

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

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CORE ANALYSIS RESULTS

Company El Paso Natural Gas Company Formation Graneros File RP-3-1041
Well San Juan 28-4 No. 24-26 Core Type DIAMOND CONV. Date Report 7/27/59
Field Blanco Mesa Verde Dakota Wildcat Drilling Fluid Oil Emulsion Mud Analysts English
County Rio Arriba State N. Mexico Elev. 7279 DF Location Sec26 28N 4W

Lithological Abbreviations

SAND-SS SHALE-SH LIME-LM	DOLOMITE-DO CHERT-CH GYPSUM-GY	ANHYDRITE-ANHY CONGLOMERATE-CONG FOSSILIFEROUS-FOSS	SANDY-SBY SHALY-SHY CLAY-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 MILLIDARCY	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS		
				OIL	TOTAL WATER			

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCY	POROSITY PER CENT	OIL	TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
11	8501-02	0.06	4.1	0.0	73.2	Vertical Fracture
12	8515-16	<0.01	1.2	0.0	75.0	Vertical Fracture
13	16-17	<0.01	2.0	0.0	45.0	

8501-8502 High total water (73.2% average) shows this one-foot interval to have no commercial value .

8515-8517 Low porosity (1.6% average) and high total water saturations (60.0% average) show this interval to have no commercial value . Other properties are : saturation of residual oil 0.0% average and permeability <0.01 md./ft. average /

CORE ANALYSIS RESULTS

Company EL PASO NATURAL GAS COMPANY Formation DAKOTA File RP-3-1041
Well SAN JUAN 28-4 No. 24 - 26 Core Type DIAMOND CONV. Date Report 7/29/59
Field BLANCO MESA VERDE DAKOTA WILDCAT Drilling Fluid OIL EMULSION MUD Analysts ENGLISH
County RIO ARriba State N.MEXICO Elev 7279 DF Location Sec26 28N 4W

Lithological Abbreviations

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCY	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
				OIL	TOTAL WATER	
14	8518-19	<0.01	5.3	0.0	33.9	Vertical Fracture
15	19-20	0.07	6.3	0.0	25.4	Vertical Fracture
16	20-21	<0.01	5.0	4.0	40.0	Vertical Fracture
17	21-22	<0.01	3.6	5.6	61.5	Vertical Fracture
18	22-23	<0.01	3.1	0.0	80.7	Vertical Fracture
19	23-24	<0.01	2.2	0.0	86.4	Vertical Fracture
20	24-25	0.01	3.1	0.0	77.4	Vertical Fracture
21	25-26	<0.01	3.4	0.0	85.3	Vertical Fracture
22	26-27	<0.01	3.3	6.1	81.8	Vertical Fracture
23	27-28	0.02	3.2	6.2	84.4	Vertical Fracture
24	28-29	0.01	3.2	0.0	78.2	Vertical Fracture
25	29-30	<0.01	2.0	0.0	96.7	Vertical Fracture
26	30-31	<0.01	3.3	0.0	91.0	Vertical Fracture
27	31-32	<0.01	4.3	11.6	79.1	Vertical Fracture
28	32-33	<0.01	3.0	0.0	90.0	Vertical Fracture
29	33-34	0.02	2.8	0.0	89.3	Vertical Fracture
30	34-35	<0.01	2.0	0.0	95.0	Vertical Fracture
31	35-36	0.01	3.6	5.6	88.9	Vertical Fracture
32	36-37	<0.01	2.6	7.7	88.5	Vertical Fracture
33	37-38	<0.01	3.3	6.1	91.0	Vertical Fracture
34	38-39	<0.01	2.4	0.0	95.8	Vertical Fracture
35	39-40	<0.01	2.4	0.0	95.8	Vertical Fracture
36	40-41	<0.01	1.8	0.0	94.5	Vertical Fracture
37	41-42	<0.01	3.1	0.0	96.8	Vertical Fracture
38	42-43	0.04	4.8	0.0	97.9	Vertical Fracture
39	43-44	<0.01	1.8	0.0	94.4	Vertical Fracture
40	44-45	<0.01	1.4	0.0	92.8	Vertical Fracture
41	45-46	<0.01	3.5	0.0	97.1	Vertical Fracture
42	46-47	<0.01	5.7	0.0	93.0	Vertical Fracture

8518-8521 This interval has low porosity (5.5% average) and low permeability (0.03 md./ft. average) . The saturations (residual oil 1.3% average and total water 33.1% average) show the interval to be capable of producing gas . The vertical fractures should increase the effective permeability .

