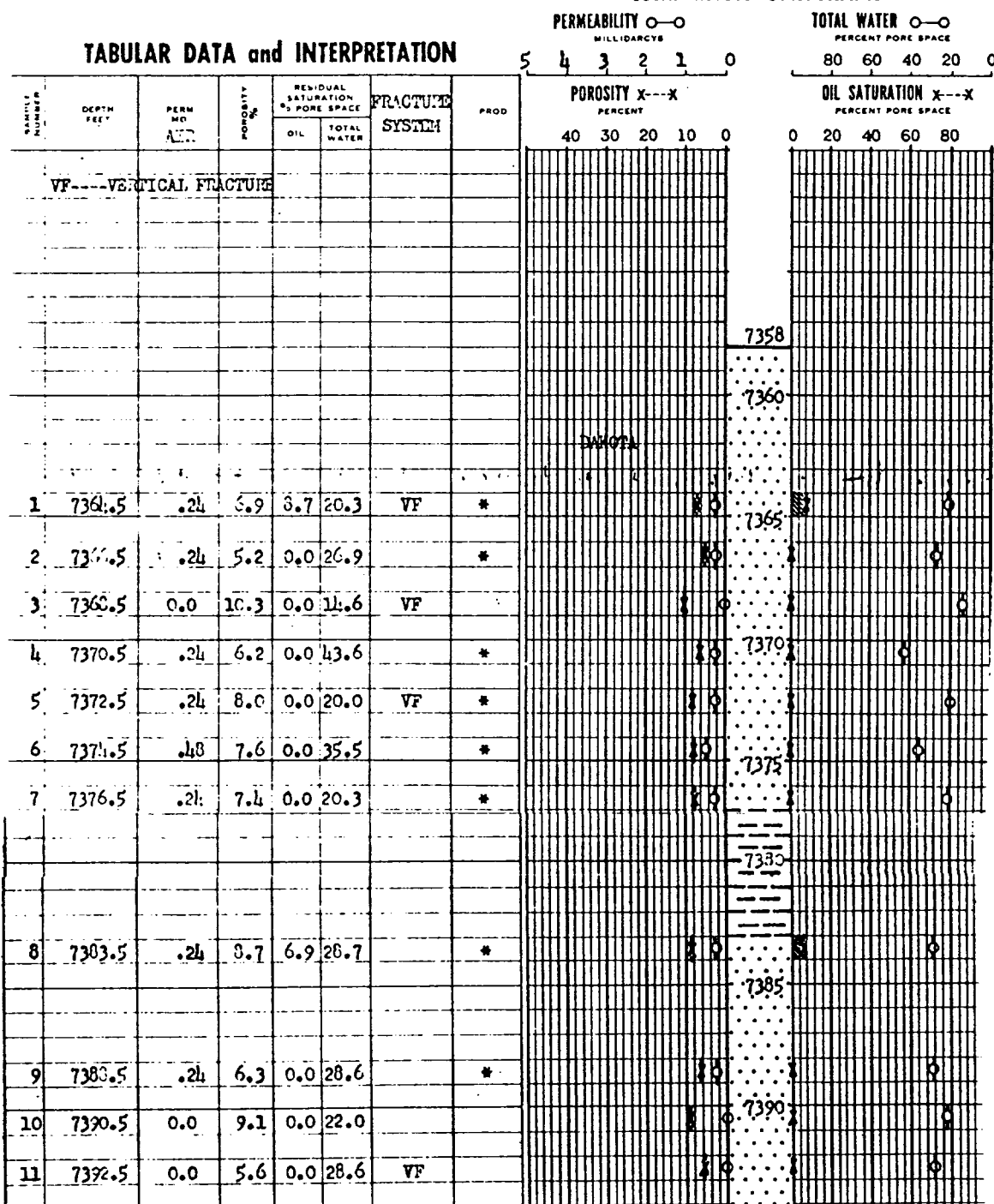
COMPANY JOHNSTON OIL & GAS COMPANY DATE ON AUGUST 18, 1954 FILE NO. EPT-139(PG)
 WELL PINCH UNIT #31 DATE OFF AUGUST 26, 1954 ENGRS. W. R. MCNEIL
 FIELD MIDCON FORMATION S.E. BELOH ELEV. 6579.28
 COUNTY RIO ARriba STATE, MEXICO DRG. FLD. OIL EMULSION MUDCORES DIAMOND
 LOCATION SE SE 336 2271 271 REMARKS SERVICE NO. 5

SAND LIMESTONE CONGLOMERATE CHERT
 SHALE DOLOMITE

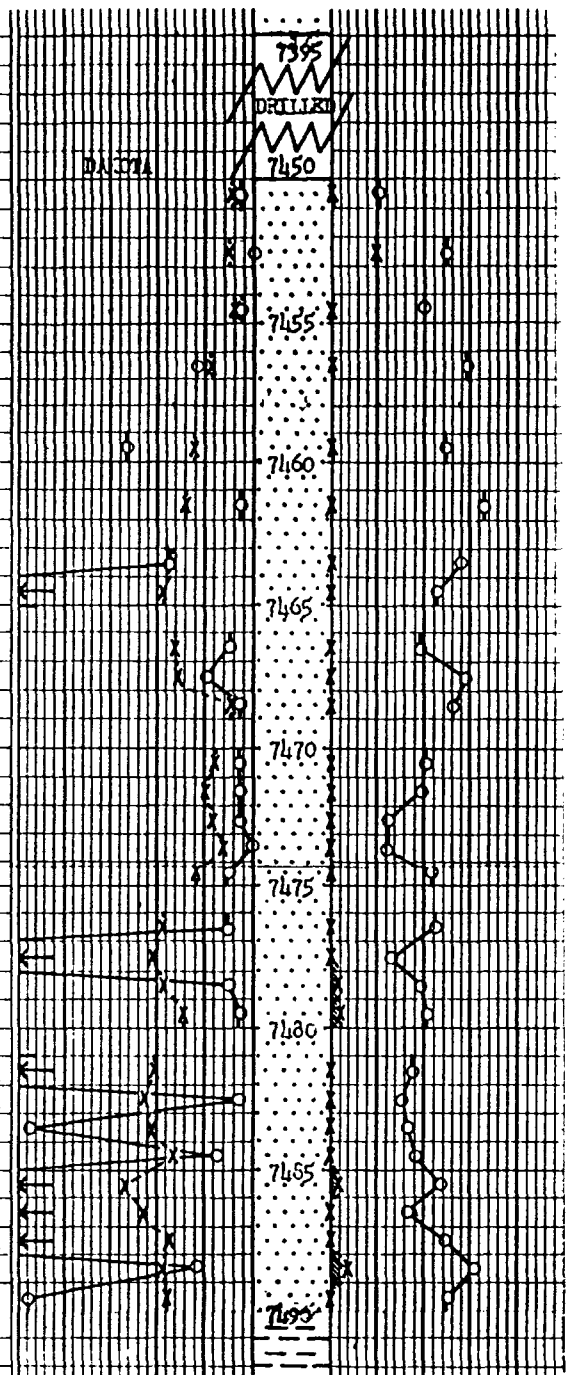
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COMPLETION COREGRAPH

TABULAR DATA and INTERPRETATION



12	7450.5	.24	4.3	0.0	79.2	*
13	7452.5	0.0	5.0	20.0	50.0	*
14	7454.5	.24	4.0	0.0	60.0	*
15	7456.5	1.19	8.6	0.0	10.7	*
16	7459.5	2.51	12.2	0.0	51.0	*
17	7461.5	.24	13.8	0.0	35.5	*
18	7463.5	1.36	15.6	0.0	41.0	*
19	7464.5	5.37	10.8	0.0	55.4	*
20	7466.5	.43	15.0	0.0	61.2	*
21	7467.5	.25	15.4	0.0	40.9	*
22	7468.5	.24	4.6	0.0	47.2	*
23	7470.5	.24	7.6	0.0	53.3	*
24	7471.5	.24	9.8	0.0	60.2	WATER
25	7472.5	.24	8.1	0.0	75.4	WATER
26	7473.5	0.0	5.8	0.0	75.9	
27	7474.5	.43	10.7	0.0	56.4	WATER
28	7476.5	.43	10.5	0.0	55.2	WATER
29	7477.5	2.55	20.5	0.0	72.7	WATER
30	7478.5	.43	10.3	3.3	60.7	WATER
31	7479.5	.24	11.0	4.2	58.5	WATER
32	7481.5	7.40	20.3	0.0	55.5	WATER
33	82.5	.24	12.7	0.0	50.3	WATER
34	83.5	1.76	21.1	0.0	66.0	WATER
35	84.5	.71	16.2	0.0	63.0	WATER
36	85.5	16	21.5	3.4	53.1	WATER
37	86.5	61	23.2	0.0	67.0	WATER
38	87.5	20	17.2	0.0	51.7	WATER
39	88.5	1.19	16.5	9.7	37.4	WATER
40	7489.5	4.76	17.7	0.0	49.2	WATER



CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

COMPANY TEXAS NATIONAL PETROLEUM COMPANY DATE ON 9/20/55 FILE NO. RP-3-198 FC
 WELL RINCON UNIT NO. 57 DATE OFF 10/3/55 ENGRS. WKR
 FIELD SOUTH BLANCO TOCITO FORMATIONS NOTED _____ ELEV. 6602' KB
 COUNTY RIO ARriba STATE NEW MEXICO ORLG. FLD. WATER BASE MUD _____ CORES DIAMOND
 LOCATION SEC. 1-26N-7W REMARKS SERVICE NO. 5

