CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company TESORO PETROLEUM CORPORATION Formation DAKOTA File RP-3-2327
Well WALKER-SANTA FE NO. 16 Core Type DIAMOND 4" Date Report 10-31-68
Field SOUTH HOSPAH Drilling Fluid WATER BASE MUD/OIL ADD Analysts GALLOP
County MC KINLEY State NEW MEX. Elev. 6913'GL Location 330'FNL 2310'FWL SEC 7-T17N-R8W

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 K_A	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	GAS SAT.	SAMPLE DESCRIPTION AND REMARKS
	(CONVENTIONAL ANALYSIS)						
1	2511.0-12.0	<0.01	19.2	1.0	91.5		Sh, Lt Gy, V/Fn Grn, Lmy, Chty
2	12.0-13.0	<0.01	12.3	0.0	90.8		Sh, Lt Gy, V/Fn Grn, Sndy
3	13.0-14.0	0.62	10.3	1.9	89.2		Sh, Lt Gy, V/Fn Grn, W/Vert Frac
4	14.0-15.0	0.20	10.0	2.0	88.0		Sh, Lt Gy, V/Fn Grn, W/Vert Frac,Sndy
5	15.0-16.0	3.1	14.6	0.0	71.9		Sd, Gy, Fn Grn, Shaly
6	16.0-17.0	1.5	21.5	0.9	63.5	35.6	Sd, Gy, Fn Grn, Shaly, Lmy
7	17.0-18.0	10	25.1	0.8	48.7	50.5	Sd, Gy, Fn Grn, Shaly, Lmy
8	18.0-19.0	17	24.6	3.2	43.6	53.2	Sd, Gy, Fn Grn, Lmy, W/Vert Frac
9	19.0-20.0	0.41	21.5	0.9	59.8	39.3	Sd, Gy, Fn Grn, Lmy, Sl/Shaly
10	20.0-21.0	0.62	21.3	0.9	61.0	38.1	Sd, Gy, Fn Grn, Lmy, Sl/Shaly
11	21.0-22.0	0.41	20.1	1.0	57.7	41.3	Sd, Gy, Fn Grn, Lmy, Sl/Shaly
12	22.0-23.0	7.8	25.3	4.4	40.6	55.0	Sd, Gy, Fn Grn, Lmy
13	23.0-24.0	9.5	24.3	4.5	44.8	50.7	Sd, Gy, Fn Grn, Lmy
14	24.0-25.0	0.20	17.6	1.1	61.6	37.3	Sd, Gy, Fn Grn, Lmy, Sl/Shaly
15	25.0-26.0	0.41	20.3	1.0	58.1	40.9	Sd, Gy, Fn Grn, Lmy, Sl/Shaly
16	26.0-27.0	15	24.0	4.2	41.7	54.1	Sd, Gy, Fn Grn, Lmy, Sl/Shaly
17	27.0-28.0	12	23.3	5.1	39.1	55.8	Sd, Gy, Fn Grn, Lmy
18	28.0-29.0	6.4	23.1	5.6	44.9	49.5	Sd, Gy, Fn Grn, Lmy, Sl/Shaly
19	29.0-30.0	<0.01	14.9	0.0	77.1	22.9	Sd, Gy, Fn Grn, Lmy, Shaly
20	30.0-31.0	<0.01	18.2	0.0	73.1	26.9	Sd, Gy, Fn Grn, Lmy, Shaly
21	31.0-32.0	4.5	23.6	4.7	63.7	31.6	Sd, Gy, Fn Grn, Lmy, Shaly
22	32.0-33.0	9.1	20.5	7.4	56.8	35.8	Sd, Gy, Fn Grn, Lmy
23	33.0-34.0	5.8	23.5	6.0	59.9	34.1	Sd, Gy, Fn Grn, Lmy
24	34.0-35.0	1.0	15.0	1.3	63.9	34.8	Sd, Gy, Fn Grn, Lmy
25	35.0-36.0	0.83	16.4	0.0	62.8	37.2	Sd, Gy, Fn Grn, Lmy, Sl/Shaly
26	36.0-37.0	0.40	17.8	0.0	77.5		Sd, Gy, Fn Grn, Shaly
27	37.0-38.0	1.0	22.3	0.9	73.5		Sd, Gy, Fn Grn, Lmy
28	38.0-39.0	0.04	15.0	3.3	78.5		Sd, Gy, Fn Grn, Shaly
29	39.0-40.0	0.41	13.0	1.5	57.6		Sd, Gy, Fn Grn, Lmy
30	40.0-41.0	0.20	11.5	0.0	51.3		Sd, Gy, Fn Grn, Lmy
31	41.0-42.0	0.02	12.9	5.4	68.1		Sd, Gy, Fn Grn, Lmy, Sl/Shaly
32	2571.5-72.0	0.41	21.0	12.4	52.8		Sd, Gy, Fn Grn, Sl/Shaly
33	72.0-73.0	0.41	21.3	9.4	60.0		Sd, Gy, Fn Grn, W/Shale Laminations
34	73.0-74.0	0.01	15.9	1.3	82.3		Sd, Gy, Fn Grn, Sl/Shaly
35	74.0-75.0	0.02	20.7	0.0	81.2		Sd, Gy, Fn Grn
36	75.0-76.0	0.04	24.2	0.0	71.0		Sd, Gy, Fn Grn, Sl/Shaly
37	76.0-77.0	0.04	17.7	0.0	77.9		Sd, Gy, Fn Grn, Shaly

