

CORE ANALYSIS REPORT

FOR

COLUMBIA GAS DEVELOPMENT OF CANADA LTD.

COLUMBIA ET AL KOTANEELEE YT E-37

KOTANEELEE

NORTHWEST TERRITORIES

CORE LABORATORIES - CANADA LTD.

Petroleum Reservoir Engineering
CALGARY - EDMONTON

of Indian & Northern Affairs
& EAST SECTION
OCT 31 1978
12/1/78



CORE LABORATORIES - CANADA LTD.



FULL DIAMETER CORE ANALYSIS

COMPANY CO. UMBIA GAS DEVELOPMENT OF CANADA LTD.
 WELL COLUMBIA ET AL KOTANELEE YT E-37
 FIELD KOTANELEE, NORTHWEST TERRITORIES
 LOCATION 60° 06' 27" N
 ELEVATION 124° 07' 16" W

FORMATION NAHANNI, MANETOE
 CORING EQUIPMENT DIAMOND
 CORE DIAMETER (mm) 101
 CORING FLUID WATER BASE MUD

PAGE 1 OF 11
 FILE 7004-8573
 DATE OCTOBER 19, 1978
 ANALYSTS DW GS TS BM MA JH

CLEANING

Solvent: TOLUENE
 Extraction Equipment VAPOR PHASE EXTRACTOR
 Extraction Time 10 HOURS
 Drying Equipment VACUUM OVEN
 Drying Time 14 HOURS
 Drying Temperature 140°C

ANALYSIS

- Por. Volume measured by Boyle's Law in a Hassler holder using helium
- Grain Volume measured by Boyle's Law in a modified U.S.B.M. porosimeter using helium
- Bul. Volume measured by calipering
- Fluid Saturations by retort on end pieces
- Water Saturations by Dean-Stark
- Oil Saturations weight difference in Dean-Stark
- Gravel Surface removed by sand-blasting
- Prior to horizontal permeability measurements

- * Broken core (mD90° used for summary purposes)
- ** Permeability greater than 30 000 mD
- a Permeability measured on a small plug sample taken to ensure measurement of matrix permeability
- b Permeability measured on a small plug sample taken out of the full diameter sample because of the broken nature of the core.

AST = Appears similar to

DESCRIPTION

ss = Sandstone
 cgl = Conglomerate
 brecc = Breccia
 slst = Siltstone
 sh = Shale
 ls = Limestone

dol = Dolomite
 f = fine
 m = medium
 c = coarse
 i = Intergranular
 xin = crystalline

DESCRIPTION

vug = vuggy (ular)
 p-pv = pinpoint vugs
 sv = small vugs
 lv = large vugs
 v = very
 / = with
 -l = slightly
 tr = trace
 scat = scattered
 gr = grain (ed)
 pbl = pebbles
 suc = sucrosic
 slty = silty
 shly = shaly
 arg = argillaceous
 sdy = sandy
 limy = limy
 carb = carbonaceous

fos = fossil (ferous)
 calc = calcite (areous)
 anhy = anhydrite (ic)
 cht = chert
 chy = cherty
 fest = Ironstone
 pybit = pyrobitumen
 glauc = glauconite (ic)
 pyr = pyrite (ic)
 styl = stylolite (ic)
 bk = break
 lam = laminated
 fri = friable
 uncons = unconsolidated
 frac = fracture
 h frac = horizontal fracture
 vert frac = vertical fracture
 sp = small plug sample

CORE LABORATORIES - CANADA, LTD.

Company: COLUMBIA GAS DEVELOPMENT OF CANADA, LTD.
 Well: COLUMBIA ET AL KOTANELEEE YT E-37
 Formation: NAHANNI, MANETOE
 Drilling Fluid: WATER BASE MUD

