CA-20

R.L.P

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company EL PASO NATURAL GAS COMPANY | Formation DAKOTA | File RP-3-1101
Well SAN JUAN 29-4 # 18-33 | Core Type DIAMOND CONV. | Date Report 10/29/59
Field WILDCAT | Drilling Fluid WATER BASE MUD | Analysts ENGLISH
County RIO ARRIBA State N.MEXICO Elev. 7378 DF Location Sec33 29N 4W

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
1	8656-57	<0.01	4.4	0.0	86.4	
2	57-58	<0.01	2.0	10.0	56.0	Vertical Fracture
3	58-59	<0.01	3.0	6.7	76.7	Vertical Fracture
4	59-60	<0.01	2.7	0.0	77.7	Vertical Fracture
5	60-61	<0.01	5.5	0.0	90.8	Vertical Fracture
6	61-62	<0.01	5.5	0.0	94.5	Vertical Fracture
7	62-63	<0.01	5.3	0.0	90.6	Vertical Fracture
8	63-64	<0.01	4.7	0.0	91.5	Vertical Fracture
9	8675-76	<0.01	2.9	0.0	79.3	Vertical Fracture
10	76-77	<0.01	2.3	0.0	65.2	Vertical Fracture

8656-8664 Low porosity (4.1% average) and low permeability (<0.01 md./ft. average) associated with high total water saturations (83.0% average) show this interval to be essentially non-productive . There is evidence of a good fracture system , which can 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 fractures .

8675-8677 Low porosity (5.2% average) , high total water saturations (72.2% average) and low permeability (<0.01 md./ft. average) show this interval to be essentially non-productive . The saturation of residual oil is 0.0% average . Further testing should be done to evaluate the amount and type of fluid within the fractures .

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company EL PASO NATURAL GAS COMPANY Formation DAKOTA File RP-3-1101
Well SAN JUAN 29-4 # 18-33 Core Type DIAMOND CONV. Date Report 10/31/59
Field Blanco Mesa Verde Dakota Wildcat Drilling Fluid Water Base Mud Analysts ENGLISH
County RIO ARRIBA State N.MEXICO Elev. 7378 DF Location Sec33 29N 4W

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
11	8679-80	<0.01	2.5	0.0	84.0	Vertical Fracture
12	80-81	<0.01	1.6	0.0	37.3	Vertical Fracture
13	81-82	<0.01	3.2	0.0	71.9	Vertical Fracture
14	82-83	0.01	1.3	0.0	30.7	Vertical Fracture
15	83-84	0.01	4.1	0.0	19.5	Vertical Fracture
16	84-85	0.01	7.0	0.0	17.1	Vertical Fracture
17	85-86	0.11	4.2	0.0	64.2	Vertical Fracture
18	86-87	0.09	3.8	0.0	68.4	Vertical Fracture
19	87-88	<0.01	3.9	0.0	84.7	Vertical Fracture
20	88-89	<0.01	5.1	0.0	76.4	Vertical Fracture
21	89-90	*	4.1	0.0	75.8	Vertical Fracture
22	90-91	<0.01	3.2	0.0	71.8	Vertical Fracture
23	91-92	<0.01	1.9	0.0	57.8	Vertical Fracture
24	92-93	<0.01	2.6	0.0	69.3	Vertical Fracture
25	93-94	<0.01	3.1	0.0	51.6	Vertical Fracture
26	94-95	<0.01	3.2	0.0	56.3	Vertical Fracture
27	95-96	0.02	1.6	0.0	56.2	Vertical Fracture
28	96-96.5	<0.01	4.6	0.0	71.7	Vertical Fracture

* Fractured Plug.

8679-8683 Low porosity (2.1% average) and low permeability (<0.01 md./ft. average) associated with high total water saturations (57.5% average) show this interval to be essentially non-productive . The saturation of residual oil is 0.0% average .

8683-8686 This interval has low porosity (5.1% average) and low permeability (0.04 md./ft. average) . The saturations (residual oil0.0% average and total water 33.9% average) show the interval to be low-capacity gas productive . The vertical fracture system should increase the effective permeability .

8686-8696.5 This interval has low porosity (3.4% average) and low permeability (0.02 md./ft. average) . The saturations (residual oil 0.0% average and total water 67.2% average) show the interval to be essentially non-productive .

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company EL PASO NATURAL GAS COMPANY Formation DAKOTA File RP-3-1101
Well SAN JUAN 29-4 # 18-33 Core Type DIAMOND CONV. Date Report 11/1/59
Field BLANCO MESA VERDE DAKOTA WILDCAT Drilling Fluid WATER BASE MUD Analysts ENGLISH.
County RIO ARRIBA State N.MEXICO Elev. 7378 DF Location Sec33 29N 4W

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
29	8619-20	<0.01	2.1	9.4	71.5	Vertical Fracture
30	20-21	0.01	1.6	12.5	74.8	Vertical Fracture
31	21-22	0.21	3.3	15.2	30.3	Vertical Fracture
32	22-23	0.02	3.6	19.5	22.2	Vertical Fracture
33	23-24	0.01	3.8	13.1	21.1	Vertical Fracture
34	24-25	<0.01	3.5	14.3	22.8	Vertical Fracture
35	25-26	0.02	3.4	0.0	17.6	Vertical Fracture
36	26-27	0.02	3.1	16.1	12.9	Vertical Fracture
37	27-28	<0.01	1.4	0.0	57.2	Vertical Fracture
38	28-29	0.02	4.5	11.1	13.3	Vertical Fracture
39	29-30	0.02	4.3	16.3	18.6	Vertical Fracture
40	30-31	0.03	4.8	0.0	8.3	Vertical Fracture
41	31-32	0.02	4.4	0.0	9.1	Vertical Fracture
42	32-33	<0.01	2.2	9.1	27.2	Vertical Fracture
43	33-34	<0.01	2.8	17.8	28.6	Vertical Fracture

8619-8621 Low porosity (1.8% average) and high total water saturations (73.1% average) associated with low permeability (0.01 md./ft. average) show this interval to be essentially non-productive . The saturation of residual oil is 10.9% average .

8621-8634 This interval has low porosity (3.5% average) and low permeability (0.03 md./ft. average) . The saturations (total water 22.2% average and residual oil 10.2% average) show this interval to be low-capacity gas-productive . The gas produced should be very rich with condensate .

CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

COMPANY EL PASO NATURAL GAS COMPANY FIELD WILDCAT FILE RP-3-1101

WELL SAN JUAN 29-4 # 18-33 COUNTY RIO ARRIBA DATE 10/28/59

LOCATION Sec33 T29N R4W STATE NEW MEXICO ELEV. 7078 DF

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 0

PERMEABILITY — MILLIDARCYS

3 2 1 0

POROSITY — PERCENT

15 10 5 0

OIL SATURATION - - - -

PERCENT PORE SPACE

0 20 40 60 80

8650

8700

8750