CORE ANALYSIS RESULTS

Company EL PASO NATURAL GAS COMPANY Formation DAKOTA File RF-3-1037
Well SAN JUAN 31-6 No. 16-33 Core Type DIAMOND CONV. Date Report 7/21/59
Field BLANCO MESA VERDE DAKOTA WILDCAT Drilling Fluid OIL EMULSION MUD Analysts ENGLISH
County RIO ARRIBA State N.MEXICO Elev. 6499 DF Location Sec33 31N 6W

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	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS

7989-7992 High total water saturations (80.2% average) and low porosity (3.0% average) Show this interval to have no commercial value . Other properties are : permeability 0.01 md./ft. average and saturations of residual oil 5.7% 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 fracture system .

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CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

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Field BLANCO MESA VERDE DAKOTA WILDCAT Drilling Fluid OIL EMULSION MUD Analysts ENGLISH
County RIO ARRIBA State N.MEXICO Elev. 6499 DF Location Sec33 31N 6W

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	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
39	8005-06	0.07	1.0	0.0	40.0	
40	06-07	0.01	1.2	0.0	58.2	Vertical Fracture
41	07-08	0.01	0.9	0.0	66.6	Vertical Fracture
42	08-09	<0.01	1.8	0.0	94.4	Vertical Fracture
43	09-10	<0.01	1.8	0.0	94.4	Vertical Fracture
44	8012-13	<0.01	3.6	5.5	80.6	
45	8014-15	0.28	6.9	0.0	14.5	
46	15-16	0.23	9.1	0.0	19.8	Vertical Fracture
47	16-17	0.54	6.7	0.0	32.8	
48	17-18	0.06	4.0	0.0	32.5	
49	8022-23	<0.01	2.9	6.9	89.8	
50	23-24	<0.01	3.2	15.6	81.3	Vertical Fracture
51	24-25	<0.01	3.6	0.0	94.5	
52	25-26	<0.01	5.2	0.0	90.4	
53	8029-30	0.04	2.7	7.4	14.8	
54	30-31	0.22	4.1	0.0	14.6	Vertical Fracture
55	31-32	0.28	3.8	5.3	44.7	Vertical Fracture
56	32-33	0.43	5.0	0.0	12.0	
57	33-34	0.08	4.8	10.4	35.4	
58	34-35	0.04	5.0	0.0	20.0	Vertical Fracture
59	35-36	0.05	7.7	6.5	26.0	
60	36-37	0.07	8.3	2.4	19.3	
61	37-38	<0.01	7.6	2.6	21.1	Vertical Fracture
62	38-39	0.14	6.1	3.3	26.3	
63	39-40	0.35	6.2	0.0	19.3	Vertical Fracture
64	8040-41	<0.01	7.4	0.0	21.6	Vertical Fracture

8005-8013 Low porosity (1.7% average) , low permeability (0.02 md./ft. average) and high saturations of total water (72.3% average) show this interval to have no commercial value . The saturation of residual oil is 0.9% average .

8014-8018 The porosity (6.7% average) and the permeability (0.28 md./ft. average) are low . The saturations (residual oil 0.0% average and total water 24.9% average) show the interval to be capable of producing gas . The productive capacity (1.11 md. ft.) is very low and a formation treatment will be necessary to establish and maintain commercial rates of production .

CORE ANALYSIS RESULTS

Company	EL PASO NATURAL GAS COMPANY	Formation	DAKOTA	File	RP-3-1037
Well	SAN JUAN 31-6 No. 16-33	Core Type	DIAMOND CONV.	Date Report	7/23/59
Field	BLANCO MESA VERDE DAKOTA WILDCAT	Drilling Fluid	OIL EMULSION MUD	Analysts	ENGLISH
County	RIO ARRIBA State N.MEXICO	El. 6499 DF	Location Sec33 31N 6W		

