



POROSITY VS. PERMEABILITY

Columbia Gas
Well #20316
Permit #1128 - Clay County, WV
Injun Sandstone
4701501128
(WV Tight Formation Committee)

41-54

Clay-1128



OILFIELD RESEARCH, INC.

WHOLE CORE ANALYSIS REPORT

Company Columbia Gas Transmission Corp. Elevation _____ File No. 75012013
 Lease _____ Well 20316 Formation See Below Date Cored 11/23/75
 Field Grannys Fork Orig. Fluid FW Gel Date Report 12/4/75
 County Clay State W. Va. Type Of Core Diamond Permit No. _____
 Location (Waters) Summers Fork Remarks Sampled by OR-JCM

LITHOLOGICAL ABBREVIATIONS

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

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS		POROSITY PERCENT	LITHOLOGY AND REMARKS
		HORIZONTAL			
		MAX.	90°		

INJUN					Percent Oil	Percent Water
1	1995.0-96.2	0.47	0.33	5.9	5.4	60.7
2	1996.2-97.6	0.47	0.33	10.2	17.7	37.8
3	1997.6-99.1	0.27	0.22	8.0	19.3	34.4
4	1999.1-00.2	0.22	0.20	7.1	11.8	47.1
5	2000.2-01.2	0.58	0.52	5.4	5.6	38.9
6	2001.2-02.4	0.47	0.47	6.0	7.3	43.4
7	2002.4-03.8	<0.10	<0.10	5.4	7.9	42.5
8	2003.8-05.2	<0.10	<0.10	6.2	6.1	45.2
9	2005.2-06.3	<0.10	<0.10	6.3	6.0	37.4
10	2006.3-07.5	<0.10	<0.10	7.9	11.5	38.7
11	2007.5-08.7	<0.10	<0.10	7.3	12.3	43.8
12	2008.7-10.0	1.3	1.2	6.3	7.6	44.7
13	2010.0-11.3	1.3	1.0	10.3	13.4	45.7
14	2011.3-12.5	0.63	0.58	9.4	16.0	45.0
15	2012.5-13.9	1.6	1.3	5.3	26.8	30.6
16	2013.9-14.8	1.2	1.2	8.8	16.1	43.4
17	2014.8-15.9	3.2	2.7	13.3	18.8	60.5
18	2015.9-17.3	2.5	2.5	19.8	23.0	50.5
19	2017.3-18.4	1.4	1.3	19.4	25.4	50.8
20	2018.4-19.5	1.1	0.89	19.9	23.4	51.2
21	2019.5-20.7	1.1	0.89	20.6	23.4	50.3
22	2020.7-22.1	1.6	1.6	21.7	21.6	50.9
23	2022.1-23.7	2.5	2.2	20.5	17.4	56.0
24	2023.7-24.8	0.80	0.80	20.2	22.6	52.2
25	2024.8-26.1	0.64	0.45	20.3	21.4	53.7
26	2026.1-27.2	1.1	1.0	16.2	19.4	55.8
27	2027.2-28.5	3.1	1.8	21.0	21.4	49.8
28	2028.5-30.0	0.80	0.64	15.5	25.3	52.0

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WHOLE CORE ANALYSIS REPORT

Locs _____

Well No. 20316

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS		POROSITY PERCENT	LITHOLOGY AND REMARKS
		HORIZONTAL			
		MAX	90°		

					Percent Oil	Percent Water
29	2030.0-31.1	2.2	1.8	19.9	21.0	79.7
30	2031.1-32.2	1.5	1.5	19.8	21.1	49.4
31	2032.2-33.5	0.38	0.26	19.8	23.6	50.0
32	2033.5-34.9	0.89	0.89	20.1	25.1	52.0
33	2034.9-36.3	0.33	0.33	18.1	19.4	64.3
34	2036.3-37.5	0.42	0.42	19.6	20.9	57.2
35	2037.5-38.6	0.42	0.42	19.1	15.0	58.9
36	2038.6-39.9	0.42	0.42	18.2	15.3	60.5
37	2039.9-41.0	<0.10	<0.10	16.8	23.8	62.0
38	2044.0-45.0	<0.10	<0.10	10.9	2.1	85.2
39	2045.0-46.0	<0.10	<0.10	8.8	0.0	96.8
40	2046.0-47.0	<0.10	<0.10	8.0	0.0	98.8
SQUAW						
41	2069.7-70.8	0.33	0.33	20.1	38.3	16.6
42	2070.8-72.0	0.79	0.52	18.8	33.2	18.2
43	2072.0-73.4	0.20	0.16	16.6	35.6	18.0
44	2073.4-74.8	1.1	0.96	19.5	32.4	19.9
45	2074.8-76.0	0.52	0.52	20.4	37.4	17.5
46	2076.0-77.3	0.30	0.30	19.9	36.1	16.8
47	2077.3-78.5	0.27	0.27	20.3	37.0	16.3

AVERAGE

1995.0-2014.8	0.53	0.40	7.2	12.2	42.2 (19.8')	INJUN
2014.8-2041.0	1.3	1.1	19.1	21.4	54.2 (26.2')	INJUN
2069.7-2078.5	0.50	0.44	20.5	35.6	17.7 (8.8')	SQUAW