



CORE ANALYSIS PROCEDURES

FOR

PATTERSON PETROLEUM LP

NORTH TWINBERRY '5' STATE # 1

LEA COUNTY, NEW MEXICO

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 Sidewalls were leached with Methanol to remove the salts.

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.

ROTARY SIDEWALL CORE ANALYSIS

PATTERSON PETROLEUM-LP
NORTH TWINBERRY '5' STATE # 1
LEA COUNTY, NEW MEXICO
After Methanol

A.P.I. NUMBER : 30-025-37381
FIELD : Vacuum (Morrow)
LOCATION : 720' FSL, 1100' FEL,
Section 5, T-18-S, R-34-E

FILE NO. : 051130-1
DATE : November 30, 2005
ANALYSTS : WH, SB, PK

DEAN STARK EXTRACTION

SAMPLE NO.	DEPTH ft	GRAIN DENSITY	POROSITY %	PERM mD	SATURATIONS Sw	So	GAS UNITS	FLUORESCENCE %	LITHOLOGY
1	6,013.0	2.85	11.4	5.35	68.4	0.0	2	0	Mf Dol tn-brn mod-ssltly sdy sc ppp hal
2	6,014.0	2.83	11.4	4.39	75.3	0.0	0	0	Mf Dol tn-brn mod-ssltly sdy sc ppp-tr sml vug hal
3	6,038.0	2.82	12.4	1.52	81.5	0.0	0	0	Dol tn-brn mod-ssltly sdy sc ppp-sml vug sc foss hal
4	9,831.0	2.71	11.0	0.26	56.0	0.0	0	0	Ls tn-brn sslty sdy tr ppp foss hal
5	9,833.0	2.70	9.8	0.25	45.8	14.2	236	80	Br t yl-grn Ls tn-brn sslty sdy tr ppp foss hal
6	10,303.0	2.54	18.4	0.10	49.3	9.4	62	20	DI yl-brt yl Ls tn-brn-dk brn mod-ssltly foss abd cht nod abd hal
7	10,379.0	2.71	8.8	0.09	63.3	0.0	2	0	Cont Ls tn-brn sslty sdy tr ppp foss hal
8	10,384.0	2.70	9.6	0.22	77.1	0.0	1	0	Cont Ls tn-brn sslty sdy tr ppp foss hal
9	10,398.0	2.71	11.5	0.18	71.8	0.0	0	0	Cont Ls tn-brn sslty sdy tr ppp foss hal
10	10,401.0	2.70	10.2	0.38	57.6	17.8	0	20	DI yl-brt yl Ls tn-brn sslty sdy tr ppp foss hal
11	11,458.0	2.58	0.6	tbfa	79.7	0.0	6	0	Ss gy-dk gy-blk lam vfgr slty shy sil mod-scalc
12	11,468.0	2.65	0.9	0.02	41.0	0.0	4	0	Ss gy-dk gy-blk lam vfgr slty shy sil mod-scalc
13	11,474.0	2.59	0.6	0.01	31.0	0.0	0	0	Ss gy-dk gy-blk lam vfgr slty shy sil mod-scalc
14	13,328.0	2.75	10.6	tbfa	90.8	0.0	21	0	Sh dk brn-blk slty mod-scalc
15	13,331.0		tbfa	tbfa			1	0	Sh dk brn-blk slty mod-scalc
16	13,348.0	2.68	7.9	0.05	40.2	Tr	50	Tr	Fnt bl-wht Ss opaq-gy-tn mott vf-crsgr rnd-ang sslty
17	13,349.0	2.66	10.4	0.22	65.0	Tr	78	30	Fnt bl-wht Ss opaq-gy-tn mott vf-crsgr rnd-ang sslty
18	13,355.0	2.62	3.7	0.02	49.2	Tr	499	10	Fnt bl-wht Ss opaq-gy-tn mott vf-crsgr rnd-ang sslty



