



OILFIELD RESEARCH, INC.

15-1132

Entered
6/25/91

WHOLE CORE ANALYSIS REPORT

Clay # 1132

Company Columbia Gas Transmission Corp. Elevation 1093.20 File No. 75012023
 Lease _____ Well 20312 *Clay 1132* Formation See Below Date Cored 12/15/75
 Field Grannys Fork Orig. Fluid FW Gel Date Report 12/22/75
 County Clay State W. Va. Type Of Core Diamond Permit No. _____
 Location (Waters) Summers Fork Remarks Sampled by Client

LITHOLOGICAL ABBREVIATIONS

SAND-SO	DOLOMITE-DOL	ANHYDRITE-ANHY	SANDY-SOY	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-W
LIME-LM	GYP-SUM-GYP	FOSSILIFEROUS-FOSS	LIMEY-LMY	COARSE-CSE	GRANULAR-GRNL	VUGGY-VGY	STYLOLITIC-STY	WITH-W

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

				Percent		
				Oil	Water	
INJUN						
1	1967.0-68.2	6.7	6.1	11.3	18.2	45.9
2	1968.2-69.8	4.0	3.8	13.5	21.0	42.5
3	1969.8-70.9	6.7	6.7	15.4	22.6	43.9
4	1970.9-72.0	24.	24.	19.4	21.2	42.6
5	1972.0-73.0	9.7	9.7	18.2	23.7	40.9
6	1973.0-74.2	6.7	6.1	16.4	17.7	42.8
7	1974.2-75.1	1.2	1.0	12.0	25.7	43.7
8	1975.1-76.7	0.38	0.26	8.6	26.1	44.9
9	1976.7-77.8	0.26	0.26	7.2	20.8	47.5
10	1977.8-78.8	0.21	0.20	6.6	21.5	42.2
11	1978.8-80.0	23.	4.2	6.6	23.5	38.3
12	1980.0-81.0	1.3	1.3	6.2	21.8	37.7
13	1981.0-82.0	1.3	0.83	5.3	15.5	39.2
14	1982.0-83.5	<0.10	<0.10	6.8	10.0	61.2
15	1983.5-85.0	9.7	3.3	11.2	36.7	48.3
16	1985.0-86.0	0.20	0.20	13.0	33.8	38.6
17	1986.0-87.0	0.20	0.20	13.9	30.7	37.0
18	1987.0-88.1	<0.10	<0.10	10.4	26.7	41.0
19	1988.1-89.6	7.5	7.5	21.8	19.0	48.3
20	1989.6-90.8	7.5	7.5	18.8	17.1	49.9
21	1990.8-92.2	9.3	9.3	14.3	17.0	50.0
22	1992.2-93.5	10.	9.7	22.1	22.0	46.3
23	1993.5-94.9	10.	9.7	21.8	19.7	48.8
24	1994.9-96.3	3.8	3.8	21.8	21.1	51.0
25	1996.3-97.8	5.4	5.4	22.3	20.1	50.8
26	1997.8-99.0	5.4	5.4	22.0	20.0	51.0
27	1999.0-00.6	7.5	7.5	22.0	21.8	50.6
28	2000.6-02.0	8.2	8.2	22.1	19.3	51.0

These analyses, opinions or interpretations are based on observations and material 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 Oilfield Research, Inc. (all errors and omissions excepted) but Oilfield Research, Inc. and its officers and employees, assume no responsibility and make no warranty or representations as to the productivity, proper operation, or profitability of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

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Lease

Well No. 20312

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

					Percent Oil	Percent Water
29	2002.0-03.2	5.4	4.5	22.7	19.8	52.5
30	2003.2-04.8	2.8	2.8	21.4	20.2	52.3
31	2004.3-06.0	2.2	2.0	21.7	21.6	49.3
32	2006.0-07.1	1.5	1.4	21.9	21.3	50.1
33	2007.1-08.3	1.1	1.1	21.7	25.6	49.4
34	2008.3-09.8	1.0	1.0	20.9	19.7	52.9
35	2009.8-11.0	0.20	0.20	19.3	20.6	55.3
36	2011.0-12.1	<0.10	<0.10	15.8	21.9	67.8

SQUAW

37	2040.9-42.0	0.66	0.66	19.0	32.5	23.8
38	2042.0-43.3	4.5	4.5	22.0	34.5	21.7
39	2043.3-44.5	0.96	0.96	21.7	34.7	23.0
40	2044.5-45.7	1.1	1.1	21.9	33.6	21.7
41	2045.7-46.9	1.1	1.1	22.0	34.3	21.6
42	2046.9-47.9	2.0	2.0	23.0	33.3	25.6
43	2047.9-49.1	1.6	1.6	22.7	34.1	26.8
44	2049.1-50.4	3.1	3.0	17.1	33.6	19.7

AVERAGES

1967.0-1988.1	5.4	3.7	11.1	23.1	43.8	(21.1') INJUN
1988.1-2012.1	5.1	5.0	20.9	20.3	51.4	(24.0') INJUN
2040.9-2050.4	1.9	1.9	21.1	33.9	22.9	(9.5') SQUAW