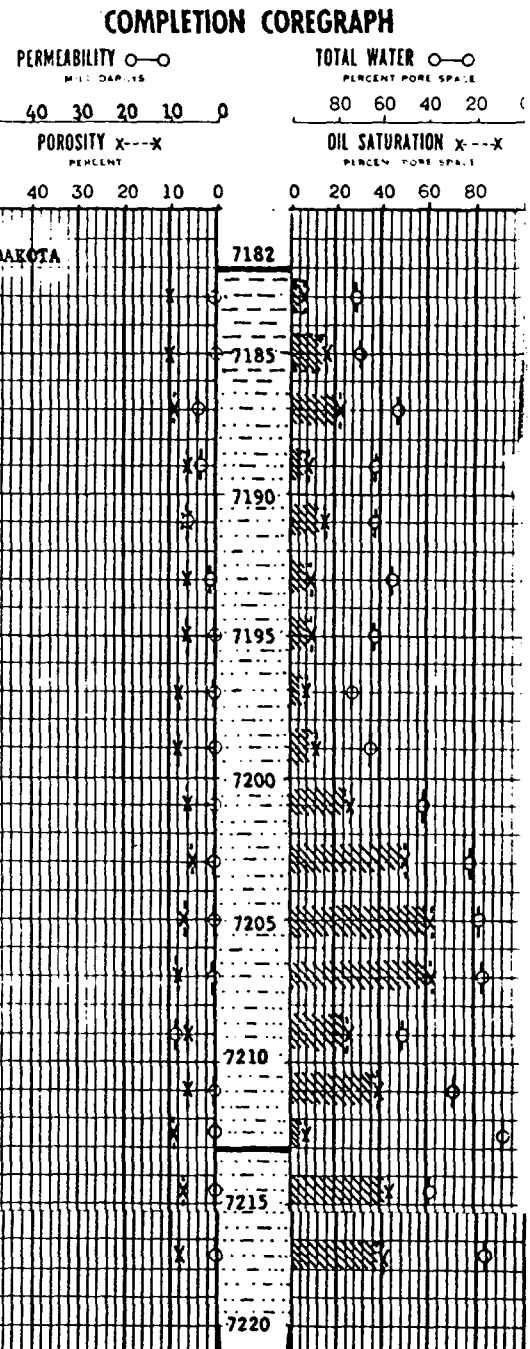
SAND  LESTONE  CONGLOMERATE  CHERT 
 SHALE  DOLOMITE   

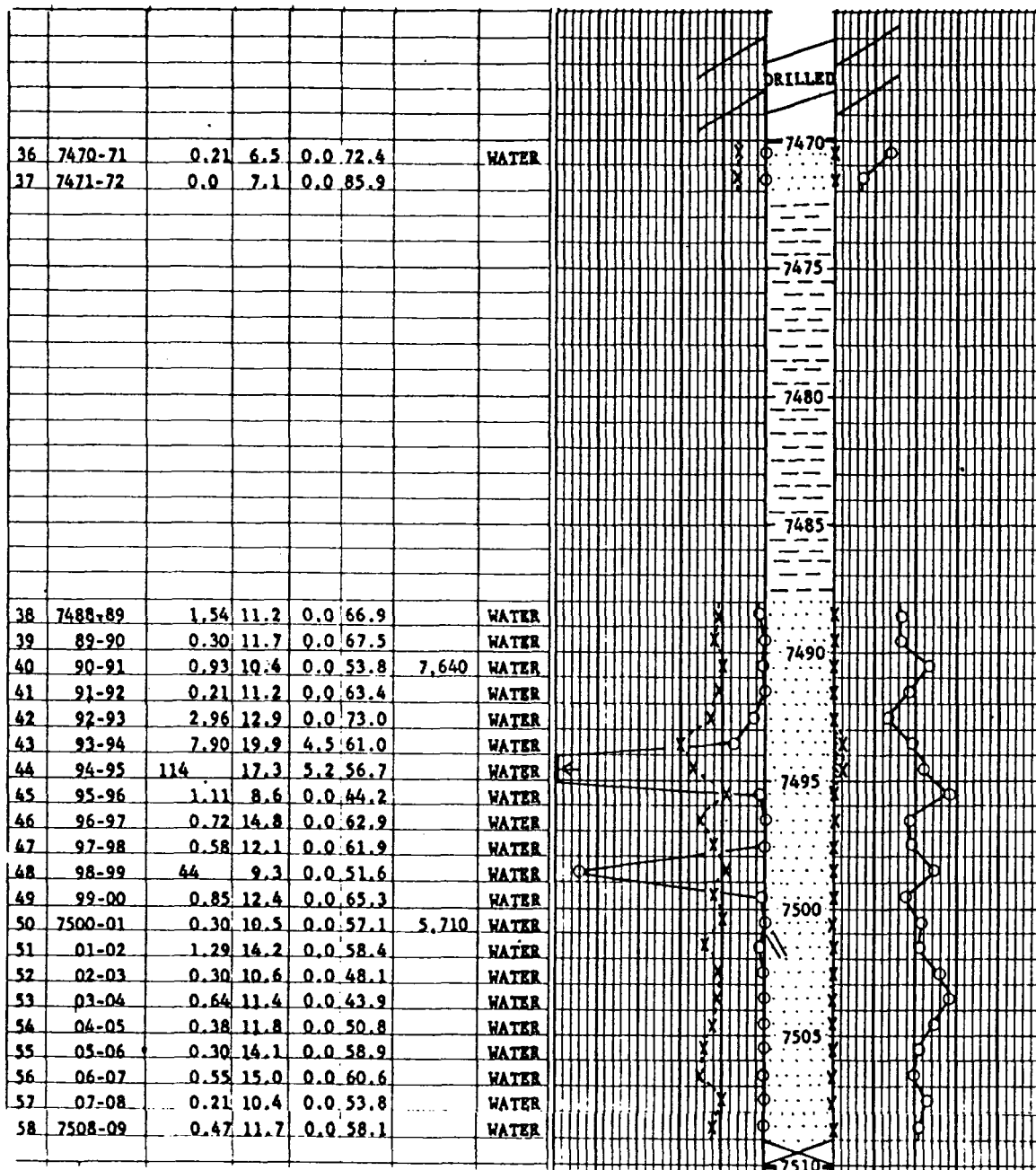
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VERTICAL FRACTURE: //

TABULAR DATA and INTERPRETATION

SAMPLE NUMBER	DEPTH FEET	PERM. MD. AIR	POROSITY %	RESIDUAL SATURATION % PORE SPACE		CHLORIDE PPM	PROD
				OIL	TOTAL WATER		
18	7182-84	0.0	9.5	6.3	70.6		
19	7184-86	0.0	10.2	16.7	69.6		
20	7186-88	4.03	8.7	21.9	52.9		*
21	7188-90	3.56	6.4	9.4	62.5		*
22	7190-92	6.35	6.1	16.4	62.4		*
23	7192-94	1.11	6.0	10.0	54.9		*
24	7194-96	0.38	6.1	9.9	62.3		*
25	7196-98	0.13	8.0	7.5	72.5		*
26	7198-00	0.30	8.4	11.9	64.4		*
27	7200-02	0.21	6.0	28.4	41.7		*
28	7202-04	0.38	4.7	51.1	21.2		*
29	7204-06	0.13	7.3	61.5	19.2		*
30	7206-08	0.38	7.7	62.4	16.9		*
31	7208-10	8.85	6.2	27.4	50.0		*
32	7210-12	0.21	5.7	38.6	28.0		*
33	12-13	0.38	9.0	8.9	8.9		
34	7213-20	0.04	6.7	44.8	38.9		*
35	7213-20	0.04	7.8	41.0	16.7		*





CORE LABORATORIES, INC.



Petroleum Reservoir Engineering

COMPANY EL PASO NATURAL GAS COMPANY DATE ON 12/8/59 FILE NO. RP-3-1116
WELL KINCON # 127 DATE OFF 12/15/59 ENGRS. ENGLISH
FIELD WILDCAT (BLANCO MESA VERDE DAKOTA) FORMATION AS NOTED ELEV. 6567' DF
COUNTY RIO ARriba STATE NEW MEXICO ORLG. FLD. OIL EMULSION CORES DIAMOND
LOCATION SEC28 T27N R6W REMARKS SAMPLED BY CLIENT

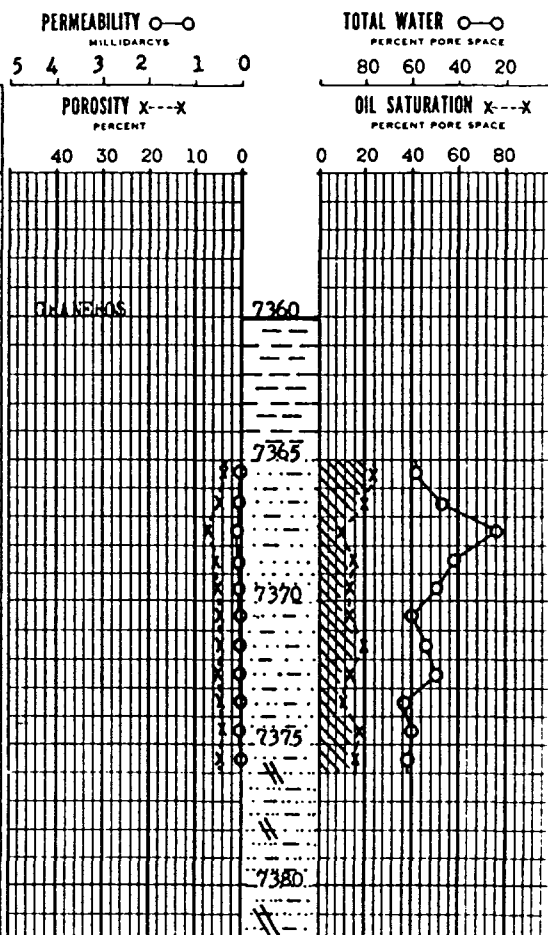
SAND LIMESTONE CONGLOMERATE CHERT
SHALE DOLOMITE VERTICAL FRACTURE

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TABULAR DATA and INTERPRETATION

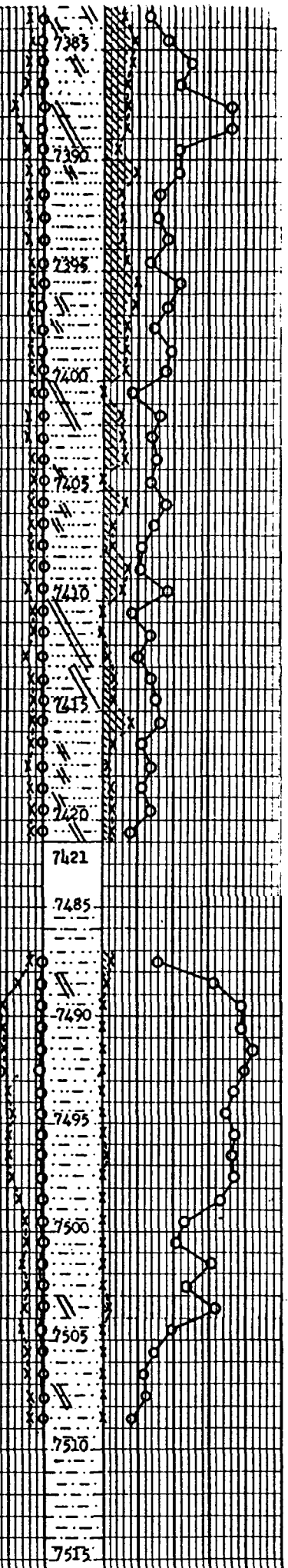
SAMPLE NUMBER	DEPTH FEET	PERM MD.	POROSITY PERCENT	RESIDUAL SATURATION % PORE SPACE		PROD
				OIL	TOTAL WATER	
1	7365-66	<0.01	3.8	23.7	58.0	
2	66-67	0.03	4.4	20.5	47.8	
3	67-68	0.08	6.9	10.1	24.6	
4	68-69	0.04	5.7	15.8	42.1	
5	69-70	0.02	5.2	13.5	50.0	
6	70-71	0.01	4.8	14.6	60.5	
7	71-72	0.02	4.4	20.4	54.6	
8	72-73	0.02	5.0	14.0	50.0	
9	73-74	<0.01	4.4	11.3	63.7	
10	74-75	0.02	4.0	17.5	60.1	
11	75-76	<0.01	4.2	16.6	61.9	

COMPLETION COREGRAPH



12	7383-84	<0.01	3.9	12.8	74.2
13	84-85	0.05	3.7	18.9	64.9
14	85-86	0.04	4.3	16.3	51.2
15	86-87	0.04	4.9	14.3	57.2
16	87-88	0.01	8.1	13.6	28.3
17	88-89	0.08	6.7	13.4	28.3
18	89-90	0.03	4.6	10.9	58.6
19	90-91	0.01	4.6	19.5	58.8
20	91-92	<0.01	4.5	11.1	68.9
21	92-93	0.01	4.2	11.9	69.0
22	93-94	<0.01	4.2	11.9	64.3
23	94-95	0.02	3.8	13.1	73.7
24	95-96	0.01	3.5	20.0	57.2
25	96-97	0.07	3.7	18.9	64.9
26	97-98	0.02	3.5	14.3	71.5
27	98-99	0.04	3.7	13.5	62.2
28	99-7400	0.02	3.8	13.2	65.9
29	7400-01	<0.01	3.7	0.0	83.8
30	01-02	<0.01	4.5	11.1	68.9
31	02-03	<0.01	4.3	11.7	72.2
32	03-04	<0.01	3.9	12.8	69.2
33	04-05	<0.01	2.5	0.0	73.8
34	05-06	<0.01	3.8	13.2	65.8
35	06-07	<0.01	3.5	5.7	71.5
36	07-08	0.01	3.2	6.2	78.2
37	08-09	<0.01	3.4	14.7	79.4
38	09-10	<0.01	4.2	11.9	64.3
39	10-11	0.02	3.0	0.0	83.4
40	11-12	<0.01	2.8	0.0	75.0
41	12-13	<0.01	5.0	4.0	80.0
42	13-14	0.01	3.3	6.1	75.8
43	14-15	<0.01	2.7	7.4	70.4
44	15-16	0.01	3.1	16.1	67.9
45	16-17	<0.01	3.2	6.3	78.3
46	17-18	0.01	4.3	4.7	72.1
47	18-19	<0.01	3.7	5.4	78.5
48	19-20	<0.01	3.4	5.9	73.5
49	20-21	<0.01	3.9	5.1	84.6

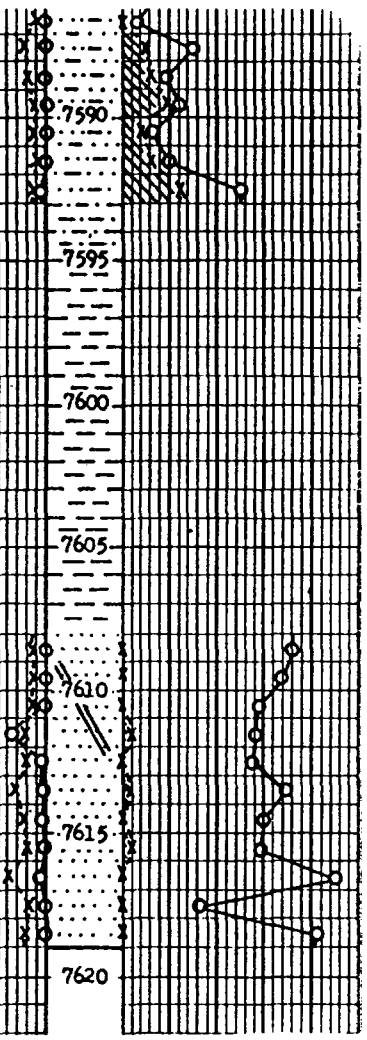
50	7487-88	<0.01	3.8	5.3	68.4
51	88-89	0.06	6.9	2.9	37.7
52	89-90	0.06	11.1	0.0	22.6
53	90-91	0.05	11.5	0.0	22.6
54	91-92	0.06	10.6	0.0	16.0
55	92-93	0.08	10.4	0.0	20.2
56	93-94	0.04	9.9	0.0	26.3
57	94-95	0.05	8.0	0.0	31.3
58	95-96	0.04	9.4	0.0	26.6
59	96-97	0.04	9.4	2.1	27.7
60	97-98	0.04	8.8	0.0	26.2
61	98-99	0.02	6.6	0.0	34.9
62	99-7500	0.01	5.0	0.0	54.0
63	7500-01	<0.01	4.7	0.0	59.6
64	01-02	0.02	6.1	0.0	39.4
65	02-03	0.01	4.9	0.0	53.1
66	03-04	0.01	5.4	3.7	37.0
67	04-05	0.06	5.9	0.0	61.0
68	05-06	0.01	4.6	0.0	71.7
69	06-07	<0.01	4.5	0.0	77.7
70	07-08	0.01	3.8	0.0	76.3
71	08-09	<0.01	3.9	0.0	84.5



