ROTARY LABORATORIES, INC.
Core Analysis

Rotary Sidewall Core Analysis Report

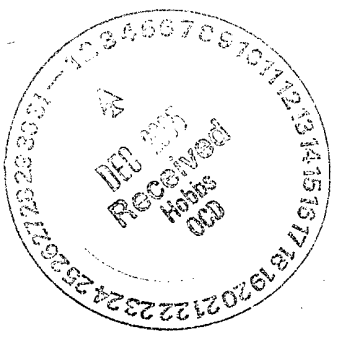
For

PATTERSON PETROLEUM LP

NATHANIEL '29' STATE # 1

LEA COUNTY, NEW MEXICO

M-29-17s-34e, 660/S & 990/W
API # 30-025-37291



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CORE ANALYSIS PROCEDURES

FOR

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The Rotary Sidewalls were delivered to Rotary Laboratories, Inc.

Gases from the Sidewalls were measured by Hot Wire Chromatography and reported in Gas Units.

A brief Lithological Description of the Sidewalls was recorded.

A description of the Fluorescence of the Sidewalls was recorded.

Ultraviolet Light Photographs were taken of the Sidewalls for a permanent record.

Natural Light Photographs were taken of the Sidewalls for a permanent record.

Composite Photographs of the Sidewall End Trims were taken under Natural and Ultraviolet Light.

The Sidewalls were extracted utilizing the Dean Stark method.

The fluids were measured by the Dean Stark method.

Porosities were measured in a Boyle's Law Porosimeter utilizing Helium.

Permeabilities were measured in a Hassler Sleeve Permeameter utilizing Nitrogen at 300 psi confining pressure.

Test samples of a known permeability were measured before and after the Sidewall permeabilities were measured.

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ROTARY SIDEWALL CORE ANALYSIS

PATTERSON PETROLEUM LP
NATHANIEL '29' STATE # 1
LEA COUNTY, NEW MEXICO

A.P.I. NUMBER : 30-025-37291
FIELD : Vacuum Morrow
LOCATION : 660' FSL, 990' FWL,
Section 29, T-17-S, R-34-E

FILE NO. : 050919-1
DATE : September 20, 2005
ANALYSTS : WH, SB, PK

DEAN STARK EXTRACTION

SAMPLE NO.	DEPTH ft	GRAIN DENSITY	POROSITY %	PERM mD	SATURATIONS Sw	SATURATIONS So	GAS UNITS	FLUORESCENCE %		LITHOLOGY
1	10,310.0	2.71	10.3	4.60	28.8	16.7	58	90	Brt yl-bl	Ls crm-tn mod-sslty ssdy sc ppp-sml vug foss
2	10,312.0	2.70	7.5	0.94	27.6	18.7	160	90	Brt yl-bl	Ls crm-tn mod-sslty ssdy tr ppp-sml vug foss
3	10,315.0	2.69	11.0	1.02	24.6	19.6	235	90	Brt yl-bl	Ls crm-tn mod-sslty ssdy sc ppp-sml vug foss
4	10,471.0	2.84	9.5	0.09	61.9	0.0	1	0	Dl mf	Dol brn-gy lam sslty ssdy anhy incl frac sty
5	10,473.0	2.77	3.7	0.01	59.0	0.0	0	0	Dl mf	Dol brn-gy lam sslty lrg cht nod
6	10,507.0	2.86	14.8	16.15	28.4	15.5	119	80	Brt yl-yl	Dol tn-brn sslty ssdy suc i/p sc ppp-sml vug sc foss frac
7	10,511.0	2.69	7.7	0.09	29.0	14.0	378	80	Brt yl-wht-bl	Ls tn-brn sslty ssdy sc ppp sc foss
8	10,523.0	2.74	7.2	0.33	45.5	14.3	71	70	Brt yl-wht-bl	Ls tn-brn-gy mott sslty ssdy tr ppp-sml vug sc foss sty
9	10,525.0	2.71	7.3	0.24	39.5	13.7	85	60	Brt yl-wht-bl	Ls tn-brn sslty ssdy sc ppp sc foss
10	10,530.0	2.71	7.3	1.13	24.3	14.1	182	80	Brt yl-wht-bl	Ls tn-brn sslty ssdy ppp sc foss
11	10,537.0	2.71	5.0	0.19	18.3	12.7	168	60	Brt yl-wht-bl	Ls tn-brn sslty ssdy sc ppp sc foss
12	10,544.0	2.73	4.4	0.07	16.6	3.9	49	20	Brt yl-wht-bl	Ls tn-brn sslty ssdy tr ppp sc foss
13	10,546.0	2.73	12.6	483.68	16.3	14.7	23	80	Brt yl	Ls crm-tn mod-sslty ssdy ppp-sc sml vug foss frac
14	11,007.0	2.69	4.4	0.02	57.2	0.0	0	0		Ls tn-brn-wht sslty ssdy tr ppp sc foss
15	11,009.0	2.69	4.3	0.01	54.4	0.0	0	0		Ls tn-brn-wht sslty ssdy tr ppp sc foss
16	11,042.0	2.71	7.0	0.08	36.0	17.9	46	60	Dl yl-bl-wht	Ls tn-brn-wht sslty ssdy tr ppp foss
17	11,044.0	2.73	7.5	1.97	39.6	11.8	42	30	Dl yl-bl-wht	Ls brn-gy-wht mott mod-sslty ssdy sc ppp foss frac sty
18	11,045.0	2.72	6.4	0.06	32.2	15.6	141	70	Dl yl-bl-wht	Ls brn-gy mott sslty ssdy tr ppp sc foss
19	11,049.0	2.71	9.8	0.62	23.1	20.6	120	90	Dl yl-bl-wht	Ls brn-gy mott sslty ssdy sc ppp sc foss