8521-8547 Low porosity (3.1% average) and high total water saturations (88.8% average) show this interval to have no commercial value . Other properties are : saturations of residual oil 1.9% average ; and permeability 0.01 md./ft. average . There is evidence of a good fracture system , which could be the reservoir and the means of passage to the well bore for fluids within these fractures . Further testing should be done to evaluate the amount and type of fluid within the fracture system .

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CORE ANALYSIS RESULTS

Company **EL PASO NATURAL GAS COMPANY** Formation **DAKOTA** File **RP-3-1041**
Well **SAN JUAN 28-4 No. 24-26** Core Type **DIAMOND CONV.** Date Report **7/29/59**
Field **BLANCO MESA VERDE DAKOTA WILDCAT** Drilling Fluid **OIL EMULSION MUD** Analysts **ENGLISH**
County **RIO ARRIBA** State **N.MEXICO** Elev **7279 DF** Location **Sec26 28N 4W**

Lithological Abbreviations

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

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCY	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
				OIL	TOTAL WATER	
43	8558-59	<0.01	2.6	0.0	88.6	Vertical Fracture
44	59-60	<0.01	2.3	0.0	82.5	Vertical Fracture
45	60-61	<0.01	1.5	0.0	73.4	Vertical Fracture
46	61-62	<0.01	2.3	21.8	74.1	Vertical Fracture
47	62-63	0.01	1.7	0.0	64.7	Vertical Fracture
48	63-64	<0.01	2.2	0.0	86.4	Vertical Fracture
49	64-65	<0.01	2.7	44.5	44.5	
50	65-66	0.01	2.0	35.0	50.0	
51	66-67	0.01	3.8	0.0	86.8	
52	67-68	0.01	2.4	0.0	62.5	

8558-8568 Low porosity (2.3% average) and high total water saturations (71.3% average) show this interval to have no commercial value . Other properties are : saturation of residual oil 10.1% average and permeability <0.01 md./ft. average . There is evidence of a good fracture system , which could be the resevoir and the means of passage to the well bore for fluids within these fractures . Further testing should be done to evaluate the amount and type of fluid within the fracture system .

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CORE ANALYSIS RESULTS

Company EL PASO NATURAL GAS COMPANY Formation DAKOTA File RP-3-1041
Well SAN JUAN 28-4 No. 24-26 Core Type DIAMOND CONV. Date Report 7/30/59
Field BLANCO MESA VERDE DAKOTA WILDCAT Drilling Fluid OIL EMULSION MUD Analysts ENGLISH
County RIO ARRIEA State N.MEXICO Elev. 7279 DF Location Sec26 28N 4W

Lithological Abbreviations

SAND - SD SHALE - SH LIME - LM	DOLOMITE - DOI 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	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS		
				OIL	TOTAL WATER			
53	8568-69	<0.01	0.7	28.6	57.1	Vertical Fracture		
54	69-70	0.05	0.7	0.0	28.6	Vertical Fracture		
55	70-71	0.01	5.0	0.0	8.0	Vertical Fracture		
56	8571-72	0.03	2.6	7.7	23.1	Vertical Fracture		

8568-8572 This interval has low porosity (2.2% average) and low permeability (0.02 md./ft. average) . The saturations (residual oil 9.1% average and total water 29.2% average) are within the range associated with gas-productive Dakota sandstone . There is evidence of a fracture system , which should increase the effective permeability .

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Company **EL PASO NATURAL GAS COMPANY** Formation **DAKOTA** File **RP-3-1041**
 Well **SAN JUAN 28-4 No. 24-26** Core Type **DIAMOND CONV.** Date Report **8/1/59**
 Field **BLANCO MESA VERDE DAKOTA WILDCAT** Drilling Fluid **OIL EMULSION MUD** Analysts **ENGLISH**
 County **RIO ARriba** State **N. MEXICO** Elev. **7279 DF** Location **Sec 26 28N 4W**

Lithological Abbreviations

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCY S	POROSITY PERCENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
				OIL	TOTAL WATER	
61	8590-91	0.03	3.4	0.0	29.4	Vertical Fracture
62	91-92	0.02	3.4	5.9	23.5	Vertical Fracture

8590-8592 This interval has low porosity (3.4% average) and low permeability (0.02 md./ft. average) . The saturations (residual oil 2.9% average and total water 26.4% average) show this interval to be capable of producing gas . The vertical fractures should increase the effective permeability .