Station	Interval	Q	Q ₁	Q ₂	Q ₃	Q ₄
72	7524-25	0.02	2.9	0.0	72.3	
73	25-26	0.03	4.9	0.0	75.6	
74	26-27	<0.01	2.5	0.0	76.0	
75	27-28	<0.01	3.9	5.1	79.4	
76	28-29	0.01	4.3	0.0	74.4	
77	7531-32	0.02	6.5	0.0	73.9	
78	32-33	0.02	6.9	0.0	68.1	
79	33-34	0.02	5.1	0.0	78.4	
80	34-35	0.01	3.8	0.0	84.3	
81	35-36	0.02	0.8	0.0	50.0	
82	36-37	0.01	3.7	5.4	78.6	
83	7541-42	0.05	6.4	0.0	18.8	
84	42-43	0.08	6.3	0.0	15.9	
85	43-44	0.05	6.2	0.0	19.4	
86	44-45	0.02	6.2	0.0	19.3	
87	45-46	0.01	4.1	0.0	24.3	
88	46-47	0.01	3.6	5.6	33.3	
89	47-48	<0.01	2.7	0.0	37.0	
90	48-49	<0.01	4.9	4.1	32.6	
91	49-50	<0.01	3.3	6.1	30.3	
92	50-51	<0.01	1.9	0.0	63.2	
93	51-52	0.02	4.0	2.3	30.0	
94	52-53	<0.01	2.0	0.0	50.0	
95	7554-55	<0.01	2.2	0.0	36.4	
96	55-56	0.06	5.1	0.0	7.9	
97	56-57	0.02	5.5	0.0	10.9	
98	57-58	0.02	6.1	0.0	9.8	
99	58-59	<0.01	1.6	0.0	50.0	
100	59-60	<0.01	2.1	0.0	47.7	
101	60-61	<0.01	2.1	9.5	47.7	
102	61-62	<0.01	1.9	10.5	42.1	
103	62-63	<0.01	2.6	0.0	50.0	
104	63-64	<0.01	1.4	0.0	42.8	
105	64-65	<0.01	1.0	0.0	80.0	
106	65-66	<0.01	3.4	14.7	61.8	
107	66-67	<0.01	1.3	0.0	77.0	
108	67-68	<0.01	3.6	5.6	39.0	
109	68-69	<0.01	3.2	0.0	68.8	
110	69-70	<0.01	3.4	14.7	55.9	
111	70-71	0.01	3.0	0.0	50.0	
112	71-72	0.04	3.7	0.0	24.3	
113	72-73	<0.01	2.1	0.0	80.9	
114	73-74	0.01	2.1	0.0	76.3	
115	74-75	0.05	4.2	0.0	38.1	
116	75-76	<0.01	2.6	0.0	61.6	
117	76-77	<0.01	2.7	0.0	85.3	
118	77-78	0.24	2.2	0.0	86.4	
119	78-79	<0.01	2.9	24.1	41.3	
120	79-80	<0.01	2.6	7.7	38.4	
121	80-81	<0.01	2.5	2.0	55.9	
122	81-82	0.02	1.6	0.0	87.4	
123	82-83	<0.01	1.7	0.0	64.6	
124	83-84	<0.01	1.2	0.0	66.7	
125	84-85	0.06	3.1	0.0	87.1	
126	85-86	0.01	2.9	6.9	86.4	

127	86-87	<0.01	1.6	0.0	93.8
128	87-88	<0.01	4.5	11.1	69.0
129	88-89	<0.01	3.8	13.1	81.6
130	89-90	<0.01	2.5	20.0	76.0
131	90-91	<0.01	2.4	8.3	87.5
132	91-92	<0.01	1.5	13.3	80.0
133	92-93	0.10	0.8	25.0	50.0

134	7608-09	<0.01	2.8	0.0	28.6
135	09-10	<0.01	2.4	0.0	33.3
136	10-11	0.02	2.8	0.0	42.9
137	11-12	0.71	4.1	4.9	43.9
138	12-13	0.08	4.0	0.0	45.1
139	13-14	0.03	6.3	3.2	31.7
140	14-15	0.08	4.5	0.0	40.0
141	15-16	0.02	3.9	5.1	41.1
142	16-17	0.12	7.7	0.0	10.4
143	17-18	0.01	3.7	0.0	67.6
144	18-19	0.04	4.3	0.0	18.6



CHEMICAL & GEOLOGICAL LABORATORIES
Farmington

CORE ANALYSIS REPORT

Company El Paso Natural Gas Company Date November 18, 1959 Lab. No. _____
Well No. Rincon #136 Location Sec. 23-27N-7W
Field Wildcat Formation Graneros & Dakota
County San Juan Depths 7347' - 7632
State New Mexico Drilling Fluid Water Base Mud

C—Crack *Permeability probably S—Slight
F—Fracture caused by existing NF—No Fracture St—Stain
H—Horizontal IS—Insufficient Sample V—Vertical
O—Open Vu—Vugs
shale interlamations

SAMPLE NO.	LEGEND	DEPTH, FEET	EFFECTIVE POROSITY PERCENT	PERMEABILITY MILLIDARCIES		SATURATIONS		CONNATE WATER	SOLUBILITY	
				HORIZONTAL	VERTICAL	% PORE SPACE RESIDUAL OIL	% PORE SPACE TOTAL WATER		MUD ACID	1% ACID
		Core No. 1 7347 - 7408			Recovered 61'					
1	VF	7365-66	7.9	0.06		Trace	40.7	48.7		
2	VF	7366-67	7.3	0.05		Trace	25.2			
3	VF	7367-68	5.9	0.10		Trace	34.6			
4	VF	7368-69	4.7	0.11		Trace	21.5			
5	VF	7369-70	5.6	0.02		Trace	17.1			
6	VF	7370-71	6.0	0.37		Trace	29.8			
7	VF	7371-72	4.8	0.06		Trace	51.7			
8	VF	7372-73	4.9	0.08		Trace	54.5			
9	VF	7373-74	6.5	0.03		Trace	49.3			
10	VHF	7374-75	5.2	1.98*		Trace	22.7			
11	VF	7375-76	6.7	0.12		Trace	42.4			
12	VF	7376-77	6.7	0.10		Trace	44.2			
13	VF	7377-78	3.0	0.03		0	61.0			
14	VF	7378-79	6.3	0.04		Trace	27.0			
15	VF	7379-80	2.8	0.03		Trace	49.6			
16	VF	7380-81	6.1	0.19		Trace	49.0			
17	VF	7381-82	6.2	0.03		Trace	58.2			
18	VF	7382-83	6.3	0.05		Trace	53.5			
19	VF	7383-84	5.9	0.04		4.1	52.2			
20	VF	7384-85	6.0	0.18		3.2	47.2			
21	VF	7385-86	8.0	0.03		11.5	26.0			
22	VF	7386-87	8.2	0.03		12.4	29.1			
23	VF	7387-88	7.1	0.04		2.8	22.6			
24	VF	7388-89	8.8	0.04		14.3	33.5			
25	VF	7389-90	6.8	0.02		Trace	42.6			
26	VF	7390-91	8.4	0.03		7.4	29.9			
27	VF	7391-92	9.5	0.07		9.1	22.3			
28	VF	7392-93	12.6	0.10		9.7	18.7			
29	VF	7393-94	11.0	0.05		10.5	21.3			
30	VF	7394-95	8.8	0.04		14.5	12.9			
31	VF	7395-96	7.4	0.03		22.1	18.6			
32	VF	7396-97	3.7	0.01		Trace	65.7			
33	VF	7397-98	1.4	0.01		Trace	87.9			
34	VF	7398-99	6.1	0.13		0	39.5			
35	VF	7399-7400	6.5	0.03		Trace	35.2			
36	VF	7400-01	6.4	0.09		0	36.6			

El Paso Natural Gas Company
Rincon #136

C—Crack
F—Fracture
H—Horizontal
O—Open

LEGEND
NF—No Fracture
IS—Insufficient Sample

S—Slight
St—Stain
V—Vertical
Vu—Vug

SAMPLE NO.	LEGEND	DEPTH, FEET	EFFECTIVE POROSITY, PORESPACE	PERMEABILITY MILLIDARCIES		SATURATIONS		CONNATE WATER	SOLUBILITY	
				HORIZONTAL	VERTICAL	% PORE SPACE RESIDUAL OIL	% PORE SPACE TOTAL WATER		MUD ACID	IS % ACID
		Core No. 1	continued							
37	VF	7401-02	4.1	0.03		5.1	49.8			
38	VF	7402-03	3.8	0.02		9.2	42.4			
39	VF	7403-04	6.9	0.02		1.9	33.8			
40	VF	7404-05	7.0	0.03		2.9	15.6			
41	VF	7405-06	7.4	0.02		4.9	33.8			
42	VF	7406-07	6.6	0.01		3.3	31.2			
43	VF	7407-08	8.4	0.03		4.4	26.8			
		Core No. 2	7408	- 7470 Recovered		62'				
44	VF	7408-09	13.2	0.08		5.8	20.5			
45	NF	7409-10	10.5	0.04		8.7	17.1			
46	NF	7410-11	13.0	0.07		5.5	15.8			
47	NF	7411-12	13.2	0.08		5.1	13.2			
48	NF	7412-13	11.6	0.05		6.6	15.0			
49	NF	7413-14	8.7	0.03		7.4	19.2			
50	HF	7414-15	10.3	0.17		6.1	23.1			
51	HF	7415-16	5.3	0.03		7.4	42.1			
52	VHF	7416-17	4.1	0.02		6.6	30.2			
53	NF	7417-18	6.1	0.04		4.3	19.2			
54	NF	7418-19	7.4	0.04		3.9	21.5			
55	VF	7419-20	6.6	0.03		2.6	25.9			
56	NF	7420-21	7.6	0.03		Trace	24.1			
57	VF	7421-22	7.2	0.02		Trace	43.5			
58	VF	7422-23	5.8	0.02		0	46.0			
59	VF	7423-24	6.8	0.01		0	43.4			
		Core No. 3	7470	- 7532 Recovered		62'				
60	VF	7486-87	4.8	0.01		0	63.3			
61	VF	7487-88	6.1	0.01		0	36.1			
62	NF	7505-06	12.2	0.08		0	23.1			
63	NF	7506-07	13.5	0.10		0	25.1			
64	NF	7507-08	12.8	1.11		0	22.5			
65	NF	7508-09	12.5	0.08		0	21.0			
66	NF	7509-10	11.4	0.05		Trace	21.0			
67	NF	7510-11	10.7	0.07		Trace	31.2			
68	NF	7511-12	12.5	0.08		Trace	23.6			
69	NF	7512-13	11.6	0.18		0	13.1			
70	NF	7513-14	12.7	0.08		0	23.4			
71	NF	7514-15	12.8	0.08		0	20.3			
72	NF	7515-16	12.4	0.06		0	21.1			
73	NF	7516-17	10.5	0.04		0	31.1			
74	NF	7517-18	6.6	0.03		0	60.3			
75	NF	7518-19	6.6	0.03		0	60.3			
76	VEF	7519-20	9.5	0.03		0	34.7			
77	VF	7520-21	9.8	0.02		0	42.9	51.9		

El Paso Natural Gas Company
Rincon #136

*Permeability probably
caused by existing
shale interlamations

LEGEND
NF—No Fracture
IS—Insufficient Sample

S—Slight
St—Stain
V—Vertical
Vv—Vugs

SAMPLE NO.	LEGEND	DEPTH, FEET	EFFECTIVE POROSITY, %	PERMEABILITY, MILLIDARCIES		SATURATIONS, %		CONNATE WATER	SOLUBILITY		
				PORESPACE	HORIZONTAL	VERTICAL	% PORE SPACE RESIDUAL OIL		% PORE SPACE TOTAL WATER	MUD ACID	15% ACID
Core No. 3 continued											
78	NF	7521-22	11.7	0.02		0	43.2	52.1			
79	NF	7522-23	12.1	0.03		0	30.6				
80	NF	7523-24	10.9	0.05		0	42.5				
81	NF	7524-25	8.9	0.03		Trace	28.3				
82	NF	7525-26	6.4	0.02		Trace	74.5				
83	VF	7526-27	7.7	0.02		0	63.6				
84	NF	7527-28	7.5	0.05		0	68.4				
Core No. 4 7532 - 7562 Recovered 30'											
85	NF	7539-40	7.7	0.05		0	36.5	59.5			
86	NF	7540-41	7.5	0.03		0	38.8				
87	HF	7541-42	6.1	0.02		0	47.7				
88	VF	7542-43	6.1	0.03		0	36.5				
89	NF	7543-44	8.1	0.03		0	41.0				
90	VF	7544-45	8.1	0.52		0	40.1				
91	VF	7546-47	6.9	0.04		0	42.3				
92	VF	7547-48	7.1	0.03		0	51.3				
93	HF	7548-49	7.2	0.08		0	37.9				
94	NF	7549-50	4.6	0.02		0	43.9				
95	VF	7550-51	9.1	0.04		0	47.1				
96	VF	7551-52	11.8	0.08		0	40.4				
97	VHF	7552-53	7.5	0.34		0	22.8				
98	VHF	7553-54	7.1	0.04		0	21.3				
99	VHF	7554-55	7.6	1.48*		0	41.7				
100	VHF	7555-56	6.7	0.07		0	31.5				
101	VF	7556-57	5.0	0.05		0	38.2				
102	VF	7557-58	6.9	0.33		0	35.9				
103	VF	7558-59	4.8	0.02		0	45.1				
Core No. 5 7562 - 7570 Recovered 8'											
104	VF	7562-63	8.1	0.03		Trace	36.3				
105	VHF	7563-64	5.8	0.01		0	29.5				
106	VF	7564-65	6.0	0.02		0	23.7				
107	VHF	7565-66	3.6	1.08*		0	49.6				
108	HF	7566-67	7.1	0.03		3.0	51.5				
109	VF	7567-68	4.5	0.09		0	32.7				
110	VF	7568-69	4.7	0.02		0	44.7				
111	VF	7569-70	6.7	0.08		0	28.4				
Core No. 6 7570 - 7575 Recovered 4.5'											
112	VF	7570-71	4.6	0.02		0	21.3				