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FILE NO. : 050919-1
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DEAN STARK EXTRACTION

SAMPLE NO.	DEPTH ft	GRAIN DENSITY	POROSITY %	PERM mD	SATURATIONS Sw	So	GAS UNITS	FLUORESCENCE %		LITHOLOGY
20	11,050.0	2.73	9.3	0.01	24.1	20.0	225	90	Dl yl-bl-wht	Ls brn-gy mott sslty ssdy sc ppp sc foss
21	11,052.0	2.72	13.7	4.86	20.6	15.5	249	100	Dl yl-bl-wht	Ls brn-gy mott mod-sslty ssdy ppp sc foss
22	11,061.0	2.69	7.3	0.12	43.2	15.7	21	40	Yl-bl-gld	Ls brn-gy-wht mott mod-sslty ssdy sc ppp foss sty
23	11,063.0	2.70	5.3	0.04	30.9	18.9	101	30	Yl-bl-gld	Ls tn-brn mod-sslty ssdy sc ppp foss
24	11,072.0	2.67	5.5	10.39	62.0	9.4	18	20	Yl-bl-gld	Ls tn-brn slty ssdy sc ppp foss frac fd frac
25	11,078.0	2.69	2.1	0.22	42.3	Tr	23	Tr	Yl-bl-gld	Ls tn-brn sslty ssdy sc ppp foss frac
26	11,083.0	2.69	6.8	17.97	47.5	Tr	15	10	Yl-bl-gld	Ls tn-brn sslty ssdy sc ppp foss frac
27	11,087.0	2.73	9.5	1.46	45.4	16.2	9	30	Yl-bl-gld	Ls tn-brn mod-sslty ssdy sc ppp sc sml cht nod sc foss
28	11,092.0	2.72	3.3	0.10	24.5	12.7	65	50	Yl-bl-gld	Ls tn-brn sslty ssdy sc ppp sc foss frac fd frac
29	11,108.0	2.68	2.1	0.01	51.8	0.0	0	0		Ls brn-gy-wht mott sslty tr ppp foss
30	11,110.0	2.71	7.3	0.95	32.3	15.7	112	70	Brt yl-wht-bl	Ls brn-gy-wht mott sslty sc ppp foss
31	11,195.0	2.68	19.0	34.00	69.3	0.0	0	0		Ls tn-brn mod-sslty ssdy suc i/p unconsolidated i/p foss
32	12,727.0	2.68	7.2	0.02	40.1	0.0	127	0		Ss opaq-tn-gy vf-fgr sbrnd-ang sslty scalc
33	12,729.0	2.66	7.4	0.02	40.1	0.0	185	0		Ss opaq-tn-gy vf-fgr sbrnd-ang mod-sslty scalc
34	13,321.0	2.70	0.4	0.01	73.7	0.0	0	0		Ls dk brn-dk gy-blk arg dns slty sc foss tr pyr
35	13,327.0	2.65	3.4	tbfa	77.2	0.0	12	0		Ls dk brn-dk gy-blk lam arg slty shy abd slty lam tr pyr
36	13,451.0	2.65	3.0	0.03	22.9	0.0	21	0		Ss opaq-brn-gy mott vf-fgr sbrnd-ang mod-sslty sc slty lam
37	13,452.0	2.67	2.5	0.01	31.4	0.0	47	0		Ss opaq-tn vf-fgr sbrnd-sbang sslty sty
38	13,456.0	2.64	3.4	0.03	58.5	0.0	12	0		Ss opaq-tn-gy lam vf-fgr sbrnd-sbang mod-sslty
39	13,457.0	2.69	4.4	tbfa	24.9	0.0	196	0		Ss opaq-tn-gy lam vf-fgr sbrnd-sbang mod-sslty

