

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering
DALLAS, TEXASPage No. 1

CORE ANALYSIS RESULTS

Company Tesoro Petroleum Corporation Formation Hospah File RP-3-2366
 Well Santa Fe # 57 Core Type Dai. Conv. 4" Date Report 8-1-69
 Field Hospah Drilling Fluid Low Solids Analysts Mohl
 County McKinley State N. Mex. Elev. 6964 KB Location NW SE Sec 1-T 17N - R 9W

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 - FNE MEDIUM - MED COARSE - COE	CRYSTALLINE - XLN GRAIN - GRN GRANULAR - GRNL	BROWN - BRN GRAY - GR VUGGY - VUG	FRACTURED - FRAC LAMINATION - LAM STYLOLITIC - STY	SLIGHTLY - SL/ VERY - V/ WITH - W/
--------------------------------------	--	---	--	--	---	---	--	--

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
				OIL	TOTAL WATER	
UPPER HOSPAH						
1.	1640-41	207.	27.1	29.8	56.8	Ss, gry, fn, carb
2	1641-42	331.	26.9	28.6	59.9	Ss, gry, fn, carb
3	1642-43	288.	26.2	29.4	60.2	Ss, gry, fn, carb
4	1643-44	230.	28.5	24.6	65.2	Ss, gry, fn, carb
5	1644-45	323.	27.5	19.6	70.1	Ss, gry, fn, carb
6	1645-46	8.0	22.9	12.2	73.4	Ss, gry, fn, v/carb
LOWER HOSPAH						
7	1673-74	268.	19.8	0.0	83.0	Ss, brn, fn
8	1674-75	357.	17.7	0.0	88.1	Ss, gry, fn
9	1676-77	242.	23.6	0.0	84.6	Ss, gry, fn
10	1677-78	279.	23.4	0.0	83.7	Ss, gry, fn
11	1679-80	308.	25.0	0.0	85.6	Ss, gry, fn
12	1682-83	246.	21.9	0.0	85.9	Ss, gry, fn
13	1685-86	262.	21.9	0.0	85.0	Ss, gry, fn
14	1688-89	323.	22.2	0.0	83.7	Ss, gry, fn
15	1690-91	527.	26.1	0.0	83.5	Ss, gry, fn



CORE ANALYSIS RESULTS

Company Tesoro Petroleum Corporation Formation Dakota File RP-3-2366
 Well Santa Fe # 57 Core Type Dia. Conv. 4" Date Report 8-5-69
 Field Hospah Drilling Fluid Low Solids No Oil Analysts Mohl
 County McKinley State N. Mex. Elev. 6964 KB Location NW SE Sec 1 - T 17N - R 9W

Lithological Abbreviations

SAND - SD SHALE - SH DOLOMITE - DOL ANHYDRITE - ANHY CONGLOMERATE - CONG FINE - FN FINE - MED CRYSTALLINE - XLN BROWN - BRN FRACTURED - FRAC SLIGHTLY - SL/
 LIME - LM CHERT - CH GYPSUM - GYP FOSSILIFEROUS - FOSS LIMY - LMY COARSE - CSE GRANULAR - GRNL GRAY - GY VUGGY - VGY LAMINATION - LAM VERY - V/
 STYLOLITIC - STY WITH - W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCS K _A	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
				OIL	TOTAL WATER	
8-4-69 Dakota 1st Bench						
16	2529-30	0.04	16.4	0.0	86.0	Ss, gry, vfn, carb
17	2530-31	0.08	14.9	0.0	82.6	Ss, gry, vfn, carb
18	2531-32	0.07	13.4	0.0	80.5	Ss, gry, vfn, carb
19	2532-33	0.07	14.4	0.0	82.6	Ss, gry, vfn, carb
20	2533-34	0.11	16.9	0.0	85.1	Ss, gry, vfn, carb
21	2534-35	0.07	15.0	0.0	84.6	Ss, gry, vfn, carb
22	2535-36	0.02	14.3	0.0	85.4	Ss, gry, vfn, carb
23	2536-37	0.02	12.9	1.6	85.3	Ss, gry, vfn, carb
24	2537-38	0.01	11.2	1.8	85.6	Ss, gry, vfn, carb
25	2538-39	0.08	12.4	1.6	87.1	Ss, gry, vfn, carb
8-4-69 Dakota 2nd Bench						
26	2610-11	0.58	20.7	0.0	75.3	Ss, gry, vfn, carb
27	2611-12	0.18	20.3	0.0	75.4	Ss, gry, vfn, carb
28	2612-13	0.73	20.0	0.0	79.5	Ss, gry, vfn, carb
29	2613-14	0.18	19.2	0.0	77.0	Ss, gry, vfn, sl carb
30	2614-15	9.9	23.5	10.6	56.5	Ss, gry, vfn, sl carb
31	2615-16	0.21	20.2	0.0	80.2	Ss, gry, vfn, sl carb
32	2616-17	0.12	17.3	0.0	79.1	Ss, gry, vfn, sl carb
33	2617-18	0.11	18.2	0.0	85.7	Ss, gry, vfn, sl carb, calc
34	2618-19	3.5	21.2	0.0	80.6	Ss, gry, vfn, sl carb, calc
35	2619-20	0.63	17.7	0.0	78.0	Ss, gry, vfn, sl carb, v/calc
36	2620-21	1.0	21.4	0.0	79.9	Ss, gry, vfn, sl carb
37	2621-22	0.07	19.5	0.0	77.4	Ss, gry, vfn, carb
8-5-69 Dakota 3rd Bench						
38	2660-61	6.6	18.5	0.0	60.0	Ss, gry, vfn
39	2661-62	0.19	22.7	5.3	64.4	Ss, gry, vfn
40	2662-63	0.35	20.7	0.0	77.3	Ss, gry, vfn
41	2663-64	0.29	22.1	0.0	77.4	Ss, gry, vfn
42	2664-65	0.23	12.6	0.0	65.8	Ss, gry, vfn
43	2667-68	0.28	20.4	0.0	76.5	Ss, gry, vfn
44	2669-70	2.1	19.2	0.0	57.8	Ss, gry, vfn, calc
45	2670-71	1.7	18.3	3.3	54.6	Ss, gry, vfn, calc
46	2673-74	0.19	21.6	0.0	76.0	Ss, gry, vfn, calc
47	2684-85	0.15	16.8	0.0	81.0	Ss, gry, vfn, w/carb
48	2686-87	0.14	15.1	0.0	82.2	Ss, gry, vfn, v/carb

These analyses, opinions or interpretations are based on observations and materials supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations, as to the productivity, proper operations, or profitability of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.