*Permeability probably
caused by existing
shale interlamination

LEGEND
NF—No Fracture
IS—Insufficient Sample

S—Slight
SI—Slight
V—Vertical
Vu—Vertical

SAMPLE NO.	LEGEND	DEPTH, FEET	EFFECTIVE POROSITY, PORESPACE	PERMEABILITY MILLIDARCIES		SATURATIONS		CONCENTRATE WATER	SOLUBILITY	
				HORIZONTAL	VERTICAL	PORE SPACE RESIDUAL OIL	PORE SPACE TOTAL WATER		MUD ACID	IS ACID
		Core No. 6 continued								
113	VF	7571-72	3.5	2.03*		Trace	28.7			
114	VF	7572-73	3.1	0.01		0	38.6			
115	VF	7573-74	2.5	0.03		0	56.8			
116	VF	7574-75	1.5	0.04		0	93.4			
		Core No. 7 7575 - 7632 Recovered 57.5%								
117	VF	7575-76	6.2	0.06		0	41.9			
118	VF	7576-77	7.7	0.03		0	32.2			
119	VF	7577-78	4.1	0.05		0	31.7			
120	VF	7578-79	4.9	0.07		0	50.4			
121	VF	7579-80	4.5	0.01		0	25.3			
122	VF	7580-81	5.4	0.02		0	32.4			
123	VF	7581-82	4.3	0.04		0	21.9			
124	VF	7582-83	8.7	0.04		0	43.5			
125	VF	7590-91	5.0	0.03		0	54.4			
126	VF	7591-92	4.5	1.08*		0	37.6			
127	VF	7592-93	4.3	0.08		0	48.4			
128	VF	7593-94	6.7	0.01		0	49.7			
129	VF	7594-95	5.9	0.02		0	41.4			
130	VF	7595-96	3.8	0.01		0	53.9			
131	NF	7610-11	2.2	0.03		0	26.8			
132	NF	7615-16	6.7	0.28		0	25.3			
133	NF	7616-17	7.1	0.16		0	56.1			
134	VF	7623-24	4.6	0.04		0	39.8			
135	VF	7624-25	4.4	0.03		0	86.3			
136	VF	7625-26	7.4	0.07		0	47.9			
137	VF	7626-27	4.5	0.02		0	68.7			
138	VF	7627-28	6.4	0.06		0	59.7			
139	VF	7628-29	8.1	1.58*		0	80.2			
140	VF	7629-30	8.5	0.66		0	46.3			
141	VF	7631-32	1.8	0.02		0	95.7	56.8		

CORE LABORATORIES, INC.



Petroleum Reservoir Engineering

COMPANY EL PASO NATURAL GAS COMPANY DATE ON 5/10/61 FILE NO. RP-3-1434
 WELL RINCON UNIT # 159 DATE OFF 5/15/61 ENGRS. McCOMAS
 FIELD BASIN DAKOTA FORMATION DAKOTA & GRANEROS ELEV. 6618 OR
 COUNTY RIO ARriba STATE NEW MEX. DRILG. FLD. OIL EMULSION MUD CORES DIAMOND CONV.
 LOCATION SEC 18 T27N R6W REMARKS SAMPLED BY CLIENT & CLI

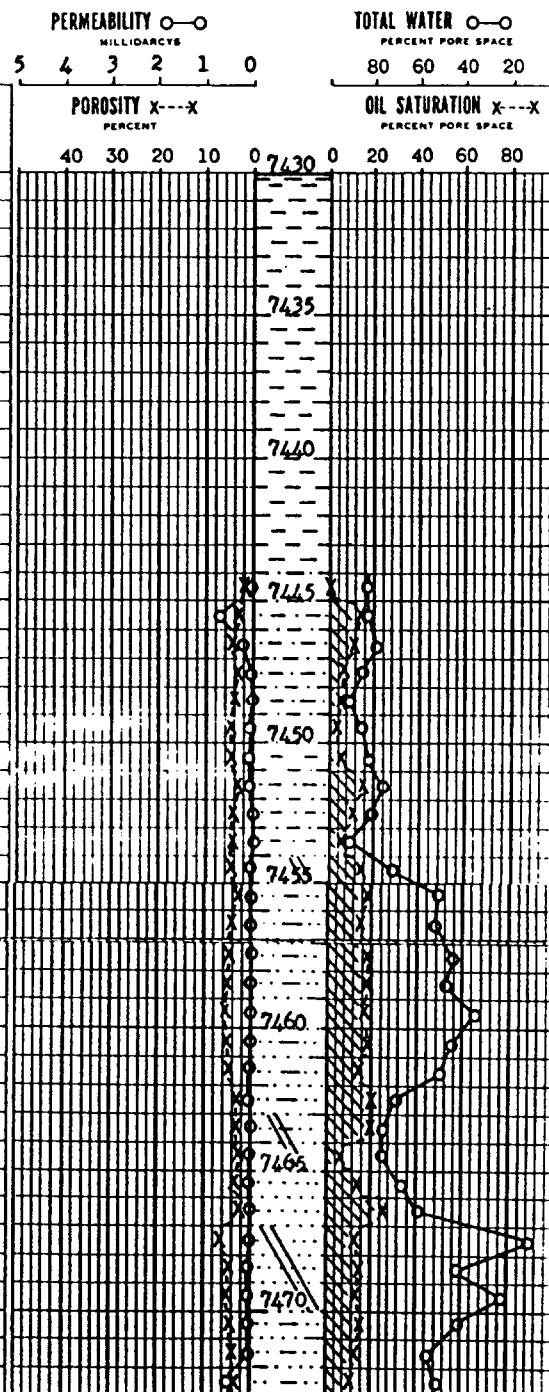
SAND LIMESTONE CONGLOMERATE VERTICAL CHERT
 SHALE DOLOMITE FRACTURE

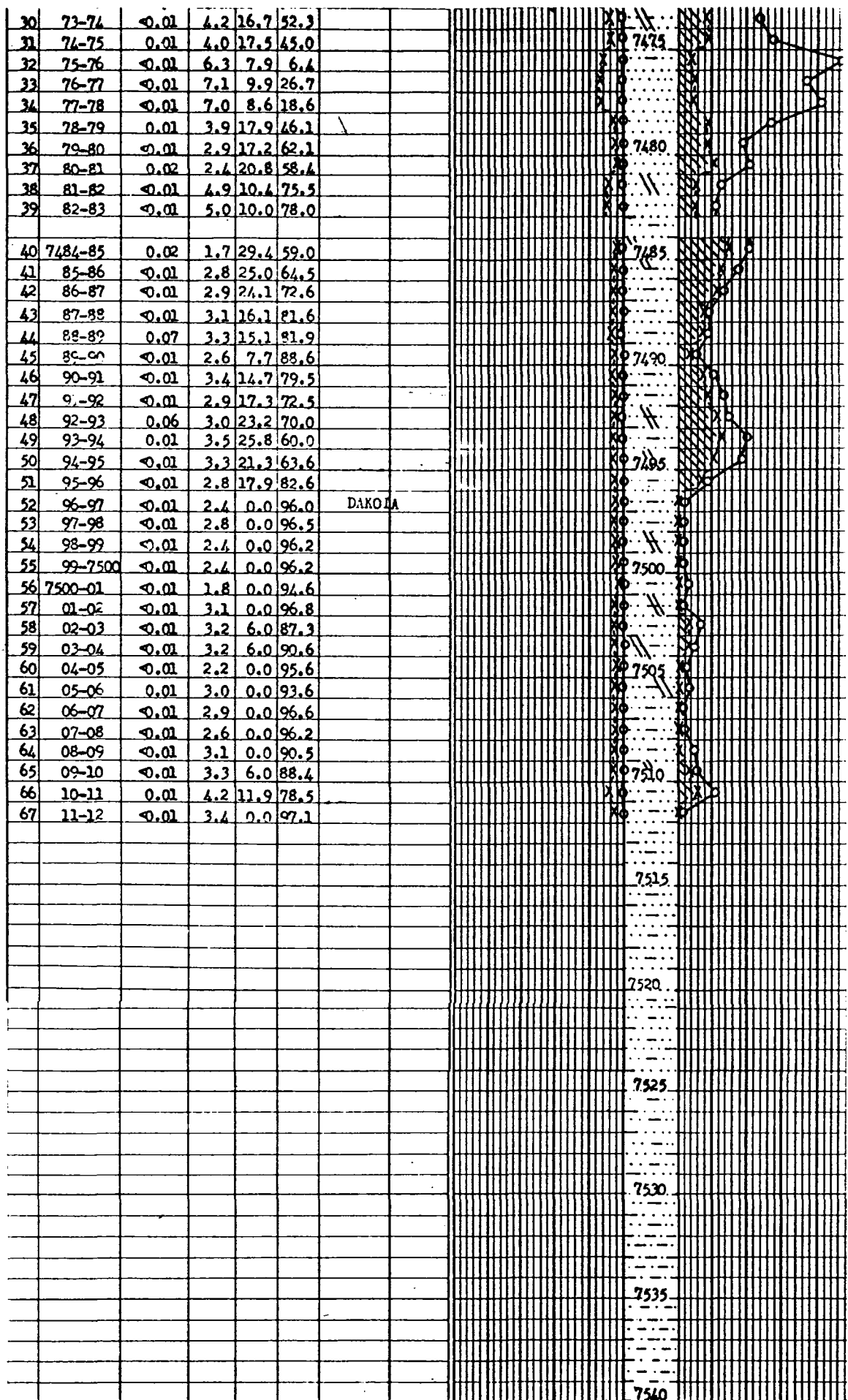
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TABULAR DATA and INTERPRETATION

SAMPLE NUMBER	DEPTH FEET	PERM. MD.	POROSITY %	RESIDUAL SATURATION % PORE SPACE		PROD
				OIL	TOTAL WATER	
				GRANEROS		
1	7444-45	<0.01	1.8	0.0	83.2	
2	45-46	0.72	3.5	14.2	27.9	
3	46-47	0.21	4.4	11.3	79.6	
4	47-48	0.03	3.4	5.9	85.3	
5	48-49	<0.01	4.1	4.9	90.5	
6	49-50	0.06	5.6	3.6	85.6	
7	50-51	0.09	4.5	4.5	82.5	
8	51-52	0.08	3.3	15.1	76.0	
9	52-53	<0.01	4.1	12.2	80.5	
10	53-54	<0.01	4.2	4.8	90.5	
11	54-55	0.01	4.9	14.3	71.6	
12	55-56	<0.01	3.9	17.9	51.2	
13	56-57	0.01	4.6	15.2	52.2	
14	57-58	<0.01	5.0	18.0	44.0	
15	58-59	0.01	5.1	17.6	47.0	
16	59-60	<0.01	5.4	16.6	35.2	
17	60-61	<0.01	5.2	17.3	44.2	
18	61-62	0.01	5.0	14.0	50.0	
19	62-63	0.02	3.5	20.0	68.6	
20	63-64	<0.01	3.6	19.4	75.0	
21	64-65	<0.01	3.2	6.3	75.0	
22	65-66	<0.01	3.6	13.9	66.7	
23	66-67	0.01	2.7	25.9	59.4	
24	67-68	<0.01	6.8	13.2	11.7	
25	68-69	0.01	5.0	14.0	42.0	
26	69-70	0.02	5.4	12.9	22.2	
27	70-71	<0.01	4.4	15.9	40.9	
28	71-72	<0.01	4.0	12.5	55.0	
29	72-73	0.52	4.3	11.6	51.2	