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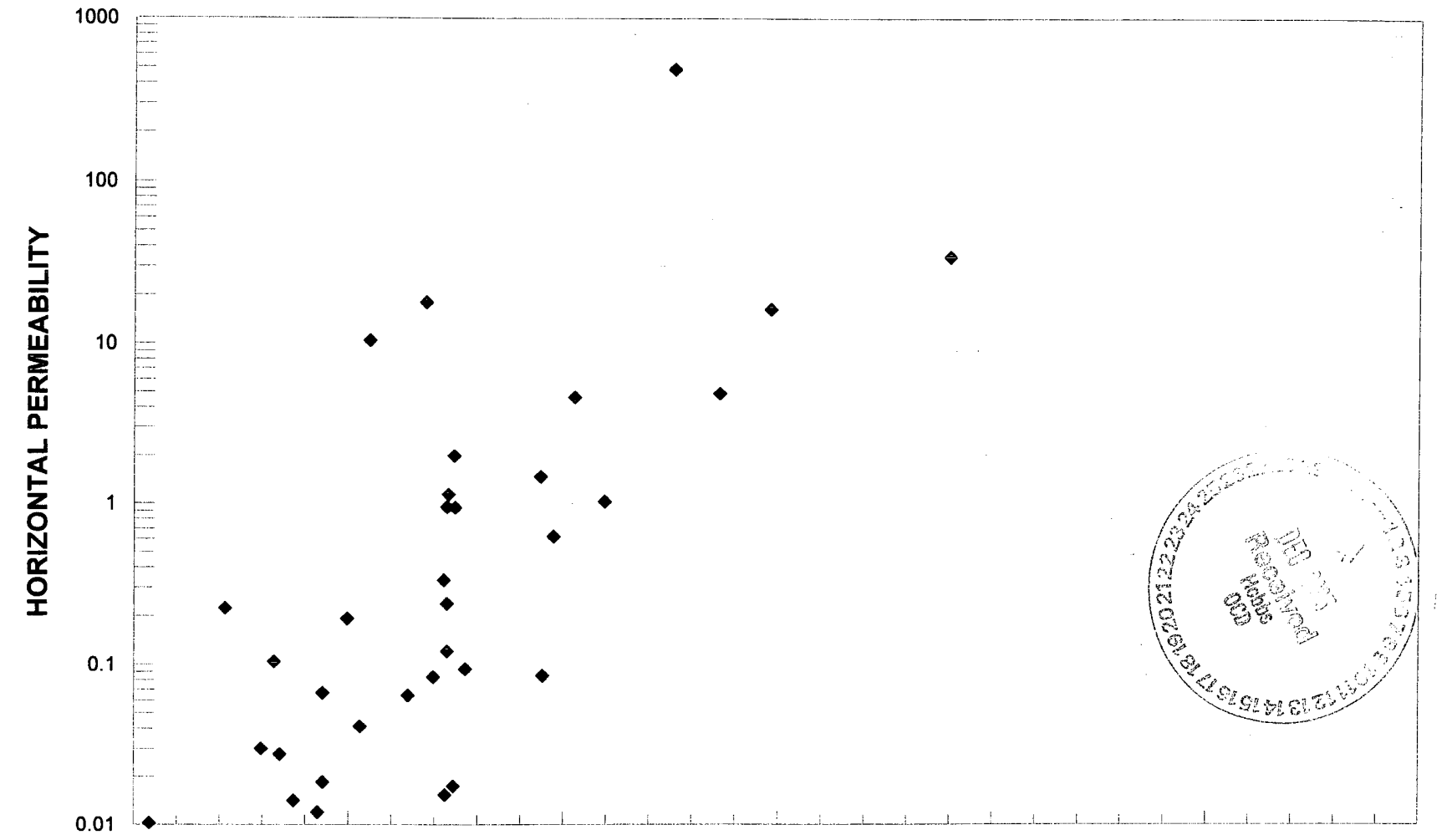

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PATTERSON PETROLEUM LP
NATHANIEL '29' STATE # 1
09/22/2005

QUALITY CONTROL RERUN DATA

Sample No.	GRAIN DENSITY original	GRAIN DENSITY reruns	POROSITY original	POROSITY reruns	*kstandard* Test Sample	PERMEABILITY original	PERMEABILITY reruns
1	2.713	2.712	10.27	10.24	**2.612**	4.598	4.565
3	2.690	2.690	10.96	10.97			
6	2.858	2.856	14.84	14.77		16.151	15.934
9	2.714	2.714	7.29	7.32			
13	2.734	2.732	12.59	12.53		483.682	483.980
16	2.707	2.709	6.97	7.01			
19	2.715	2.713	9.78	9.73		0.620	0.605
22	2.693	2.692	7.29	7.23			
26	2.692	2.692	6.80	6.79		17.974	17.823
29	2.680	2.680	2.08	2.09		0.005	0.005
31	2.676	2.677	19.03	19.07			
35	2.654	2.654	3.44	3.42			
38	2.636	2.635	3.40	3.36	**2.616**	0.028	0.027

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