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Sample Number	Interval Represented, Feet		Permeability to Air, Millidarcys			Permeability Feet	Porosity Per Cent	Porosity Feet	Density, gm/cc		Visual Examination
	Depth	Top	K Max	K50%	KV				Bulk	Grain	
CORED INTERVAL 11412.0' - 13192.0'											
CORE NO. 1 11412.0' - 11444.0' (REC. 0')											
-	11412.0-44.0	32.0	-	-	-	-	-	-	-	-	not received
-	11444.0-26.0	1282.0	-	-	-	-	-	-	-	-	drilled
CORE NO. 2 12726.0' - 12733.0' (REC. 3.0') (1 BOX)											
-	12726.0-29.0	3.0	-	-	-	-	-	-	-	-	sh
-	12729.0-33.0	4.0	-	-	-	-	-	-	-	-	lost core
CORE NO. 3 12733.0' - 12741.0' (REC. 7.0') (2 BOXES)											
-	12733.0-40.0	7.0	-	-	-	-	-	-	-	-	sh
-	12740.0-41.0	1.0	-	-	-	-	-	-	-	-	lost core
-	12741.0-99.0	58.0	-	-	-	-	-	-	-	-	drilled
CORE NO. 4 12799.0' - 12859.0' (REC. 57.0') (16 BOXES)											
1	12799.0-99.9	0.9	3.23	1.09	0.58	2.91	2.0	1.80	2.75	2.80	do1 i p-pv sv anhy carb
2	12799.9-01.2	1.3	7.96	4.98	2.03	10.35	2.9	3.77	2.66	2.74	do1 i p-pv sv anhy carb
3	12801.2-02.7	1.5	30.70	21.20	6.83	46.05	2.0	3.00	2.74	2.79	do1 i p-pv sv anhy carb
4	12802.7-03.5	0.9	16.20	6.68	2.77	14.58	3.7	3.33	2.65	2.76	do1 i p-pv sv anhy carb
bs	12803.6-04.5	0.9	1.28	-	-	1.15	3.8	3.42	2.69	2.79	do1 i p-pv sv anhy carb
6	12804.5-05.2	0.7	77.20	63.20	24.00	54.04	4.4	3.08	2.60	2.72	do1 i p-pv sv anhy carb
7	12805.2-06.1	0.9	10.30	7.11	2.91	9.27	2.8	2.52	2.75	2.83	do1 i p-pv sv anhy carb
8	12806.1-07.0	0.9	11.60	5.38	1.76	10.44	5.5	4.95	2.72	2.88	do1 i p-pv sv anhy carb
9	12807.0-08.1	1.1	1.44	1.29	0.25	1.58	2.3	2.53	2.73	2.80	do1 i p-pv sv anhy carb
10	12808.1-09.2	1.1	25.90	6.64	15.00	28.49	2.7	2.97	2.57	2.64	do1 i p-pv sv anhy carb
11	12809.2-10.6	1.4	*	0.65	0.91	0.91	4.2	5.88	2.50	2.60	do1 i p-pv sv open vert. frac
12	12810.6-12.9	2.3	4.28	3.09	0.36	9.84	3.8	8.74	2.51	2.61	do1 i p-pv sv anhy carb
13	12812.9-14.2	1.3	0.13	0.03	0.15	0.17	5.3	6.89	2.47	2.61	do1 i p-pv sv anhy carb
14	12814.2-15.0	0.8	0.30	0.25	0.10	0.24	3.7	2.96	2.62	2.73	do1 i p-pv sv anhy carb
15	12815.0-16.6	1.6	326.00	1.87	0.24	521.60	3.2	5.12	2.59	2.68	do1 i p-pv sv anhy carb
16	12816.6-17.4	0.8	0.03	0.02	0.01	0.02	1.8	1.44	2.75	2.80	do1 i p-pv sv anhy carb
17	12817.4-18.6	1.2	1.93	1.29	0.13	2.32	2.4	2.88	2.74	2.81	do1 i p-pv sv anhy carb

CORE LABORATORIES - CANADA, LTD.

Company DEVELOPMENT OF CANADA LTD.
 Well COLUMBIA ET AL KOLANEELLEE YT E-37
 Formation MAHANNI, MANETOE
 Drilling Fluid WATER BASE MUD