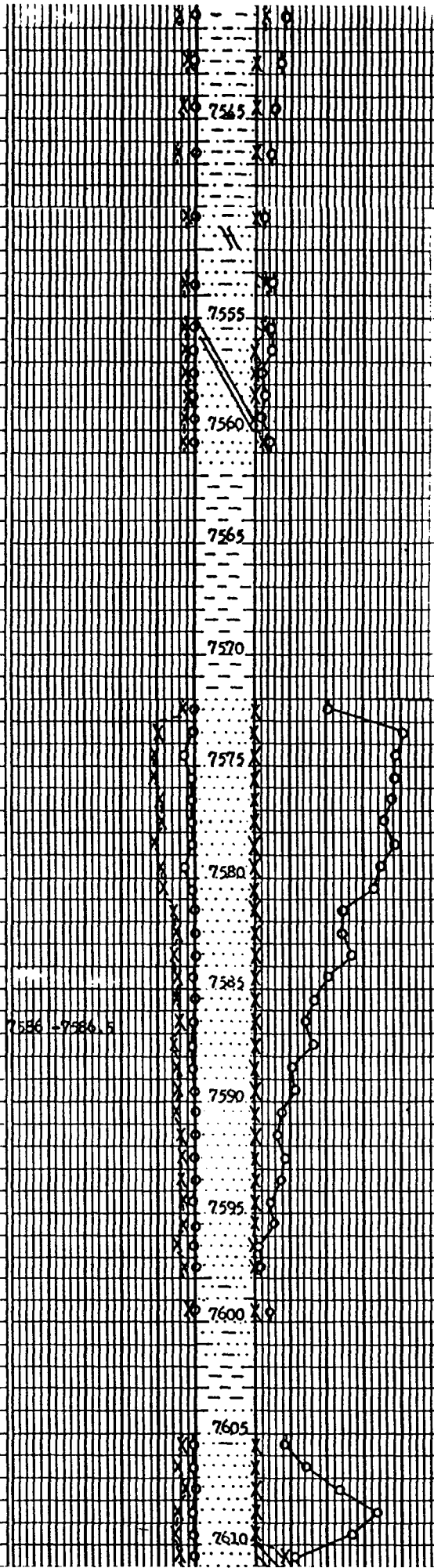
COMPLETION COREGRAPH

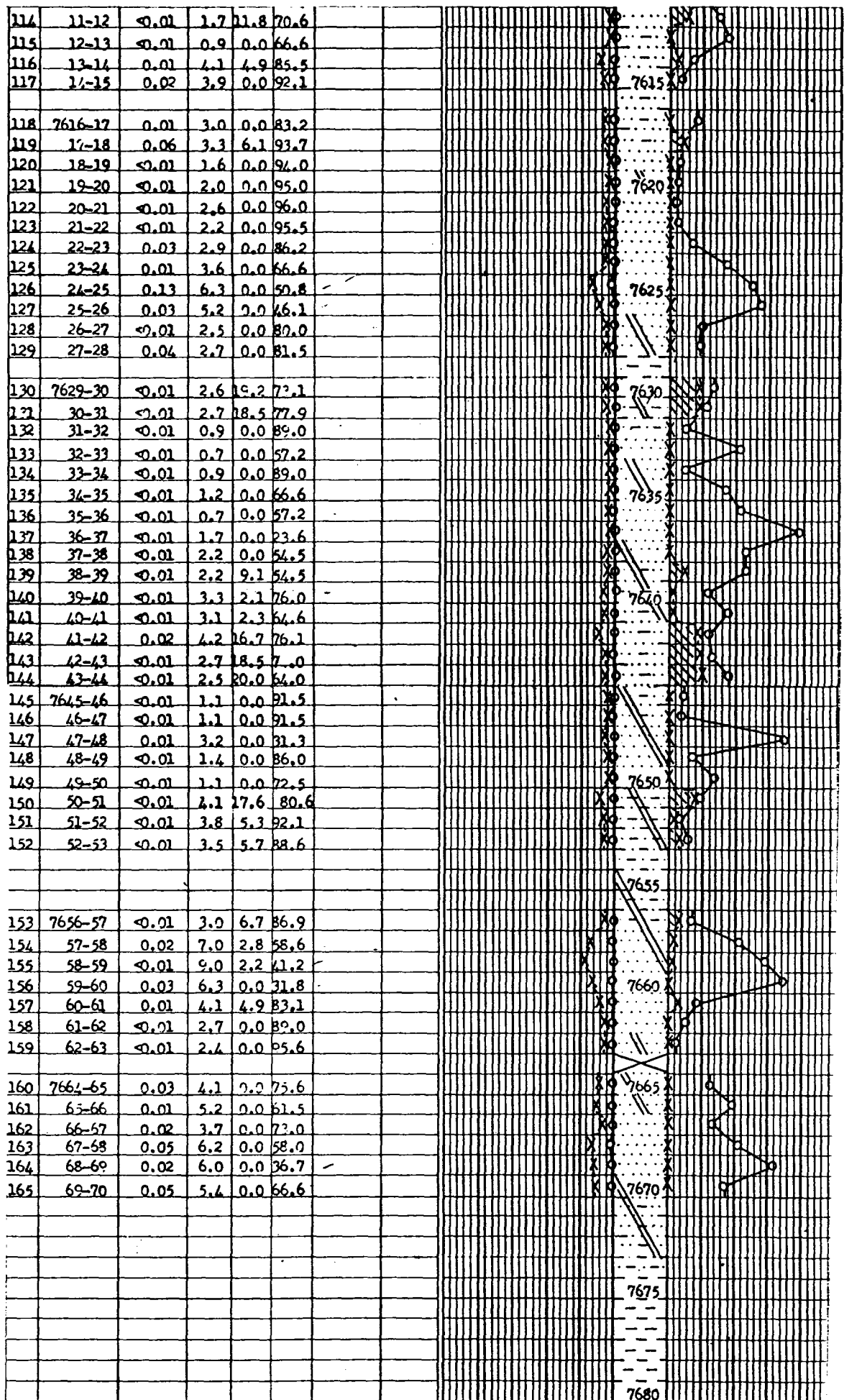




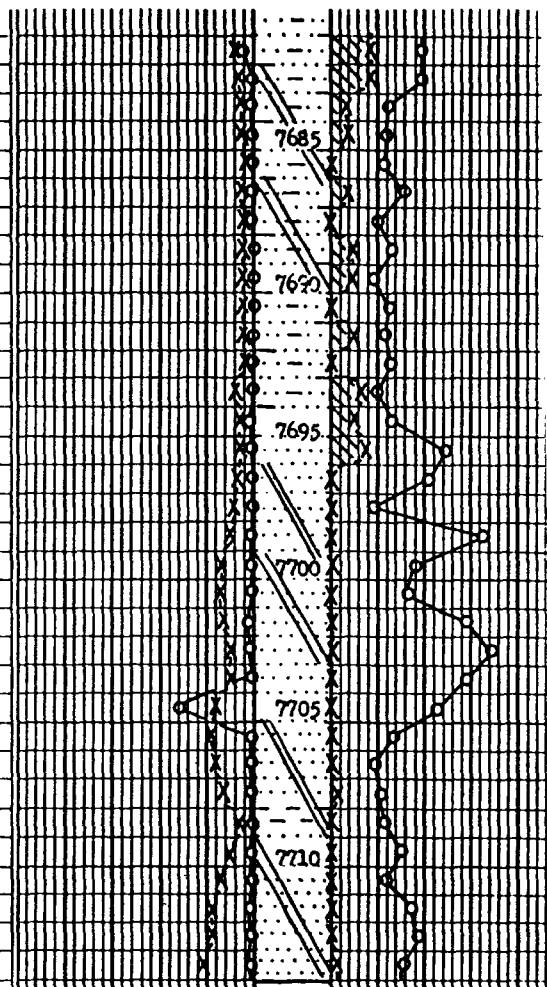
68	7540-41	0.01	4.2	4.8	83.5
69	7542-43	0.07	2.9	0.0	86.3
70	7544-45	<0.01	3.5	0.0	88.5
71	7546-47	0.01	4.4	0.0	91.0
72	7550-51	<0.01	2.2	0.0	95.5
73	7553-54	<0.01	3.0	6.7	90.0
74	7555-56	0.01	3.2	6.3	90.6
75	56-57	0.01	3.0	0.0	90.0
76	57-58	<0.01	2.8	0.0	96.5
77	58-59	<0.01	1.8	0.0	94.5
78	59-60	<0.01	2.7	0.0	96.3
79	60-61	<0.01	3.3	6.1	91.0
80	7572-73	<0.01	3.7	0.0	59.4
81	73-74	0.07	10.0	0.0	19.0
82	74-75	0.27	10.3	0.0	22.3
83	75-76	0.07	11.1	0.0	23.4
84	76-77	0.05	9.5	0.0	24.2
85	77-78	0.06	8.7	0.0	28.8
86	78-79	0.04	10.9	0.0	23.0
87	79-80	0.32	9.2	0.0	31.5
88	80-81	0.05	8.3	0.0	35.0
89	81-82	<0.01	5.7	0.0	50.9
90	82-83	<0.01	5.3	0.0	51.0
91	83-84	<0.01	5.8	0.0	46.6
92	84-85	0.01	4.6	0.0	58.7
93	85-86	<0.01	5.0	0.0	66.0
94	86-87	0.01	4.5	0.0	71.1
95	87-88	0.07	5.4	0.0	66.7
96	88-89	0.03	4.8	0.0	79.2
97	89-90	<0.01	4.3	0.0	76.8
98	90-91	<0.01	4.0	0.0	84.9
100	91-92	<0.01	3.9	0.0	87.1
101	92-93	<0.01	3.9	0.0	83.0
102	93-94	<0.01	3.9	0.0	84.5
103	94-95	0.01	3.4	0.0	90.9
104	95-96	<0.01	3.5	0.0	88.2
105	96-97	<0.01	4.7	0.0	98.0
106	97-98	<0.01	2.6	0.0	96.5
107	7599-7600	<0.01	1.2	0.0	91.9
108	7605-06	0.07	3.7	0.0	83.5
109	06-07	0.05	4.6	0.0	71.8
110	07-08	0.01	2.9	0.0	55.2
111	08-09	0.10	4.8	0.0	33.2
112	09-10	0.06	5.3	0.0	47.0
113	10-11	0.05	4.2	16.6	78.5

* SAMPLE # 95
OMITTED





166	7681-82	0.21	3.1	16.1	61.4		
167	82-83	<0.01	3.1	16.1	61.4		
168	83-84	0.01	2.3	6.1	75.6		
169	84-85	0.01	2.5	8.0	76.0		
170	85-86	<0.01	1.3	0.0	77.1		
171	86-87	<0.01	2.8	7.1	68.0		
172	87-88	0.01	2.0	0.0	80.0		
173	88-89	<0.01	2.3	8.7	71.0		
174	89-90	0.01	2.1	0.5	81.0		
175	90-91	<0.01	2.4	0.2	75.4		
176	91-92	<0.01	2.1	5.5	76.4		
177	92-93	<0.01	2.0	0.0	75.0		
178	93-94	<0.01	4.0	12.5	80.0		
179	94-95	0.09	2.3	8.7	71.0		
180	95-96	0.01	3.2	15.1	51.5		
181	96-97	<0.01	3.8	0.0	58.0		
182	97-98	<0.01	4.2	0.0	81.0		
183	98-99	0.02	5.7	0.0	35.0	-	
184	99-7700	0.05	6.4	0.0	64.0		
185	7700-01	0.04	7.4	0.0	66.3		
186	01-02	0.13	6.1	0.0	42.5	-	
187	02-03	0.12	5.1	2.0	31.2	-	
188	03-04	0.05	5.2	0.0	42.1	-	
189	04-05	1.6	8.0	0.0	55.0		
190	05-06	0.06	9.3	0.0	71.1		
191	06-07	0.01	8.4	2.4	81.0		
192	07-08	0.01	6.4	0.0	79.6		
193	08-09	<0.01	3.2	0.0	77.9		
194	09-10	0.05	4.9	0.0	69.4		
195	10-11	0.01	7.6	0.0	76.3		
196	11-12	0.09	8.4	0.0	65.6		
197	12-13	0.08	8.7	0.0	62.3		
198	7713-14	0.05	10.4	1.9	68.2		



CORE LABORATORIES, INC.
 Petroleum Reservoir Engineering
 DALLAS, TEXAS

Page No. 1**CORE ANALYSIS RESULTS**

Company EL PASO NATURAL GAS COMPANY Formation GRANEROS-DAKOTA File RP-3-2109
 Well HARVEY "A" #3 Core Type DIAMOND CONV. Date Report 6-15-66
 Field BASIN DAKOTA Drilling Fluid FRESH WATER JEL Analysts STRICKLIN
 County RIO ARriba State N.M. Elev. 6628KB Location 890'S, 1650/E, SEC. 32-T27N-R7W