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SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS KA	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
38	2577.0-78.0	0.02	14.5	0.0	80.7	Sd, Gy, Fn Grn, Shaly
39	78.0-78.5	0.01	11.8	1.6	84.7	Sd, Gy, Fn Grn, Shaly, Vert Frac
40	2579.0-80.0	0.62	13.1	1.5	79.4	Sd, Gy, Fn Grn, Shaly, Vert Frac
41	80.0-81.0	1.7	27.2	0.0	74.7	Sd, Gy, Fn Grn, Sl/Shaly
42	81.0-82.0	15	28.8	0.0	73.5	Sd, Gy, Fn Grn, Sl/Shaly
43	82.0-83.0	1.0	23.0	0.0	70.8	Sd, Gy, Fn Grn, Sl/Shaly
44	83.0-84.0	1.5	25.3	0.0	75.5	Sd, Gy, Fn Grn, Sl/Shaly, Vert Frac
45	84.0-85.0	0.83	22.4	0.0	72.7	Sd, Gy, Fn Grn, Shaly
46	85.0-86.0	0.41	23.6	0.0	70.0	Sd, Gy, Fn Grn, Shaly
47	86.0-87.0	1.5	24.2	0.0	77.3	Sd, Gy, Fn Grn, Shaly
48	87.0-88.0	3.1	22.1	0.9	74.6	Sd, Gy, Fn Grn, Sl/Shaly
49	88.0-89.0	7.8	23.8	0.0	74.8	Sd, Gy, Fn Grn, Sl/Shaly, Vert Frac
50	89.0-90.0	4.1	23.3	0.9	76.6	Sd, Gy, Fn Grn, Sl/Shaly, Vert Frac
51	90.0-91.0	2.3	22.3	0.0	56.1	Sd, Gy, Fn Grn, Sl/Shaly
52	91.0-92.0	1.7	17.9	0.0	60.9	Sd, Gy, Fn Grn, Sl/Shaly
53	92.0-93.0	3.5	23.9	0.0	64.4	Sd, Gy, Fn Grn, Sl/Shaly
54	93.0-94.0	1.0	19.9	0.0	72.3	Sd, Gy, Fn Grn, Sl/Shaly
55	94.0-95.0	0.83	18.3	0.0	68.8	Sd, Gy, Fn Grn, Sl/Shaly
56	95.0-96.0	0.62	18.5	0.0	60.1	Sd, Gy, Fn Grn, Sl/Shaly
57	96.0-97.0	0.20	13.1	0.0	79.4	Sd, Gy, Fn Grn, Shaly
58	97.0-98.0	0.41	14.4	0.0	75.0	Sd, Gy, Fn Grn, Shaly
59	98.0-99.0	0.20	14.5	0.0	72.9	Sd, Gy, Fn Grn, Shaly
60	2599.0-00.0	0.20	10.9	0.0	77.1	Sd, Gy, Fn Grn, Shaly
61	2600.0-01.0	0.08	8.9	0.0	75.2	Sd, Gy, Fn Grn, Shaly
62	01.0-02.0	2.3	15.2	0.0	65.7	Sd, Gy, Fn Grn, Shaly
63	02.0-03.0	0.10	16.2	0.0	68.6	Sd, Gy, Fn Grn, Shaly
64	03.0-04.0	0.20	9.5	0.0	76.9	Sd, Gy, Fn Grn, Shaly
65	04.0-05.0	0.20	11.0	1.8	79.1	Sd, Gy, Fn Grn, Shaly
66	05.0-06.0	1.5	15.1	0.0	68.8	Sd, Gy, Fn Grn, Shaly
67	06.0-07.0	0.83	15.6	0.0	66.5	Sd, Gy, Fn Grn, Shaly
68	07.0-08.0	0.62	20.0	0.0	68.0	Sd, Gy, Fn Grn, Shaly
69	08.0-09.0	0.20	13.0	0.0	76.8	Sd, Gy, Fn Grn, Shaly
70	09.0-10.0	0.20	15.5	0.0	73.0	Sd, Gy, Fn Grn, Shaly
71	10.0-11.0	0.20	16.6	0.0	76.6	Sd, Gy, Fn Grn, Shaly
72	11.0-12.0	0.02	16.9	0.0	71.6	Sd, Gy, Fn Grn, Shaly
73	12.0-13.0	0.41	16.5	0.0	74.5	Sd, Gy, Fn Grn, Shaly
74	13.0-14.0	0.13	14.4	0.0	85.3	Sd, Gy, Fn Grn, Shaly
75	14.0-15.0	0.62	15.9	0.0	83.6	Sd, Gy, Fn Grn, Shaly
76	15.0-16.0	2.1	14.4	0.0	81.2	Sd, Gy, Fn Grn, Shaly