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CORE NO. 4 CONTINUED

Sample Number	Interval Represented, Feet		Permeability to Air, Millidarcys	Porosity, Per Cent	Porosity, Feet	Density, gm/cc		Visual Examination								
	Depth	Thickness				K.M.	K.G/O		Bulk	Grain						
18	12818.6-19.5	0.9	1.70	0.45	0.11	1.53	2.2	1.98	2.71	2.77	do1	i	p-pv	sv	anh	carb
19	12819.5-20.6	1.1	0.72	0.40	0.13	0.79	3.1	3.41	2.71	2.79	do1	i	p-pv	sv	anh	carb
20	12820.6-21.7	1.1	2.20	0.10	0.22	2.42	3.4	3.74	2.40	2.48	do1	i	p-pv	sv	anh	carb
21	12821.7-22.4	0.7	1.03	0.57	0.68	0.72	3.9	2.73	2.51	2.61	do1	i	p-pv	sv	anh	carb
22	12822.4-23.8	1.4	2.08	1.68	0.15	2.92	1.9	2.66	2.72	2.78	do1	i	p-pv	sv	anh	carb
23	12823.8-24.9	1.1	0.45	0.41	0.36	0.50	3.6	3.96	2.69	2.79	do1	i	p-pv	sv	anh	carb
24	12824.9-25.7	0.8	2.85	1.03	0.43	2.28	3.4	2.72	2.63	2.72	do1	i	p-pv	sv	anh	carb
25	12825.7-27.2	1.5	1.17	0.97	0.32	1.76	2.7	4.05	2.73	2.81	do1	i	p-pv	sv	anh	carb
26	12827.2-28.2	1.0	1.94	1.00	1.53	1.94	1.9	1.90	2.74	2.79	do1	i	p-pv	sv	any	carb
27	12828.2-29.2	1.0	0.87	0.85	0.69	0.87	2.2	2.20	2.75	2.81	do1	i	p-pv	sv	anh	carb
28	12829.2-30.3	1.1	1.15	0.90	0.11	1.27	2.4	2.64	2.74	2.81	do1	i	p-pv	sv	anh	carb
29	12830.3-31.0	0.7	2.17	0.90	0.11	1.52	2.1	1.47	2.72	2.77	do1	i	p-pv	sv	anh	carb
30	12831.0-31.7	0.7	0.17	0.17	0.10	0.12	2.6	1.82	2.74	2.82	do1	i	p-pv	sv	anh	carb
31	12831.7-32.8	1.1	0.48	0.31	0.13	0.53	5.1	5.61	2.71	2.86	do1	i	p-pv	sv	anh	carb
32	12832.8-34.2	1.4	0.74	0.66	0.23	1.04	3.1	4.34	2.67	2.75	do1	i	p-pv	sv	anh	carb
33	12834.2-35.3	1.1	19.80	16.40	2.77	2.97	2.7	4.07	2.69	2.80	do1	i	p-pv	sv	anh	carb
34	12835.3-35.8	0.5	5.94	3.91	1.03	4.94	1.2	1.35	2.73	2.81	do1	i	p-pv	sv	anh	carb
35	12835.8-36.5	0.7	7.06	5.54	0.85	4.80	1.2	2.75	2.75	2.82	do1	i	p-pv	sv	anh	carb
36	12836.5-37.6	1.1	4.36	4.05	1.03	0.75	2.7	1.62	2.74	2.82	do1	i	p-pv	sv	anh	carb
37	12837.6-38.2	0.6	1.25	1.09	0.51	2.72	2.8	2.80	2.75	2.83	do1	i	p-pv	sv	anh	carb
38	12838.2-39.2	1.0	2.72	1.25	0.59	2.33	3.4	3.40	2.70	2.79	do1	i	p-pv	sv	anh	carb
39	12839.2-40.2	1.0	2.33	1.28	1.64	4.58	3.6	4.32	2.63	2.74	do1	i	p-pv	sv	anh	carb
40	12840.2-41.4	1.2	3.82	0.62	0.43	1.04	2.2	3.52	2.75	2.81	do1	i	p-pv	sv	anh	carb
41	12841.4-43.0	1.6	0.65	0.63	0.24	2.28	5.1	2.55	2.67	2.81	do1	i	p-pv	sv	anh	carb
b42	12843.0-43.5	0.5	4.55	4.23	2.13	2.56	2.8	1.40	2.74	2.82	do1	i	p-pv	sv	anh	carb
43	12843.5-44.0	0.5	5.12	2.23	1.20	1.36	2.2	1.10	2.75	2.81	do1	i	p-pv	sv	anh	carb
44	12844.0-44.5	0.5	2.71	1.44	1.34	1.78	2.6	2.60	2.75	2.82	do1	i	p-pv	sv	anh	carb
45	12844.5-45.5	1.0	1.78	1.30	0.94	4.10	4.1	4.92	2.71	2.83	do1	i	p-pv	sv	anh	carb
46	12845.5-46.7	1.2	4.06	3.86	2.97	4.10	3.0	2.40	2.71	2.80	do1	i	p-pv	sv	anh	carb
47	12846.7-47.5	0.8	5.13	4.64	0.89	4.29	2.8	2.80	2.74	2.82	do1	i	p-pv	sv	anh	carb
48	12847.5-48.5	1.0	4.29	3.30	0.89	4.29	2.8	2.80	2.74	2.82	do1	i	p-pv	sv	anh	carb
49	12848.5-49.4	0.9	1.04	0.40	0.83	0.94	2.2	1.98	2.72	2.79	do1	i	p-pv	sv	anh	carb
50	12849.4-50.2	0.8	0.40	0.34	0.17	0.32	2.6	2.08	2.72	2.79	do1	i	p-pv	sv	anh	carb



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Well COLUMBIA ET AL KOTANELEE YT E-37

Formation NAHANNI, MANETOE
Drilling Fluid WATER BASE MUD

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Sample Number	Interval Reported Feet		Permeability to Air: Millidarcys			Permeability Feet	Porosity Per Cent	Porosity Feet	Density, gm/cc		Visual Examination
	Depth	Thickness	K Max	K50%	KV				Bulk	Grain	