Lithological Abbreviations

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCY Kt	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
				OIL	TOTAL WATER	
1	7194-95	0.04	4.4	11.3	75.0	SNDY SLT STN:LT GRY,W/ABNT CARB MTL.
2	7195-96	0.02	4.7	14.9	61.7	SNDY SLT STN:LT GRY,SHLY,CALC ON FRAC.
3	7196-97	0.01	4.1	17.1	58.6	SNDY SLT STN:LT GRY,SHLY,CALC ON FRAC.
4	7197-98	0.02	4.4	4.6	63.6	SS:LT GRY,FNGR,SLTY,SLI CALC,W/THIN SH.
5	7198-99	0.04	4.5	11.1	73.4	SS:LT GRY,FNGR,SLTY,SLI CALC,W/THIN SH.
6	7199-7200	0.02	3.9	5.1	69.3	SS:LT GRY,FNGR,SLTY,SLI CALC,W/THIN SH.
7	7226-27	<0.01	5.3	9.4	81.2	SH:DK GRY,POKERCHIP.
8	7232-33	0.02	3.9	23.0	48.8	SS:LT GRY,FNGR,W/MOTT SH INCLUSIONS.
9	7233-34	0.02	5.4	13.0	42.6	SS:LT GRY,FNGR,W/MOTT SH INCLUSIONS.
10	7234-35	0.88	8.2	8.5	22.9	SS:LT GRY,FNGR,W/MOTT SH INCLUSIONS.
11	7235-36	0.08	9.7	11.3	25.8	SS:LT GRY,FNGR,W/MOTT SH INCLUSIONS.
12	7236-37	0.10	9.0	12.2	26.6	SS:LT GRY,FNGR,W/MOTT SH INCLUSIONS.
13	7237-38	0.04	9.2	16.3	23.9	SS:LT GRY,FNGR,W/MOTT SH INCLUSIONS.
14	7238-39	0.04	7.3	15.1	31.5	SS:LT GRY,FNGR,W/MOTT SH INCLUSIONS.
15	7239-40	0.05	10.4	10.6	19.2	SS:LT GRY,FNGR,CLEAN,W/OCC SH INC.
16	7240-41	0.04	8.4	13.1	32.2	SS:LT GRY,FNGR,W/MOTT SH INCLUSIONS.
17	7241-42	0.01	6.0	18.3	41.6	SS:LT GRY,FNGR,W/SH STRGS,& CARB MTL.
18	7242-43	0.04	6.6	16.7	45.5	SS:LT GRY,FNGR,W/SH STRGS,& CARB MTL.
19	7243-44	0.04	5.7	12.3	59.7	SS:LT GRY,FNGR,W/SH STRGS,& CARB MTL.
20	7244-45	0.03	5.2	13.4	50.0	SS:LT GRY,FNGR,W/SH STRGS,& CARB MTL.
21	7245-46	0.02	4.9	14.3	65.4	SS:LT GRY,FNGR,W/ABNT SH LAMS,& CARB MTL.
22	7246-47	0.02	4.3	4.7	44.2	SS:LT GRY,FNGR,W/ABNT SH LAMS,& CARB MTL.
23	7247-48	0.03	5.7	12.3	54.4	SS:LT GRY,FNGR,W/ABNT SH LAMS,& CARB MTL.
24	7248-49	0.05	5.9	8.5	67.9	SS:LT GRY,FNGR,W/ABNT SH LAMS,& CARB MTL.
25	7249-50	0.06	5.4	9.2	74.0	SS:LT GRY,FNGR,W/ABNT SH LAMS,& CARB MTL.
26	7250-51	0.02	4.9	10.2	73.5	SS:LT GRY,FNGR,VRY CALC,W/MOTT SH INC.
27	7251-52	0.03	5.4	9.2	70.5	SS:LT GRY,FNGR,SLI CALC,W/ABNT SH LAMS.
28	7261-62	<0.01	5.1	41.3	27.4	SS:LT GRY,FNGR,W/ABNT CARB MTL,&SH LAMS.
29	7262-63	<0.01	5.1	31.4	41.2	SS:LT GRY,FNGR,W/ABNT CARB MTL,&SH LAMS.
30	7263-64	0.01	5.2	23.1	53.8	SS:LT GRY,FNGR,W/ABNT CARB MTL,&SH LAMS.
31	7264-65	<0.01	5.9	11.9	69.5	SS:LT GRY,FNGR,CLEAN,CALC,QTZITIC.
32	7267-68	<0.01	4.0	12.5	52.5	SS:LT GRY,FNGR,CLEAN,CALC,QUZITIC.
33	7268-69	<0.01	5.1	13.7	55.0	SS:LT GRY,FNGR,W/ABNT THIN SH STRGS.
34	7269-70	<0.01	4.4	27.3	47.5	SS:LT GRY,FNGR,W/ABNT THIN SH STRGS.
35	7270-71	0.08	4.7	4.3	61.7	SS:LT GRY,FNGR,CLEAN.

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CORE ANALYSIS RESULTS

Company EL PASO NATURAL GAS COMPANY Formation GRANEROS-DAKOTA File RP-3-2109
Well HARVEY "A" #3 Core Type DIAMOND CONV. Date Report 6-15-66
Field BASIN DAKOTA Drilling Fluid FRESH WATER JEL Analysts STRICKLIN
County RIO ARriba State N.M. Elev. 6628KB Location 890'/S, 1650'/E, SEC. 32-T27N-R7W

Lithological Abbreviations

SAND-SB SHALE-SH LIME-LM	DOLOMITE-DOL CHERT-CN GYPSUM-GYP	ANHYDRITE-ANHY CONGLOMERATE-CONG FOSSILIFEROUS-FOSS	SANDY-SBY 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 MILLIDARCS KL	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS		
				OIL	TOTAL WATER			

36	7273-74	0.02	5.5	0.0	45.4	SS:LT GRY, FNGR, CLEAN, SLI CALC.		
37	7274-75	0.01	3.9	0.0	41.1	SS:LT GRY, FNGR, CLEAN, SLI CALC.		
38	7275-76	0.01	2.9	0.0	58.7	SS:LT GRY, FNGR, CLEAN, SLI CALC.		
39	7276-77	<0.01	3.9	18.0	59.0	SS:LT GRY, FNGR, W/SH LAMS, & CARB MTL.		
40	7283-84	<0.01	3.6	13.8	44.4	SS:LT GRY, FNGR, W/SH LAMS, & CARB MTL.		
41	7284-85	0.01	4.3	16.3	18.6	SS:LT GRY, FN-MED GR, QTZITIC, W/OCC SH STGR.		
42	7285-86	0.01	3.1	22.66	38.7	SS:LT GRY, FN-MED GR, QTZITIC, W/OCC SH STGR.		
43	7286-87	0.04	3.9	12.5	45.2	SS:LT GRY, FNGR, W/ABNT CARB MTL, & SH STGRS.		
44	7287-88	0.01	2.6	19.2	46.2	SS:LT GRY, FNGR, W/ABNT CARB MTL, & SH STGRS.		
45	7288-89	0.01	4.2	16.7	57.1	SS:BRN, FNGR, SLTY, W/OCC SH STGR.		
46	7289-90	0.01	3.8	13.1	31.6	SS:BRN, FNGR, SLTY, W/OCC SH STGR.		
47	7295-96	<0.01	3.5	20.0	57.2	SS:LT GRY, FNGR, SLI CALC, QTZITIC.		
48	7296-97	<0.01	2.9	24.1	34.5	SS:LT GRY, FNGR, W/OCC SH LAMS, SLI CALC.		
49	7299-7300	0.06	5.8	8.6	69.0	SS:BUFF, FNGR, ARGILL, X BEDDED.		
50	7300-01	0.04	10.8	4.6	50.8	SS:BUFF, FNGR, ARGILL, X BEDDED, W/OCC CSE GR.		
51	7301-02	0.02	11.2	4.5	45.0	SS:BUFF, FNGR, ARGILL, X BEDDED, W/OCC CSE GR.		
52	7302-03	0.02	11.3	1.8	45.2	SS:BUFF, FNGR, ARGILL, X BEDDED.		
53	7303-04	<0.01	6.7	2.9	77.6	SS:BUFF, FNGR, ARGILL, X BEDDED.		
54	7304-05	<0.01	6.8	7.3	69.0	SS:BUFF, FNGR, ARGILL, X BEDDED.		
55	7305-06	<0.01	5.2	3.8	61.6	SS:BUFF, FNGR, ARGILL, X BEDDED.		
56	7306-07	0.01	4.4	4.5	63.7	SS:BUFF, FNGR, ARGILL, X BEDDED.		
57	7307-08	0.01	4.9	4.1	65.4	SS:BUFF, FNGR, ARGILL, X BEDDED.		
58	7308-09	<0.01	2.9	6.9	58.6	SS:LT GRY, FNGR, W/SH LAMS.		
59	7309-10	<0.01	2.2	9.1	68.2	SS:LT GRY, FNGR, W/SH LAMS.		
60	7310-11	<0.01	3.7	18.9	54.1	SS:LT GRY, FNGR, W/SH LAMS.		
61	7319-20	<0.01	4.3	16.3	58.2	SS:LT GRY, FNGR, W/SH LAMS.		
62	7320-21	<0.01	2.8	17.8	57.2	SS:LT GRY, FNGR, W/SH LAMS.		
63	7321-22	<0.01	4.3	20.99	62.8	SS:LT GRY, FNGR, W/SH LAMS.		
64	7322-23	<0.01	3.9	5.1	61.1	SS:BUFF, FNGR, ARGILL, SLTY, X BEDDED.		
65	7323-24	0.03	8.2	2.5	35.4	SS:BUFF, FNGR, ARGILL, SLTY, X BEDDED.		
66	7324-25	0.13	6.8	2.9	57.4	SS:BUFF, FNGR, ARGILL, SLTY, W/OCC SH STGR.		
67	7325-26	0.08	6.9	0.0	59.5	SS:BUFF, FNGR, ARGILL, SLTY, W/OCC SH STGR.		
68	7326-27	0.03	5.4	0.0	57.4	SS:BUFF, FNGR, ARGILL, SLTY, W/OCC SH STGR.		
69	7327-28	0.05	7.7	9.1	50.7	SS:BUFF, FNGR, ARGILL, SLTY, W/OCC SH STGR.		
70	7332-33	0.14	7.8	0.0	16.7	SS:WHITE, MED-CSE GR, CLEAN, FRI.		

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CORE ANALYSIS RESULTS

Company EL PASO NATURAL GAS COMPANY Formation GRANEROS-DAKOTA File RP-3-2109
 Well HARVEY "A" #3 Core Type DIAMOND CONV. Date Report 6-18-66
 Field BASIN DAKOTA Drilling Fluid FRESH WATER JEL Analysts STRICKLIN
 County RIO ARriba State N.M. Elev. 6628KB Location 890'S, 1650'E, SEC. 32-T27N-R7W

Lithological Abbreviations

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCY KI	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
				OIL	TOTAL WATER	
71	7333-34	0.02	3.4	0.0	23.6	SS:WHITE,MED-CSE GR,CLEAN,FRI.
72	7334-35	<0.01	11.4	1.8	57.0	SS:WHITE,MED GR,CLEAN,TITE.
73	7337-38	<0.01	4.0	5.0	40.0	SS:LT GRY,FNGR,HD,TITE.
74	7338-39	0.03	6.7	3.0	70.0	SS:LT GRY,FNGR,SLTY,X BED,V/FRAC,W/SH STK.
75	7339-40	0.01	5.0	14.0	68.0	SS:LT GRY,FNGR,SLTY,X BED,V/FRAC,W/SH STK.
76	7340-41	0.01	4.8	14.6	64.6	SS:LT GRY,FNGR,SLTY,X BED,V/FRAC,W/SH STK.
77	7341-42	0.01	2.9	17.2	55.3	SS:LT GRY,FNGR,SLTY,X BED,V/FRAC,W/SH STK.
78	7343-44	0.04	9.8	0.0	59.3	SS:BUFF,FRI,FNGR,X BED,CLEAN,W/OCC SH STK.
79	7344-45	0.04	6.6	0.0	48.5	SS:BUFF,FRI,FNGR,X BED,CLEAN,W/OCC SH STK.
80	7345-46	0.04	9.6	0.0	53.1	SS:BUFF,FRI,FNGR,X BED,CLEAN,W/OCC SH STK.
81	7346-47	0.06	10.3	0.0	60.2	SS:BUFF,FRI,FNGR,X BED,CLEAN,W/OCC SH STK.
82	7347-48	0.02	7.6	0.0	65.8	SS:BUFF,FRI,FNGR,X BED,CLEAN,W/OCC SH STK.
83	7348-49	0.04	11.0	0.0	49.2	SS:BUFF,FRI,FNGR,X BED,CLEAN,W/OCC SH STK.
84	7349-50	0.08	10.1	0.0	59.4	SS:BUFF,FRI,FNGR,CLEAN,W/OCC SH STK.
85	7350-51	0.12	11.4	1.7	53.5	SS:BUFF,FRI,FNGR,CLEAN,W/OCC SH STK.
86	7351-52	0.05	8.6	0.0	32.5	SS:BUFF,FRI,FNGR,CLEAN,W/OCC SH STK.
87	7352-53	0.09	11.4	0.0	52.6	SS:BUFF,FRI,FNGR,CLEAN,W/OCC SH STK.
88	7353-54	0.01	5.9	0.0	78.0	SS:BUFF,FRI,FNGR,CLEAN,W/OCC SH STK.
89	7358-59	0.01	4.8	14.6	39.6	SS:LT GRY,FNGR,ABNT CARB MTL,SH STGS.
90	7359-60	3.3	10.0	7.0	70.0	SS:LT GRY,FNGR,ABNT CARB MTL,SH STGS.
91	7360-61	2.1	8.6	10.5	52.4	SS:LT GRY,FNGR,ABNT CARB MTL,SH STGS.
92	7361-62	23.0	9.6	0.0	74.0	CONG:FN-CSE GR QTZ XLS,PEBBLES THR-OUT.
93	7362-63	102.0	13.4	3.7	75.5	CONG:FN-CSE GR QTZ XLS,PEBBLES THR-OUT.
94	7363-64	36.0	6.7	3.0	68.6	CONG:FN-CSE GR QTZ XLS THR-OUT.
95	7364-65	3.6	15.3	1.3	81.1	CONG:FN-CSE GR QTZ XLS THR-OUT.
96	7365-66	<0.01	4.9	4.1	71.5	SH:LT GRN,SLTY IN PT,NON CALC,HD,TITE.
97	7366-67	<0.01	3.3	0.0	78.9	SH:LT GRN,SLTY IN PT NON CALC,GRD TO SS.
98	7367-68	<0.01	4.6	0.0	69.6	SS:WHITE,FNGR,CHALKY,NON CALC,NO SHO.
99	7368-69	0.01	6.0	0.0	76.7	SS:WHITE,FNGR,CHALKY,NON CALC,NO SHO.
100	7369-70	0.06	11.1	0.0	73.0	SS:WHITE,FNGR,CHALKY,NON CALC,NO SHO.
101	7370-71	0.06	12.3	0.0	56.1	SS:WHITE,FNGR,CHALKY,NON CALC,NO SHO.
102	7373-74	<0.01	1.9	0.0	68.4	SS:LT GRY,FN-VRY FN,NON CALC,HD TITE.
103	7374-75	0.01	9.1	0.0	74.8	SS:BUFF,FNGR,X BEDDED,W/THIN SH STGS.
104	7375-76	0.86	13.4	0.0	55.3	SS:BUFF,FNGR,X BEDDED,W/THIN SH STGS.