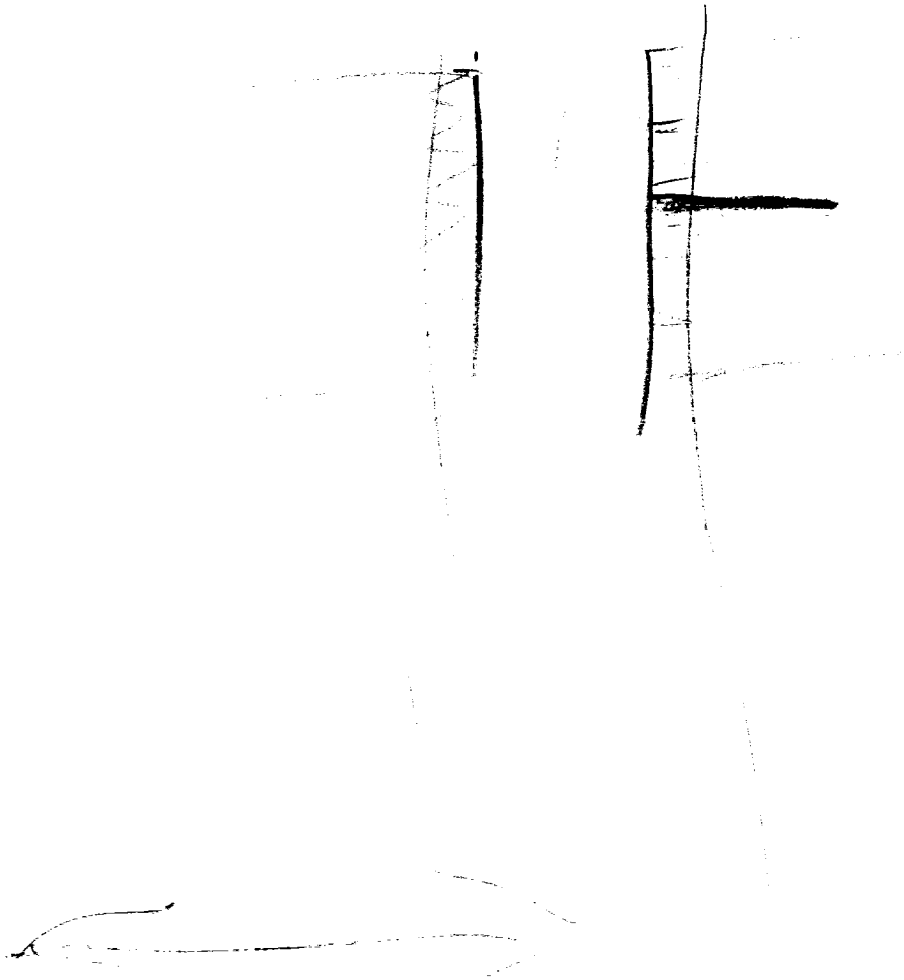
Lithological Abbreviations

SANDY SD	DOLOMITE DOL	ANHYDRITE ANHY	SHALE SH	FINE-FN	CRYSTALLINE XLN	BROWN BRN	FRACTURED FRAC	SHALY SL
SHALE SH	CHERT CH	CONGLOMERATE CONG	SHALY SHY	MEDIUM-MED	GRAIN-GRN	GRAY GY	AMMONITE AM	VERY V
LIME LM	GYPSUM GYP	FOSSILIFEROUS FOSS	VERY VRY	COARSE CSE	GRANULAR-GRNL	MUDDY MDY	STYLOLITIC STY	WITH W

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS

8024-8026 Low porosity (3.7% average) ., low permeability (<0.01 md./ft. average) and high saturations of total water (89.0% average) show this interval to be essentially non-productive . The saturation of residual oil is 5.6% average .

8029-8041 This interval has low porosity (5.7% average)and low permeability (0.14 md./ft. average) . The saturations (residual oil 3.1% average and total water 22.9% average) show the interval to be capable of producing gas . The productive capacity (1.72 md. ft.) is low and a formation treatment will be required to establish and maintain commercial rates of production .



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CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company EL PASO NATURAL GAS COMPANY Formation DAKOTA File RP-3-1037
Well SAN JUAN 31-6 No. 16-33 Core Type DIAMOND CONV. Date Report 7/19/59
Field BLANCO-MESAVERDE-DAKOTA WILDCAT Drilling Fluid OIL EMULSION MUD Analysts English
County RIO ARRIBA State NEW MEXICO Elev. 6499 DF Location SEC 33 31N 6W

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 (2)	POROSITY PER CENT (1)	RESIDUAL SATURATION PER CENT PORE (3) OIL	RESIDUAL SATURATION PER CENT PORE (4) TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
1	7904.5-05	0.02	4.7	0.0	17.0	
2	05-06	0.02	3.8	0.0	36.8	Vertical Fracture
3	06-07	<0.01	2.1	0.0	81.0	Vertical Fracture
4	07-08	<0.01	3.6	0.0	44.5	Vertical Fracture
5	08-09	0.06	6.3	0.0	30.4	Vertical Fracture
6	09-10	0.01	4.5	4.4	48.8	
7	10-11	0.01	3.7	0.0	21.6	
8	11-12	<0.01	1.4	0.0	57.2	Vertical Fracture
9	12-13	<0.01	1.9	10.5	42.2	Vertical Fracture
10	13-14	<0.01	3.7	0.0	89.2	Vertical Fracture
11	14-15	<0.01	3.0	6.7	40.0	
12	15-16	<0.01	3.8	5.3	73.7	
13	16-17	<0.01	1.4	0.0	85.6	Vertical Fracture
14	17-18	<0.01	3.0	6.7	83.4	Vertical Fracture
15	7939-40	<0.01	1.8	11.2	72.1	Vertical Fracture
16	40-41	<0.01	1.8	11.2	33.3	Vertical Fracture
17	41-42	0.01	1.8	11.2	22.2	Vertical Fracture
18	42-43	0.02	1.3	0.0	30.8	