CORE NO. 4 CONTINUED

51	12850.2-51.0	0.8	4.91	3.88	1.65	3.93	3.5	2.80	2.72	2.82	do1 i	p-pv	sv	anhy	carb
52	12851.0-51.8	0.8	2.27	1.34	1.57	1.82	3.2	2.56	2.69	2.78	do1 i	p-pv	sv	anhy	carb
53	12851.8-52.6	0.8	25.60	2.60	1.10	20.48	5.2	4.16	2.65	2.79	do1 i	p-pv	sv	anhy	carb
54	12852.6-53.5	0.9	1.14	0.35	0.21	1.03	2.0	1.80	2.71	2.76	do1 i	p-pv	sv	anhy	carb
55	12853.5-54.6	1.1	0.45	0.36	0.28	0.50	2.9	3.19	2.76	2.84	do1 i	p-pv	sv	anhy	carb
56	12854.6-56.0	1.4	1.64	1.29	0.60	2.30	2.6	3.64	2.76	2.83	do1 i	p-pv	sv	anhy	carb
-	12856.0-59.0	3.0	-	-	-	-	-	-	-	-	lost	core			

CORE NO. 5 12859.0' - 12919.0' (REC. 55.5') (16 BOXES)

57	12859.0-60.0	1.0	1.71	1.27	0.43	1.71	3.6	3.60	2.70	2.80	do1 i	p-pv	sv	anhy	carb
58	12860.0-60.8	0.8	1.39	1.59	0.99	1.59	3.1	2.48	2.73	2.82	do1 i	p-pv	sv	anhy	carb
59	12860.8-61.6	0.8	0.75	0.69	0.22	0.60	2.9	2.32	2.69	2.77	do1 i	p-pv	sv	anhy	carb
60	12861.6-62.4	0.8	1.63	1.32	0.43	1.30	2.7	2.16	2.74	2.82	do1 i	p-pv	sv	anhy	carb
61	12862.4-63.7	1.3	4.54	4.02	0.51	5.90	3.3	4.29	2.73	2.82	do1 i	p-pv	sv	anhy	carb
62	12863.7-64.6	0.9	4.31	4.24	1.14	3.88	3.6	3.24	2.73	2.84	do1 i	p-pv	sv	anhy	carb
63	12864.6-55.6	1.0	20.00	11.00	36.80	20.00	9.1	9.10	2.38	2.62	do1 i	p-pv	anhy	carb	vert frac
64	12865.6-66.3	0.7	3.45	2.92	1.03	2.42	4.7	3.29	2.64	2.78	do1 i	p-pv	anhy	carb	
65	12865.3-67.3	1.0	2.56	1.61	0.52	2.56	3.4	3.40	2.72	2.82	do1 i	p-pv	anhy	carb	
66	12867.3-68.3	1.0	3.81	3.71	0.50	3.81	3.0	3.00	2.75	2.83	do1 i	p-pv	anhy	carb	
67	12868.3-68.8	0.5	2.52	2.47	1.21	1.26	4.3	2.15	2.73	2.85	do1 i	p-pv	sv	anhy	
69	12868.8-70.2	1.4	1.94	1.67	0.46	2.72	3.3	4.62	2.73	2.82	do1 i	p-pv	sv	anhy	
70	12870.2-70.7	0.5	35.30	1.81	1.29	17.65	6.6	3.30	2.66	2.85	do1 i	p-pv	sv	anhy	
71	12871.3-72.2	0.6	225.00	28.40	6.09	135.00	3.1	1.86	2.75	2.84	do1 i	p-pv	sv	anhy	vert frac
72	12872.2-73.1	0.9	22.40	14.10	1.43	20.16	3.9	3.51	2.72	2.83	do1 i	p-pv	sv	anhy	
73	12873.1-74.1	0.0	3.50	4.13	1.44	4.58	2.9	2.61	2.76	2.85	do1 i	p-pv	sv	anhy	
74	12874.1-75.3	1.2	3.68	2.90	1.41	3.50	3.3	3.30	2.72	2.81	do1 i	p-pv	sv	anhy	
75	12875.3-76.1	0.8	5.69	5.50	1.80	4.55	5.5	4.40	2.63	2.78	do1 i	p-pv	sv	anhy	carb
76	12876.1-77.1	1.0	23.90	23.60	2.19	23.90	3.6	3.60	2.71	2.82	do1 i	p-pv	sv	anhy	
77	12877.1-78.0	0.9	7.53	5.49	1.51	6.78	3.6	3.24	2.74	2.84	do1 i	p-pv	sv	anhy	
78	12878.0-78.8	0.8	2.80	2.12	0.94	2.24	3.1	2.48	2.73	2.82	do1 i	p-pv	sv	anhy	