SERVICE #8.

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CORE ANALYSIS RESULTS

Company EL PASO NATURAL GAS COMPANY Formation GRANEROS-DAKOTA File RP-3-2109
Well HARVEY "A" #3 Core Type DIAMOND CONV. Date Report 6-20-66
Field BASIN DAKOTA Drilling Fluid FRESH WATER JEL Analysts STRICKLIN
County RIO ARriba State N.M. Elev. 6628KB Location 890'/S, 1650'/E, SEC. 32-T27N-R7W

Lithological Abbreviations

SAND-SB SHALE-SH LIME-LM	COLOMITE-COL CHERT-CH GYPSUM-GYP	ANHYDRITE-ANHY CONGLOMERATE-CONG FOSSILIFEROUS-FOSS	SANDY-SBY 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/
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SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCS K _t	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
				OIL	TOTAL WATER	
105	7376-77	0.29	13.1	0.0	63.6	SS: BUFF, FNGR, I BEDDED, W/THIN SH STGS.
106	7377-78	1.8	12.0	0.0	62.5	SS: WHITE, FNGR, CHALKY, NON CALC.
107	7378-79	1.3	13.4	0.0	63.4	SS: WHITE, MED GR, CHALKY, NON CALC.
108	7379-80	1.8	14.3	0.0	61.7	SS: WHITE, MED GR, CHALKY, NON CALC.
109	7380-81	1.9	11.3	0.0	71.7	SS: WHITE, MED GR, CHALKY, NON CALC.
110	7381-82	0.16	12.5	0.0	76.8	SS: WHITE, MED GR, CHALKY, NON CALC.
111	7382-83	0.26	13.0	0.0	75.4	SS: WHITE, MED GR, CHALKY, NON CALC.
112	7383-84	0.41	12.3	0.0	69.1	SS: WHITE, MED GR, CHALKY, NON CALC.
113	7384-85	1.8	12.8	0.0	68.6	SS: WHITE, MED GR, CHALKY, NON CALC.
114	7385-86	0.38	12.8	0.0	63.2	SS: WHITE, MED GR, CHALKY, NON CALC.
115	7386-87	0.56	12.9	0.0	65.8	SS: WHITE, MED GR, CHALKY, NON CALC.
116	7387-88	0.86	12.9	0.0	58.1	SS: WHITE, MED GR, CHALKY, NON CALC.
117	7388-89	0.56	12.4	0.0	62.1	SS: WHITE, MED GR, CHALKY, NON CALC.
118	7389-90	0.22	11.6	0.0	66.4	SS: WHITE, MED GR, CHALKY, NON CALC.
119	7390-91	0.41	11.6	0.0	69.8	SS: WHITE, MED GR, CHALKY, NON CALC.
120	7391-92	0.08	12.3	0.0	62.6	SS: WHITE, MED GR, CHALKY, NON CALC.
121	7392-93	0.86	9.5	0.0	52.6	SS: WHITE, MED GR, CHALKY, NON CALC.
122	7393-94	1.1	12.8	0.0	58.7	SS: WHITE, MED GR, CHALKY, NON CALC.
123	7394-95	0.86	12.0	0.0	64.1	SS: WHITE, MED GR, CHALKY, NON CALC.
124	7395-96	0.56	11.3	0.0	61.1	SS: WHITE, MED GR, CHALKY, NON CALC.
125	7396-97	0.32	14.9	0.0	52.3	SS: WHITE, MED GR, CHALKY, NON CALC.
126	7397-98	0.41	14.9	0.0	48.3	SS: WHITE, MED GR, CHALKY, NON CALC.
127	7398-99	0.26	13.8	0.0	54.3	SS: WHITE, MED GR, CHALKY, NON CALC.
128	7399-7400	0.56	13.8	0.0	55.8	SS: WHITE, MED GR, CHALKY, NON CALC.
129	7400-01	0.23	14.2	0.0	52.1	SS: WHITE, MED GR, CHALKY, NON CALC.
130	7401-02	0.56	13.0	5.4	57.7	SS: WHITE, MED GR, CHALKY, NON CALC.
131	7402-03	0.32	14.2	3.5	44.4	SS: WHITE, MED GR, CHALKY, NON CALC.
132	7403-04	0.50	13.4	0.0	55.2	SS: WHITE, MED GR, CHALKY, NON CALC.
133	7404-05	0.23	13.5	0.0	60.0	SS: WHITE, MED GR, CHALKY, NON CALC.
134	7405-06	0.09	9.7	0.0	69.0	SS: WHITE, MED GR, CHALKY, NON CALC.
135	7406-07	0.26	9.1	0.0	67.0	SS: WHITE, MED GR, CHALKY, NON CALC.
136	7407-08	0.35	14.1	0.0	71.0	SS: WHITE, MED GR, CHALKY, NON CALC, CONGL.
137	7408-09	0.29	16.0	0.0	70.0	SS: WHITE, MED GR, CHALKY, NON CALC.
138	7409-10	0.34	12.9	0.0	71.4	SS: WHITE, MED GR, CHALKY, NON CALC.
139	7410-11	0.08	11.0	0.0	50.0	SS: WHITE, MED GR, CHALKY, NON CALC.
140	7411-12	0.20	12.3	0.0	57.0	SS: WHITE, MED GR, CHALKY, NON CALC.
141	7412-13	0.06	11.7	0.0	67.5	SS: WHITE, MED GR, CHALKY, NON CALC.
142	7413-14	0.05	6.7	0.0	71.6	SS: WHITE, MED GR, CHALKY, NON CALC.
143	7414-15	0.71	15.8	0.0	63.4	SS: WHITE, MED GR, CHALKY, NON CALC.
144	7415-16	0.12	11.1	0.0	65.7	SS: WHITE, MED GR, CHALKY, NON CALC.

SERVICE #8.

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CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

COMPANY EL PASO NATURAL GAS COMPANY DATE ON 9/11/60 FILE NO. RP-3-1264
WELL SAN JUAN UNIT 28-6 # 98 DATE OFF 9/24/60 ENGRS. ENGLISH
FIELD DAKOTA WILDCAT FORMATION AS NOTED ELEV. 6324' DF
COUNTY RIO ARriba STATE N. MEXICO DRILLING FLD. OIL EMULSION CORES DIAMOND
LOCATION SEC 3 T2N R6W REMARKS SAMPLED BY CLIENT

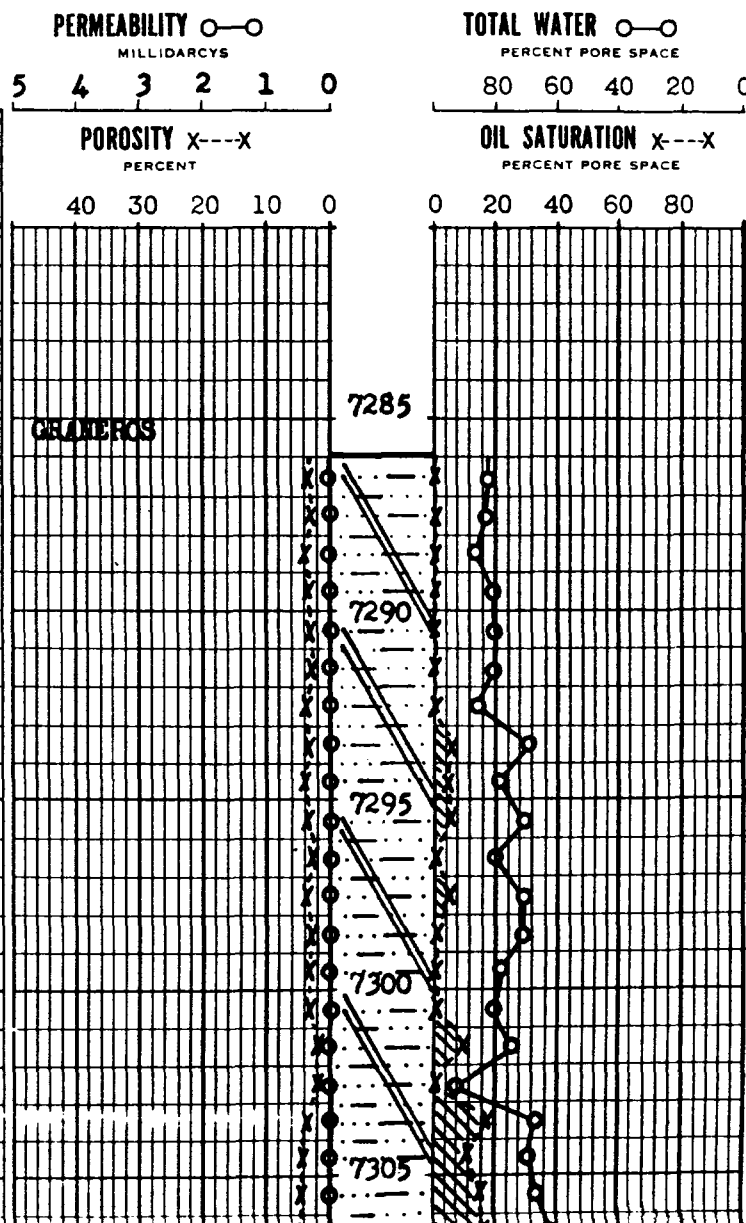
SAND LIMESTONE CONGLOMERATE CHERT
SHALE DOLOMITE VERTICAL FRACTURE

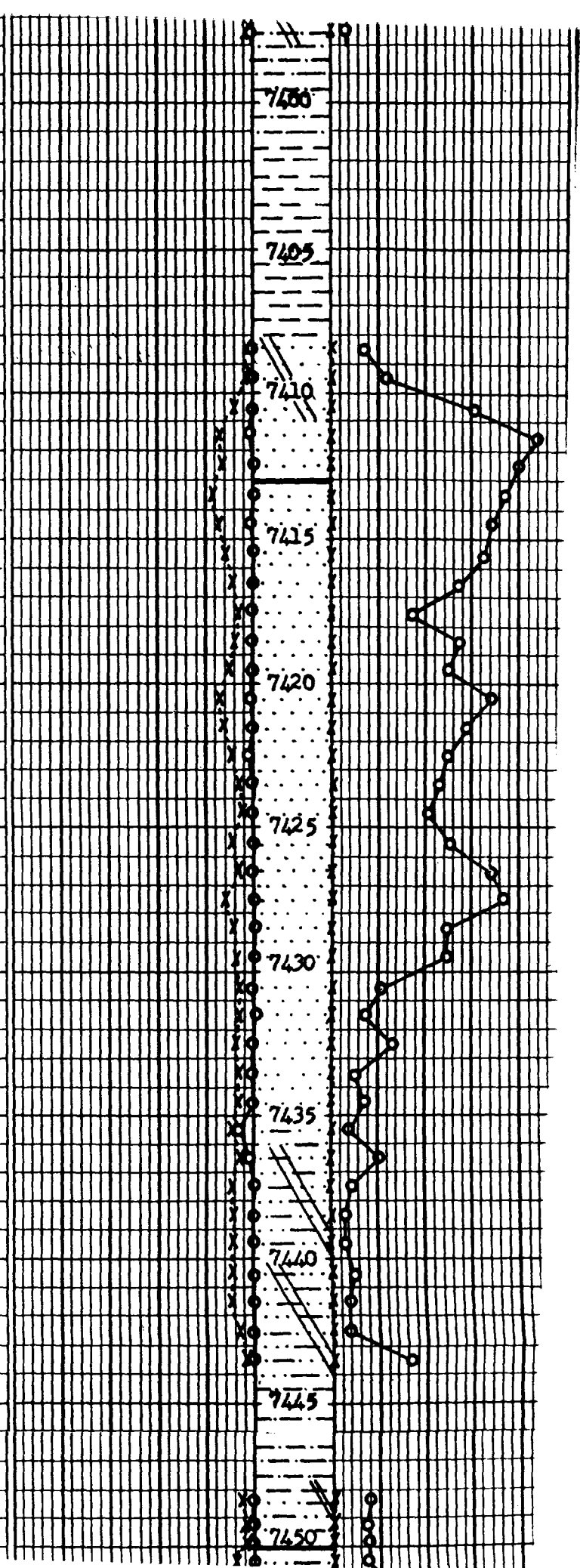
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TABULAR DATA and INTERPRETATION