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SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS KA	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
77	2616.0-17.0	0.04	11.0	0.0	81.6	Sd, Gy, Fn Grn, Shaly
78	17.0-18.0	0.08	11.8	0.0	83.0	Sd, Gy, Fn Grn, Shaly
79	18.0-19.0	0.05	10.7	1.9	86.1	Sd, Gy, Fn Grn, V/Shaly
80	19.0-20.0	1.7	12.4	0.0	78.8	Sd, Gy, Fn Grn, V/Shaly
81	20.0-21.0	0.62	11.8	0.0	77.8	Sd, Gy, Fn Grn, V/Shaly
82	21.0-22.0	0.20	6.8	0.0	82.3	Sd, Gy, Fn Grn, V/Shaly
83	22.0-23.0	0.20	9.7	0.0	79.3	Sd, Gy, Fn Grn, V/Shaly
84	2664.0-65.0	0.41	18.7	1.1	87.0	Sd, Gy, Fn Grn, V/Shaly
85	2666.0-67.0	2.3	22.3	2.2	71.2	Sd, Gy, Fn Grn, V/Shaly
86	67.0-68.0	6.8	23.4	0.0	66.6	Sd, Green, Med Grn, Shaly
87	68.0-69.0	340	32.0	0.0	79.3	Sd, Gy, Med Grn, W/Bentonite
88	69.0-70.0	40	21.9	0.0	80.8	Sd, Gy, Cse Grn, W/Bentonite
89	70.0-71.0	180	25.5	0.0	77.6	Sd, Gy, Cse Grn, W/Bentonite
90	71.0-72.0	240	26.5	0.0	79.6	Sd, Gy, Cse Grn, W/Bentonite
91	72.0-73.0	290	26.9	0.0	78.0	Sd, Gy, Cse Grn, W/Bentonite
92	73.0-74.0	270	24.6	0.0	75.9	Sd, Gy, Cse Grn
93	74.0-75.0	260	28.0	0.0	76.4	Sd, Gy, Cse Grn
94	75.0-76.0	180	26.8	0.0	80.6	Sd, Gy, Med Grn, Shaly
95	76.0-77.0	5.4	23.5	0.0	66.8	Sd, Wh, Med Grn
96	77.0-78.0	8.4	21.1	0.0	63.5	Sd, Wh, Med Grn
97	78.0-79.0	27	24.9	0.0	73.0	Sd, Wh, Med Grn
98	79.0-80.0	16	20.1	0.0	70.1	Sd, Wh, Med Grn
99	80.0-81.0	39	25.4	0.0	74.7	Sd, Wh, Med Grn
100	81.0-82.0	15	22.9	0.0	74.5	Sd, Wh, Med Grn
101	82.0-83.0	16	23.3	0.0	72.5	Sd, Wh, Med Grn
102	83.0-84.0	14	23.3	0.0	67.5	Sd, Wh, Fn Grn
103	84.0-85.0	6.4	19.5	0.0	66.8	Sd, Wh, Fn Grn
104	85.0-86.0	4.1	20.1	0.0	74.6	Sd, Wh, Fn Grn, Sl/Shaly, Vert Frac
105	86.0-87.0	51	25.1	0.0	79.6	Sd, Gy, Fn Grn, Sl/Shaly, Vert Frac
106	87.0-88.0	300	29.3	0.0	83.6	Sd, Gy, Fn Grn, Sl/Shaly, Vert Frac
107	88.0-89.0	77	29.1	0.0	84.8	Sd, Gy, Vn Grn, Sl/Shaly, Vert Frac
108	89.0-90.0	23	23.4	0.0	78.8	Sd, Gy, Med Grn, Sl/Shaly, Vert Frac
109	90.0-91.0	86	28.4	0.0	77.5	Sd, Gy, Med Grn, Sl/Shaly, Vert Frac
110	91.0-92.0	115	26.8	0.0	76.5	Sd, Gy, Med Grn, Sl/Shaly, Vert Frac
111	92.0-93.0	175	28.6	0.0	66.8	Sd, Gy, Med Grn, Sl/Shaly, Vert Frac

CORE ANALYSIS FOR

TESORO PETROLEUM CORPORATION

NO. 16 WALKER-SANTA FE WELL

SOUTH ~~HOSSBACK~~ Hospah FIELD

McKINLEY COUNTY, NEW MEXICO

CORE