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Formation
Drilling Fluid

NAHANNI, MANIOTÉ
WATER BASE MUD

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CORE NO. 5 CONTINUED

Sample Number	Interval Represented, Feet		Permeability to Air, Millidarcys	KV	Permeability, Feet	Porosity, Per Cent	Porosity, Feet	Density, gm/cc		Visual Examination	
	Depth	Thickness						K Max	K90		Bulk
79	12878.8-79.7	0.9	1.18	0.48	0.06	1.06	2.4	2.16	2.74	2.81	doi i p-pv sv anhy
80	12879.7-80.9	1.2	1.45	1.08	0.50	1.74	2.3	2.76	2.74	2.81	doi i p-pv sv anhy
81	12880.9-81.8	0.9	0.73	0.51	0.43	0.66	2.5	2.25	2.77	2.84	doi i p-pv sv anhy
82	12881.8-82.9	1.1	1.33	0.60	0.27	1.46	2.2	2.42	2.77	2.83	doi i p-pv sv anhy
83	12882.9-83.9	1.0	19.70	14.00	0.40	19.70	2.7	2.70	2.72	2.80	doi i p-pv sv anhy
84	12883.9-84.6	0.7	8.03	7.24	1.32	5.62	4.8	3.36	2.53	2.66	doi i p-pv sv anhy
85	12884.6-85.7	1.1	5.07	4.73	1.51	5.58	4.1	4.51	2.58	2.69	doi i p-pv sv anhy
86	12885.7-86.9	1.2	28.20	7.56	0.05	33.84	2.4	2.88	2.74	2.81	doi i p-pv sv anhy
87	12886.9-87.8	0.9	1.75	1.42	0.19	1.58	2.4	2.16	2.77	2.84	doi i p-pv sv anhy
88	12887.8-88.7	0.9	103.00	2.40	0.27	92.70	3.1	2.79	2.68	2.76	doi i p-pv sv carb
89	12888.7-89.5	0.8	1.98	1.32	0.11	1.58	2.7	2.16	2.70	2.78	doi i p-pv sv carb
90	12889.5-90.7	1.2	3.07	2.43	0.14	3.68	2.1	2.52	2.74	2.80	doi i p-pv sv carb
91	12890.7-91.6	0.9	11.80	4.73	1.02	10.62	3.4	3.06	2.63	2.73	doi i p-pv anhy carb
92	12891.6-92.6	1.0	4.99	3.55	1.31	4.99	3.5	3.50	2.64	2.74	doi i p-pv anhy carb
93	12892.6-93.5	0.9	2.37	1.78	0.51	2.13	4.0	3.60	2.78	2.90	doi i p-pv scat sv anhy carb
94	12893.5-94.6	1.1	30.90	16.00	0.74	33.99	3.6	3.96	2.60	2.70	doi i p-pv sv anhy carb h frac
95	12894.6-95.3	0.9	4.89	1.28	0.54	3.42	3.6	2.52	2.63	2.73	doi i p-pv sv anhy carb
96	12895.3-96.2	0.7	1.01	0.89	0.20	0.91	2.4	2.16	2.69	2.76	doi i p-pv sv anhy carb
97	12896.2-96.8	0.6	2.91	1.70	0.85	1.75	3.0	3.00	2.68	2.77	doi i p-pv sv anhy carb
98	12896.8-97.8	1.0	5.45	3.54	0.59	5.45	3.0	3.00	2.75	2.83	doi i p-pv sv anhy carb
99	12897.8-99.0	1.2	1.53	0.61	0.19	1.84	4.4	5.28	2.56	2.68	doi i p-pv sv anhy carb
100	12899.0-99.7	0.7	5.65	2.87	0.13	3.96	3.2	2.24	2.62	2.71	doi i p-pv sv anhy carb
101	12899.7-00.5	0.8	0.83	0.38	0.19	0.66	3.1	2.48	2.69	2.78	doi i p-pv sv anhy carb
102	12900.5-01.0	0.5	2.37	1.50	0.41	1.19	4.3	2.15	2.55	2.67	doi i p-pv sv anhy carb
103	12901.0-01.5	0.5	8.08	6.50	3.38	6.62	3.6	1.80	2.66	2.76	doi i p-pv sv anhy carb
104	12901.5-02.3	0.8	4.78	7.34	2.04	8.14	2.2	3.74	2.72	2.78	doi i p-pv sv anhy carb
105	12902.3-04.0	0.8	8.29	4.46	0.83	8.14	2.0	1.60	2.77	2.83	doi i p-pv sv anhy carb
106	12904.0-04.8	0.9	5.51	3.54	0.24	5.21	2.2	1.98	2.76	2.82	doi i p-pv sv anhy carb
107	12904.8-05.7	1.2	3.54	2.48	0.51	3.19	2.2	2.64	2.77	2.84	doi i p-pv sv anhy carb
108	12905.7-06.9	1.0	2.25	1.93	0.86	2.25	1.9	1.90	2.75	2.80	doi i p-pv sv anhy carb
109	12906.9-07.9	1.0	2.25	1.93	0.86	2.25	1.9	1.90	2.75	2.80	doi i p-pv sv anhy carb
110	12907.9-08.9	1.0	1.68	1.58	0.95	1.68	2.3	3.30	2.73	2.80	doi i p-pv sv anhy carb

CORE LABORATORIES - CANADA, LTD.