DEPTH FEET	PERM. MD.	POROSITY %	RESIDUAL SATURATION % PORE SPACE		PROD.
			OIL	TOTAL WATER	
7286-87	<0.01	3.7	0.0	83.9	
87-88	<0.01	3.1	0.0	83.9	
88-89	<0.01	4.1	0.0	87.9	
89-90	<0.01	3.4	0.0	82.4	
90-91	<0.01	3.2	0.0	81.3	
91-92	<0.01	3.0	0.0	81.7	
92-93	<0.01	3.7	0.0	86.5	
93-94	<0.01	3.3	6.0	69.7	
94-95	<0.01	3.9	5.1	79.5	
95-96	0.01	3.5	5.7	71.5	
96-97	0.01	3.1	0.0	80.6	
97-98	0.01	3.5	5.7	71.4	
98-99	<0.01	3.2	0.0	72.0	
99-7300	0.01	3.2	0.0	78.0	
7300-01	<0.01	3.1	0.0	80.6	
01-02	<0.01	2.0	10.0	75.0	
02-03	<0.01	2.0	0.0	95.0	
03-04	<0.01	3.8	18.4	65.9	
04-05	0.01	4.2	11.9	69.0	
05-06	<0.01	4.4	15.9	66.0	

COMPLETION COREGRAPH



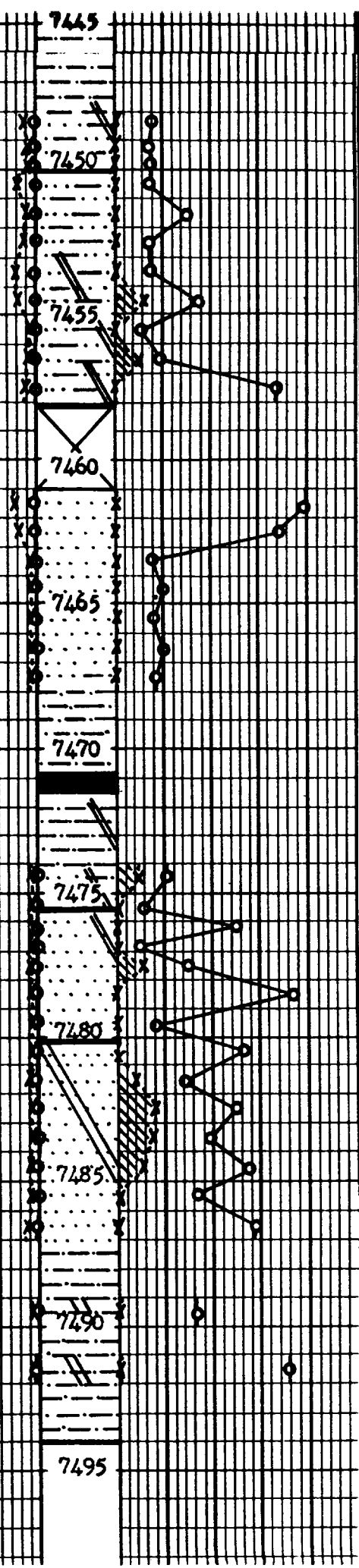
[illegible]

7448-49	<0.01	2.5	0.0	83.9
49-50	<0.01	1.3	0.0	85.0
49-50	<0.01	1.3	0.0	84.5
50-51	<0.01	3.7	0.0	83.9
51-52	<0.01	2.0	0.0	69.9
52-53	<0.01	2.8	0.0	85.6
53-54	0.01	4.2	0.0	85.8
54-55	0.01	3.7	13.5	64.9
55-56	<0.01	1.1	0.0	91.0
56-57	<0.01	1.7	11.7	82.5
57-58	<0.01	2.4	0.0	33.3

7461-62	0.02	4.4	0.0	22.7
62-63	0.01	3.6	0.0	33.3
63-64	<0.01	1.2	0.0	83.4
64-65	<0.01	1.0	0.0	80.0
65-66	<0.01	1.2	0.0	83.4
66-67	<0.01	1.0	0.0	80.0
67-68	<0.01	1.2	0.0	83.4

7474-75	<0.01	1.9	10.5	78.9
75-76	<0.01	0.9	0.0	89.1
75-76	<0.01	0.8	0.0	50.0
76-77	<0.01	1.2	0.0	91.9
77-78	<0.01	1.7	11.7	70.7
78-79	<0.01	1.5	0.0	26.7
79-80	<0.01	1.2	0.0	83.4
80-81	0.02	1.3	0.0	46.1
81-82	0.02	2.3	8.7	73.9
82-83	0.01	1.2	16.6	50.0
83-84	<0.01	1.3	15.4	61.6
84-85	0.02	1.8	11.1	44.4
85-86	<0.01	1.8	0.0	66.7
86-87	0.02	2.4	0.0	41.7

7489-90	<0.01	0.6	0.0	66.6
7491-92	0.07	1.4	0.0	28.6





Petroleum Reservoir Engineering

COMPANY	EL PASO NATURAL GAS COMPANY	DATE ON	6/18/59	FILE NO.	RP-3-1014
ELL	SAN JUAN 28-7 No. 109	DATE OFF	6/24/59	ENGRS.	ENGLISH
ELD	BLANCO	FORMATION	DAKOTA	ELEV.	6557' DF
COUNTY	RIO ARriba	STATE	N.MEXICO	DRLG. FLD.	WATER BASE MUD
LOCATION	SEC18 - T27N - R7W	CORES	DIAMOND	REMARKS	SAMPLED BY CLIENT

SAND 

LIMESTONE 

CONGLOMERATE 

CHERT SHALE 

DOLOMITE 

COAL [REDACTED]

VERTICAL FRACTURE 

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COMPLETION COREGRAPH

TABULAR DATA and INTERPRETATION

[illegible]

PERMEABILITY
MILLIDARCS

5 4 3 2 1 0

POROSITY X---X
PERCENT

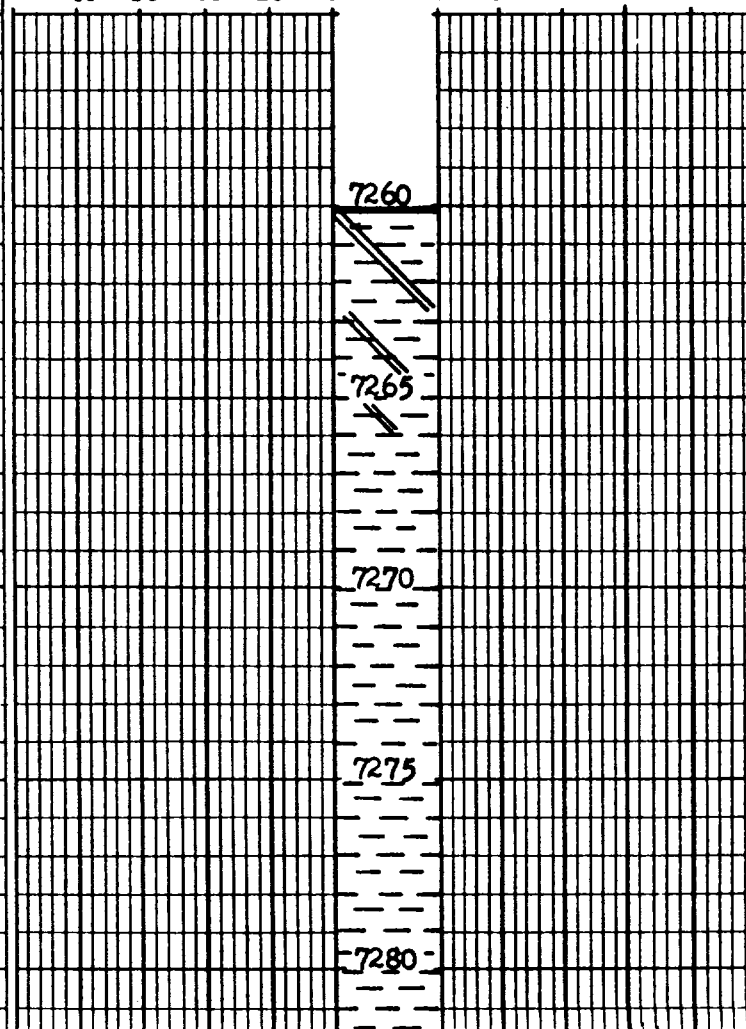
40 30 20 10 0

TOTAL WATER
PERCENT PORE SPACE

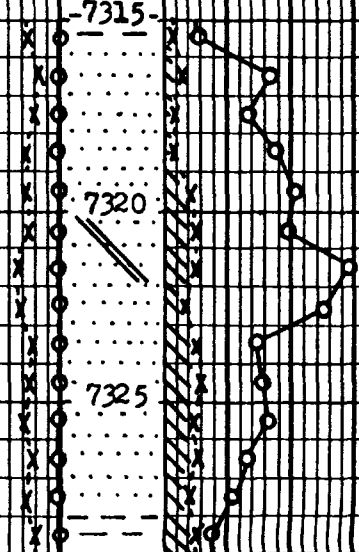
80 60 40 20 0

OIL SATURATION X---X
PERCENT PORE SPACE

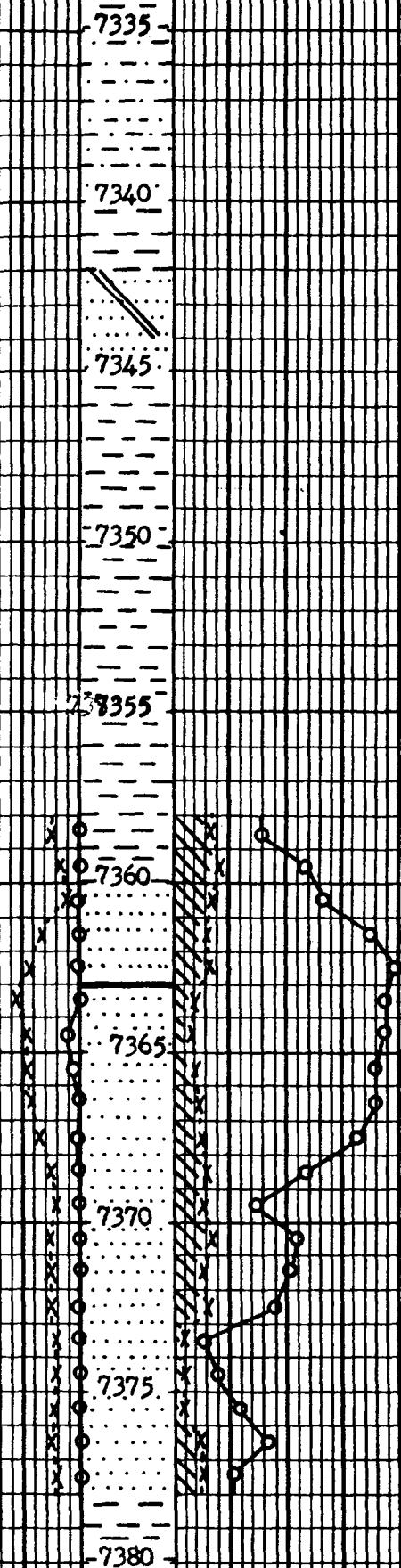
0 20 40 60 80



7315-16	0.01	5.3	3.8	88.7	
16-17	<0.01	3.1	6.5	67.7	
17-18	<0.01	4.1	4.9	73.2	
18-19	0.01	5.8	3.4	65.5	
19-20	<0.01	5.4	9.3	59.3	38,900
20-21	<0.01	4.6	10.9	60.8	
21-22	<0.01	6.1	11.5	41.0	
22-23	<0.01	6.4	7.8	51.6	
23-24	<0.01	4.6	10.9	71.7	
24-25	<0.01	5.4	13.0	68.5	20,400
25-26	<0.01	5.5	9.1	67.2	
26-27	<0.01	4.7	10.6	74.4	
27-28	0.03	5.6	8.9	78.6	
28-29	<0.01	4.0	12.5	85.0	



58-59	0.01	5.0	14.0	68.0	
59-60	0.01	3.7	18.9	54.1	
60-61	0.01	4.4	15.9	47.7	
61-62	0.03	6.5	12.3	30.8	
62-63	0.02	8.8	12.5	21.6	
63-64	0.09	10.5	8.6	24.8	
64-65	0.22	9.7	7.2	25.8	
65-66	0.10	9.9	9.1	28.4	
66-67	0.03	8.9	10.1	28.1	
67-68	0.01	7.0	10.0	35.8	
68-69	0.08	5.1	13.7	53.0	
69-70	0.02	4.7	10.6	70.2	
70-71	0.04	5.6	16.1	57.2	
71-72	0.02	5.2	13.5	59.7	
72-73	0.06	5.4	13.0	64.9	
73-74	0.01	4.5	4.5	88.9	32,500
74-75	0.08	4.8	4.2	83.4	
75-76	0.04	5.8	3.4	77.6	
76-77	0.02	5.5	9.1	67.3	
77-78	0.01	4.4	11.4	79.6	



[illegible]