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County RIO ARriba State N.MEXICO Elev. 7279 DF Location Sec26 28N 4W

Lithological Abbreviations

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYs	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
				OIL	TOTAL WATER	
63	8595-96	0.01	4.4	0.0	9.1	Vertical Fracture
64	96-97	0.01	1.3	0.0	4.6	Vertical Fracture
65	97-98	0.04	1.7	0.0	3.5	Vertical Fracture
66	8602-03	0.06	4.9	4.1	57.2	Vertical Fracture
67	03-04	0.06	3.8	0.0	31.7	Vertical Fracture
68	04-05	0.01	5.6	3.6	51.7	Vertical Fracture
69	05-06	0.02	5.2	0.0	38.5	Vertical Fracture
70	06-07	<0.01	3.0	0.0	66.0	Vertical Fracture
71	07-08	0.01	3.3	0.0	66.6	Vertical Fracture
72	08-09	<0.01	3.8	0.0	52.6	Vertical Fracture
73	09-10	0.02	3.9	0.0	35.9	Vertical Fracture
74	10-11	0.02	5.1	0.0	35.3	Vertical Fracture
75	11-12	0.03	5.1	0.0	39.1	Vertical Fracture
76	12-13	0.04	4.9	0.0	53.1	Vertical Fracture
77	13-14	0.02	5.1	0.0	47.1	Vertical Fracture
78	14-15	0.02	3.4	0.0	52.9	Vertical Fracture
79	15-16	0.02	5.1	3.9	27.5	Vertical Fracture
80	16-17	<0.01	3.1	0.0	38.7	Vertical Fracture
81	17-18	0.02	3.4	0.0	50.0	Vertical Fracture
82	18-19	<0.01	1.3	0.0	46.1	
83	19-20	<0.01	1.8	0.0	83.3	

8595-8598 The saturations (residual oil 0.0% average and total water 5.7% average) show this interval to be capable of producing gas . The porosity (2.4% average) and the permeability (0.02 md./ft. average) are very low . The vertical fractures should increase the effective permeability .

8602-8606 This interval has low porosity (4.9% average) and low permeability (0.04 md./ft. average) . The saturations (residual oil 1.9% average and total water 44.8% average) show the interval to be capable of producing gas . The vertical fractures should increase the effective permeability .

8606-8609 High total water saturations (61.7% average) show this interval to have no commercial value . Other properties are : permeability <0.01 md./ft. average ; porosity 3.3% average and saturation of residual oil 0.0% average .

8609-8616 This interval has low porosity (4.6% average) and low permeability (0.02 md./ft. average) . The saturations (residual oil 0.5% average and total water 41.5% average) show the interval to be capable of producing gas . The vertical fractures should increase the effective permeability .

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Field **BLANCO MESA VERDE DAKOTA WILCOAT** Drilling Fluid **OIL EMULSION MUD** Analysts **ENGLISH**
County **RIO ARRIBA** State **NEW MEXICO** Elev **7279 DF** Location **Sec26 28N 4W**

Lithological Abbreviations

SAND - SD	DOLOMITE - DO.	ANHYDRITE - ANHY	SANDY - SDY	FINE - FN	CRYSTALLINE - XLN	BROWN - BRN	FRACTURED - FRAC	SLIGHTLY - SL/
SHALE - SH	CHERT - CH	CONGLOMERATE - CONG	SHALY - SHY	MEDIUM - MED	GRAIN - GRN	GRAY - GY	LAMINATION - LAM	VERY - V/
LIME - LM	GYP - GYP	FOSILIFEROUS - FOSS	LIM - LIMY	COARSE - CSE	GRANULAR - GRNL	VUGGY - VGY	STYLOLITIC - STY	WITH - W/
SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCY	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS		
				OIL	TOTAL WATER			

8616-8620 High total water saturations (54.5% average) , low porosity (2.4% average) and low permeability (0.01 md./ft. average) show this interval to have no commercial value . The saturation of residual oil is 0.0% average .