COLUMBIA GAS DEVELOPMENT OF CANADA LTD.
 COLUMBIA FT AL KOTANELEE YT E-37
 Formation: NAHANNI, MANETOE
 Drilling Fluid: WATER BASE MUD

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 File 7004-8573

Sample Number	Interval Represented: Feet		Permeability to Air, Millidarcys	KV	Permeability Feet	Porosity, Per Cent	Porosity Feet	Density, gm/cc		Visual Examination
	Depth	Thick						K-Max	K90	

CORE NO. 5 CONTINUED

111	12908.9-09.9	1.0	1.89	1.05	0.30	1.89	2.7	2.70	2.76	2.83	do1	i	p-pv	sv	anhy	carb	
112	12909.9-10.6	0.7	5.44	2.98	1.30	3.81	11.3	7.91	2.50	2.82	do1	i	p-pv	sv	anhy	carb	
113	12910.6-11.3	0.7	5.77	3.50	0.64	4.04	3.7	2.59	2.67	2.77	do1	i	p-pv	sv	anhy	carb	
114	12911.3-12.5	1.2	4.12	4.06	0.36	4.94	3.9	4.68	2.65	2.76	do1	i	p-pv	sv	anhy	carb	
115	12912.5-13.5	1.0	1.78	1.66	0.33	1.78	3.4	3.40	2.71	2.81	do1	i	p-pv	sv	anhy	carb	
116	12913.5-14.5	1.0	5.12	2.72	1.12	5.12	3.4	3.40	2.68	2.78	do1	i	p-pv	sv	anhy	carb	
-	12914.5-19.0	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	lost core

CORE NO. 6 12919.0' - 12969.0' (REC. 48.0') (14 BOXES)

117	12919.0-19.6	0.6	6.08	3.92	0.47	3.65	3.2	1.92	2.73	2.82	do1	i	p-pv	sv	anhy	carb
118	12919.6-20.2	0.6	9.90	9.32	1.13	5.94	2.3	1.38	2.73	2.80	do1	i	p-pv	sv	anhy	carb
119	12920.2-21.0	0.8	5.92	4.87	0.82	4.74	4.3	3.44	2.63	2.75	do1	i	p-pv	sv	anhy	carb
120	12921.0-22.1	1.1	48.70	34.90	5.47	53.57	5.2	5.72	2.51	2.81	do1	i	p-pv	sv	anhy	carb
121	12922.1-22.8	0.7	11.10	6.81	0.43	7.77	3.0	2.10	2.71	2.80	do1	i	p-pv	sv	anhy	carb
122	12922.8-23.6	0.8	1220.00	219.00	4.99	976.00	3.5	2.80	2.66	2.76	do1	i	p-pv	sv	anhy	carb
123	12923.6-24.6	1.0	15.10	11.30	1.85	15.10	3.0	3.00	2.67	2.76	do1	i	p-pv	sv	anhy	carb
124	12924.6-25.3	0.7	29.40	24.20	2.08	20.58	4.1	2.87	2.64	2.75	do1	i	p-pv	sv	anhy	carb
125	12925.3-26.6	1.3	**	8.01	0.25	10.40	4.2	5.46	2.66	2.78	do1	i	p-pv	sv	anhy	carb
126	12926.6-28.0	1.4	3.06	2.29	0.61	4.28	2.3	3.23	2.74	2.81	do1	i	p-pv	sv	anhy	carb
127	12928.0-28.8	0.8	2.10	1.33	0.21	1.68	2.2	1.76	2.75	2.81	do1	i	p-pv	sv	anhy	carb
128	12928.8-30.5	1.7	3.21	2.43	0.85	5.46	2.3	3.91	2.70	2.77	do1	i	p-pv	sv	anhy	carb
129	12930.5-31.2	0.7	2.49	2.36	0.61	1.74	2.1	1.47	2.69	2.75	do1	i	p-pv	sv	anhy	carb
130	12931.2-32.2	1.0	5.86	5.16	0.90	5.86	3.2	3.20	2.85	2.76	do1	i	p-pv	sv	anhy	carb
131	12932.2-33.0	0.8	10.30	8.74	0.92	8.24	2.4	1.92	2.68	2.75	do1	i	p-pv	sv	anhy	carb
132	12933.0-34.0	1.0	8.32	7.61	1.92	8.32	3.1	3.10	2.65	2.74	do1	i	p-pv	sv	anhy	carb
133	12934.0-34.8	0.8	5.12	4.15	0.28	4.10	1.8	1.44	2.73	2.78	do1	i	p-pv	sv	anhy	carb
134	12934.8-35.9	1.1	5.80	4.86	0.42	6.38	2.3	2.53	2.72	2.79	do1	i	p-pv	sv	anhy	carb
135	12935.9-36.5	0.6	17.90	15.30	0.98	10.74	2.8	1.68	2.71	2.79	do1	i	p-pv	sv	anhy	carb
136	12936.5-37.3	0.8	16.70	6.94	0.88	13.36	2.9	2.32	2.72	2.80	do1	i	p-pv	sv	anhy	carb
137	12937.3-38.5	1.2	0.71	0.60	0.35	0.85	1.7	2.04	2.77	2.82	do1	i	p-pv	sv	anhy	carb
138	12938.5-39.5	1.0	0.53	0.18	0.49	0.53	1.9	1.90	2.77	2.82	do1	i	p-pv	sv	anhy	carb
139	12939.5-40.1	0.6	1.05	0.77	0.12	0.63	4.3	2.58	2.69	2.81	do1	i	p-pv	sv	anhy	carb