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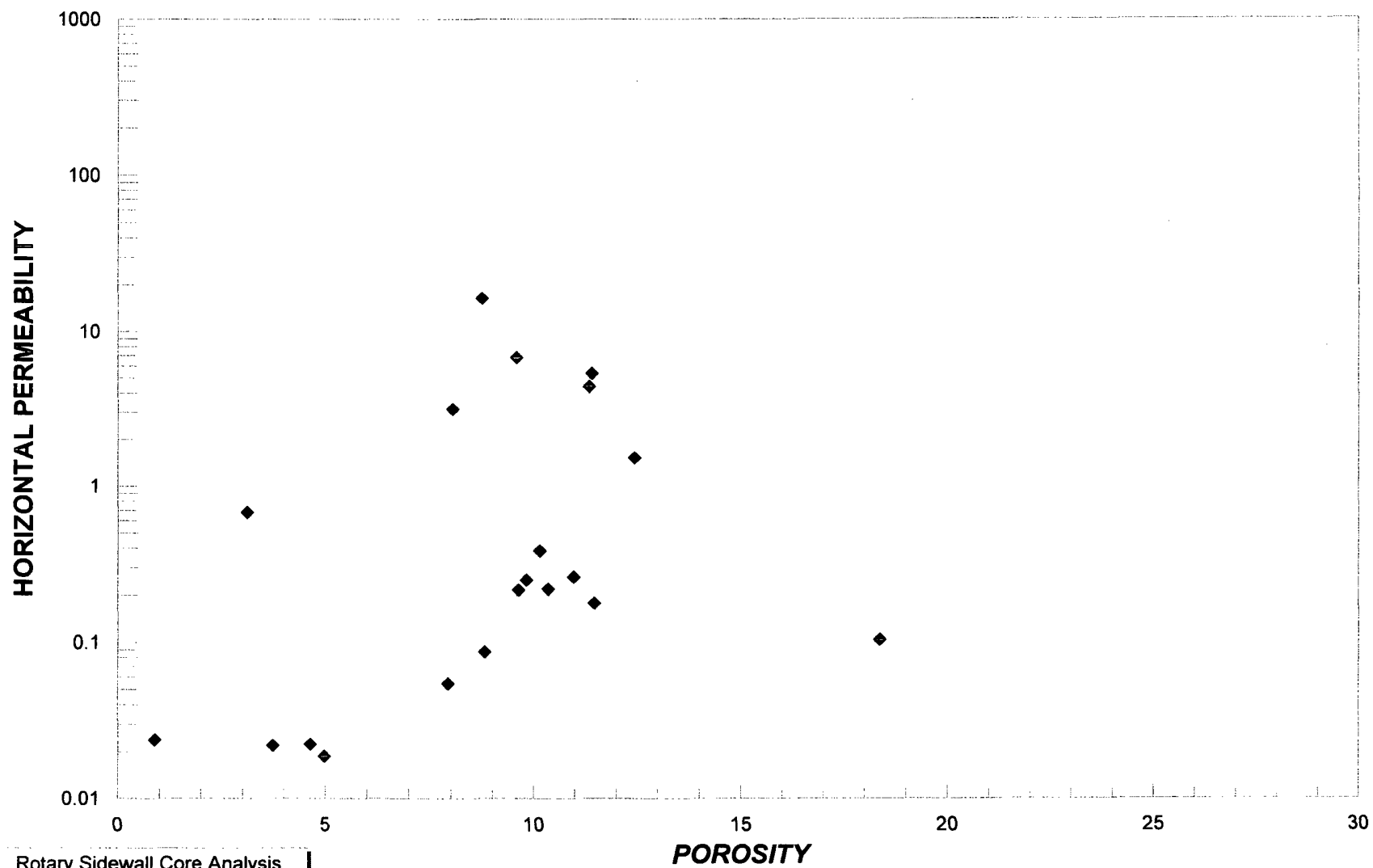
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DEAN STARK EXTRACTION

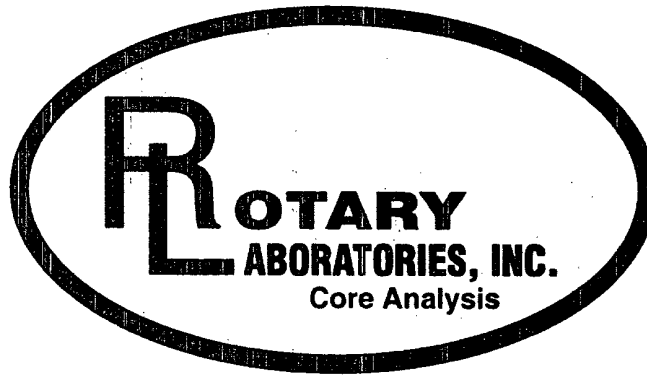
SAMPLE NO.	DEPTH ft	GRAIN DENSITY	POROSITY %	PERM mD	SATURATIONS Sw	So	GAS UNITS	FLUORESCENCE %	LITHOLOGY
19	13,359.0	2.66	5.0	0.02	53.7	0.0	25	0	Ss opaq-gy-tn mott vf-crsgr rnd-ang ssily scalc
20	13,552.0	2.67	4.6	0.02	37.8	0.0	16	0	Ss opaq-brn vf-fgr sbrnd-sbang ssily
21	13,639.0	2.69	3.1	0.67	10.7	Tr	16	10	Fnt bl-wht Ss opaq-gy-tn mott vf-crsgr rnd-ang ssily scalc
22	13,651.0	2.64	8.7	16.34	22.1	Tr	123	20	Fnt bl-wht Ss opaq-gy-tn mott vf-crsgr rnd-ang ssily scalc
23	13,658.0	2.68	8.1	3.15	35.4	0.0	36	0	Ss opaq-tn-gy vf-f-mgr sbrnd-sbang mod-ssily scalc
24	13,662.0	2.67	9.6	6.76	39.3	0.0	55	0	Ss opaq-gy-tn mott vf-crsgr rnd-ang ssily scalc