Perm. 015
Por 1.67
Oil 8.4
39.60

Perm 015
Por 3.35
Oil 2.4
WAT 53.67

7904.5-7906 Although the porosity (4.2% average) and the permeability (0.02 md./ft. average) are low , the saturations (residual oil 0.0% average and total water 26.9% average) are within the limits associated with gas productive Dakota sandstone . A good fracture system exists , which should increase the effective permeability .

7906-7907 This one foot interval is interpreted to have no commercial value due to low porosity and high saturation of total water .

7907-7911 Although the porosity (4.5% average) and the permeability (0.02 md./ft. average) are low , the saturations (residual oil 1.1% average and total water 36.3% average) are within the range associated with gas-productive Dakota sandstone . A good fracture system exists , which should increase the effective permeability .

7911-7918 High total water saturations (67.7% average) and low permeability (<0.01 md./ft. average) show this interval to have no commercial value . Other properties are : porosity 2.6% average ; and saturation of residual oil 4.2% average.

7939-7943 Low porosity (1.7% average) shows this interval to have no commercial value . Other properties are : permeability <0.01 md./ft. average ; saturation of total water 39.6% average ; and residual oil 8.4% average . Further testing should be done to evaluate the fracture within this interval .

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County RIO ARRIBA State N.MEXICO Elev. 6499 DF Location Sec33 31N 6W

Lithological Abbreviations

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SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
19	7957-58	<0.01	2.0	0.0	70.0	
20	58-59	<0.01	3.3	0.0	60.6	Vertical Fracture
21	59-60	0.01	2.4	0.0	58.3	Vertical Fracture
22	60-61	0.01	3.8	0.0	15.8	Vertical Fracture
23	61-62	0.02	5.6	0.0	17.9	Vertical Fracture
24	62-63	0.01	3.7	0.0	27.0	
25	63-64	0.01	2.8	0.0	50.0	Vertical Fracture
26	64-65	0.01	5.4	0.0	11.1	Vertical Fracture
27	65-66	0.01	3.9	0.0	20.5	Vertical Fracture
28	66-67	0.01	4.1	4.9	19.5	
29	67-68	0.05	1.6	0.0	37.4	Vertical Fracture
30	7978-79	0.01	2.6	0.0	80.7	Vertical Fracture
31	79-80	<0.01	3.7	0.0	89.2	Vertical Fracture
32	80-81	<0.01	1.6	0.0	75.0	Vertical Fracture
33	81-82	0.02	4.6	10.9	8.7	Vertical Fracture
34	82-83	0.04	5.3	0.0	7.5	Vertical Fracture
35	83-84	0.07	4.2	11.9	19.0	Vertical Fracture
36	7989-90	<0.01	1.8	0.0	77.7	Vertical Fracture
37	90-91	<0.01	2.9	17.2	65.5	Vertical Fracture
38	7991-92	0.02	4.4	0.0	97.6	Vertical Fracture

Perm .014
Pore 3.5
Oil .4
WAT. 35.28

Perm .03
Pore 3.66
Oil 3.8
WAT 46.68

Perm .01
Pore 3.03
Oil 5.73
WAT 80.26

7957-7960 Low porosity (2.5% average) and high total water saturations (62.9% average) show this interval to have no commercial value . Other properties are : permeability <0.01 md./ft. average and saturation of residual oil 0.0% average .

7960-7967 Although the porosity (4.1% average) and the permeability (0.01 md./ft. average) are low , the saturations (residual oil 0.7% average and total water 23.1% average) show the interval to be capable of producing gas . There is good evidence of vertical fracturing , which should increase the effective permeability .

7967-7968 Low porosity (1.6%) shows this interval to have no commercial value .

7978-7981 Low porosity (2.6% average) , low permeability (<0.01 md./ft. average) and high total water saturations (81.6% average) show this interval to have no commercial value . The saturations of residual oil are 0.0% average .

7981-7984 Although the porosity (4.7% average) and the permeability (0.04 md./ft. average) are low , the saturations (residual oil 7.6% average and total water 11.7% average) show the interval to be capable of producing gas . The vertical fractures should increase the effective permeability .