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CORE LABORATORIES - CANADA, LTD.

Company COLUMBIA GAS DEVELOPMENT OF CANADA LTD.
 Well COLUMBIA ET AL KOTANELEE YT E-37
 Formation Formation NAHANNI, MANETOE
 Drilling Fluid WATER BASE MUD

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 File 7004-8573

CORE NO. 6 CONTINUED

Sample Number	Interval Represented, Feet			Permeability to Air, Millidarcys				Permeability Feet	Porosity, Per Cent	Porosity Feet	Density, gm/cc		Visual Examination
	Depth	Thickness	< Mud	K ₅₀₀	K _V	Feet	Bank				Grain		
140	12940.1-41.2	1.1	0.15	0.09	0.09	0.17	1.6	1.76	2.77	2.82	do 1	p-pv	sv anhy carb
141	12941.2-42.3	1.1	1.80	1.31	0.68	1.98	2.0	2.20	2.75	2.81	do 1	p-pv	sv anhy carb
142	12942.3-43.1	0.8	6.12	2.52	0.59	4.90	3.1	2.48	2.70	2.79	do 1	p-pv	sv anhy carb
143	12943.1-43.9	0.8	10.60	6.56	0.83	8.48	2.4	1.92	2.71	2.78	do 1	p-pv	sv anhy carb
144	12943.9-44.9	1.0	39.50	21.40	1.14	39.50	2.8	2.80	2.67	2.75	do 1	p-pv	sv anhy carb
145	12944.9-45.9	1.0	6.15	5.79	0.85	6.15	2.5	2.50	2.69	2.75	do 1	p-pv	sv anhy carb
146	12945.9-46.7	0.8	6.77	6.35	1.98	5.42	3.3	2.64	2.71	2.81	do 1	p-pv	sv anhy carb
b147	12946.7-47.4	0.7	0.30	-	-	0.31	2.6	1.82	2.74	2.81	do 1	p-pv	sv anhy carb
148	12947.4-48.7	1.3	90.10	50.40	2.17	17.13	3.3	4.29	2.66	2.76	do 1	p-pv	sv anhy carb
149	12948.7-49.5	0.8	105.00	31.50	2.44	84.00	2.7	2.16	2.72	2.80	do 1	p-pv	sv anhy carb
150	12949.5-50.3	0.8	22.20	9.45	1.91	17.76	2.7	2.16	2.70	2.77	do 1	p-pv	sv anhy carb
151	12950.3-50.8	0.5	38.40	21.70	2.12	19.20	3.9	1.95	2.71	2.82	do 1	p-pv	sv anhy carb
152	12950.8-51.9	1.1	13.20	9.03	0.38	14.52	3.4	3.74	2.67	2.77	do 1	p-pv	sv anhy carb
153	12951.9-53.1	1.2	13.70	11.10	2.92	16.44	3.3	3.96	2.67	2.77	do 1	p-pv	sv anhy carb
154	12953.1-54.1	1.0	9.37	8.05	0.66	9.37	2.8	2.80	2.76	2.84	do 1	p-pv	sv anhy carb
155	12954.1-55.1	1.0	114.00	110.00	9.67	114.00	3.4	3.40	2.73	2.83	do 1	p-pv	sv anhy carb
156	12955.1-56.2	1.1	11.70	10.10	0.58	12.87	2.9	3.19	2.75	2.83	do 1	p-pv	sv anhy carb
157	12956.2-57.2	1.0	21.30	15.50	0.35	21.30	2.1	1.32	2.77	2.84	do 1	p-pv	sv anhy carb
159	12957.2-57.8	0.6	2.97	2.77	0.37	1.78	2.2	1.30	2.78	2.83	do 1	p-pv	sv anhy carb
159	12957.8-59.1	1.3	39.30	5.62	2.49	51.09	3.7	4.81	2.69	2.80	do 1	p-pv	sv anhy carb
160	12959.1-60.1	1.0	2.23	-	-	2.23	5.1	5.10	2.69	2.83	do 1	p-pv	sv anhy carb
b161	12960.1-60.7	0.6	0.17	-	-	0.10	2.7	1.62	2.71	2.79	do 1	p-pv	sv anhy carb
b162	12960.7-61.6	0.9	26.10	17.70	0.78	23.49	2.2	1.98	2.76	2.82	do 1	p-pv	sv anhy carb
b163	12961.6-62.6	1.0	2.19	-	-	2.19	3.2	3.20	2.75	2.84	do 1	p-pv	sv anhy carb
b164	12962.6-63.8	1.2	1.84	-	-	2.21	2.8	3.36	2.68	2.76	do 1	p-pv	sv anhy carb
165	12963.8-65.0	1.2	14.50	7.48	0.32	17.40	1.6	1.92	2.77	2.81	do 1	p-pv	sv anhy carb
166	12965.0-66.2	1.2	1.47	0.47	0.12	1.76	2.4	2.88	2.74	2.81	do 1	p-pv	sv anhy carb
167	12966.2-67.0	0.8	1.16	1.16	0.95	0.93	1.5	1.20	2.75	2.80	do 1	p-pv	sv anhy carb
-	12967.0-69.0	2.0	-	-	-	-	-	-	-	-	lost core		
-	12969.0-32.0	163.0	-	-	-	-	-	-	-	-	drilled		