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NORTH TWINBERRY '5' STATE # 1



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PATTERSON PETROLEUM LP
NORTH TWINBERRY '5' STATE # 1
12/05/2005

QUALITY CONTROL RERUN DATA

Sample No.	GRAIN DENSITY		POROSITY		<i>k</i> standard Test Sample	PERMEABILITY	
	original	reruns	original	reruns		original	reruns
1	2.847	2.846	11.42	11.38	2.617	5.349	5.343
4	2.707	2.707	10.98	10.96			
8	2.704	2.705	9.64	9.69		0.216	0.214
11	2.585	2.586	0.57	0.60			
13	2.590	2.589	0.64	0.60		0.009	0.008
18	2.622	2.622	3.73	3.72			
22	2.643	2.644	8.75	8.79		16.340	16.365
24	2.673	2.673	9.59	9.61	2.606	6.758	6.773

LITHOLOGICAL ABBREVIATIONS

Anhydrite (-ic)	anhy, anhyd	Filled	fd	Poor	pr
Anhydrite inclusion	A/I	Fine (-ly)	f, fnly	Pyrite	pyr
Bentonite (-ic)	bent	Fluorescence	flu	Quartz (-itic)	qtz
Black (-ish)	blk, blksh	Fossil (-iferous)	foss	Red (ish)	rd, rdsh
Bleeding Oil	B/O	Fracture	frac	Round	rnd
Brecciated	brec	Fragments	frag	Residual Oil	So
Bright	brt	Friable	fri	Residual Water	Sw
Brittle	brit	Fusulinid	fus	Sample	Spl
Broken	brkn	Gilsonite	gil	Sandstone	Ss
Brown	brn	Gold	gld	Sandy	sdly
Buff	bf	Good	gd	Scattered	sc
Calcite (-ic)	calc, calctc	Grain (-s)	gr	Shaley	shy
Calcareous	calc	Granular	gran	Shale	sh
Carbonaceous	carb	Gray	gy	Shale parting	s/p
Cement	cmt	Green	grn	Silt (-y)	slt, slty
Chalk (-y)	chk, chky	Gypsum	gyp	Siliceous	sil
Chert	cht	Hair line(frac)	hl	Slight (-ly)	sli, s
Clay	cl	Halite	hal	Small	sml
Clear	clr	Inclusion	incl	Spotted (-y)	sp
Coal	c	Laminations (ated)	lam	Stringer	strgr
Coarse	crs	Large	lrg	Stylolite (-itic)	sty, styl
Conglomerate	cgl	Light	lt	Sucrosic	suc
Consolidated	consol	Limestone	ls	Sulphur	su
Contaminated	contam	Limey	lmy	Tan	tn
Crinoid (-al)	crin, crinal	Lithology	lith	Too broken	tbfa
Cross-bedded	x-bd	Medium	m	(for Analysis)	
Crystal (-line)	XI, xln	Mineral Fluorescence	mf	Thin	thn
Dark	dk	Moderate	mod	Trace	Tr
Dense	dns	Mudcake	m/c	Very	v
Diameter	dia	No Show	N/S	Vertical	vert, vt
Dolomite (ic)	dol, dolm	Oolite (-itic)	ool	Vug (-gy)	vug
Dull	dl	Pale	pl	Well	wl
Faint	fnt	Permeability	Perm, K	White	wht
Fair	fr	Pin-Point Porosity	ppp	Yellow	yl