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Information: NAHANNI, MANITO
 Logging Fluid: WATER BASE MUD

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 File 7004-8573

Company: COLUMBIA GAS DEVELOPMENT OF CANADA LTD.
 Well: COLUMBIA ET AL KOTANEELIEE VT E-37

Sample Number	Interval Recorred: Feet		Permeability to Air: Millidarcy	
	Depth	Thick	K _{FA}	KSD

CORE NO. 7 13132.0' - 13192.0' (REC.)

168	13132.0-32.9	0.9	9.18	8.31
169	13132.9-33.5	0.6	3.56	3.32
170	13133.5-34.0	0.5	9.41	5.87
171	13134.0-34.7	0.7	1.98	1.63
172	13134.7-35.2	0.5	11.00	6.44
173	13135.2-36.2	1.0	15.70	9.61
b174	13136.2-36.6	0.4	0.05	-
175	13136.6-37.2	0.6	6.13	4.60
176	13137.2-37.7	0.5	5.40	5.03
177	13137.7-38.5	0.8	7.16	3.56
178	13138.5-39.1	0.6	8.23	7.92
179	13139.1-39.7	1.5	12.20	11.90
180	13139.7-40.2	0.5	5.63	3.41
181	13140.2-40.9	0.7	7.08	2.07
182	13140.9-41.7	0.8	0.44	0.43
183	13141.7-42.7	1.0	10.90	10.40
184	13142.7-43.5	0.8	18.30	11.40
185	13143.5-44.4	0.9	2.46	2.23
186	13144.4-45.0	0.6	19.50	12.20
b187	13145.0-45.8	0.8	0.89	-
188	13145.8-46.7	0.9	9.77	8.42
189	13146.7-47.7	1.0	6.16	3.70
190	13147.7-48.4	0.7	1.99	1.65
191	13148.4-48.8	0.4	12.60	11.20
b192	13148.8-50.2	1.4	0.11	-
193	13150.2-50.9	0.7	9.78	9.55
b194	13150.9-51.9	1.0	0.47	-
195	13151.9-52.8	0.9	2.62	2.31
b196	13152.8-53.8	1.0	0.50	-
b197	13153.8-54.8	1.0	5.24	-
198	13154.8-55.6	0.8	12.00	7.36
b199	13155.6-56.5	0.9	0.03	-

(55.0') (16 BOXES)

KV	Permeability Feet	Porosity Per Cent	Porosity Feet	Density, gm/cc		do1	i	p-pv	sv	anhy
				Suk	Gam					
1.28	8.26	6.0	5.40	2.71	2.88	do1	i	p-pv	sv	anhy
0.59	2.14	4.6	2.76	2.73	2.86	do1	i	p-pv	sv	anhy
1.34	4.72	5.5	2.75	2.68	2.84	do1	i	p-pv	sv	anhy
0.46	1.39	3.3	2.31	2.76	2.86	do1	i	p-pv	sv	anhy
0.66	5.50	5.8	2.90	2.70	2.87	do1	i	p-pv	sv	anhy
0.56	15.70	3.4	3.40	2.77	2.87	do1	i	p-pv	sv	anhy
1.54	0.02	5.9	2.36	2.68	2.85	do1	i	p-pv	sv	anhy
1.23	3.68	3.8	2.28	2.75	2.86	do1	i	p-pv	sv	anhy
0.30	2.70	3.4	1.75	2.77	2.87	do1	i	p-pv	sv	anhy
0.82	5.73	3.5	2.72	2.75	2.85	do1	i	p-pv	sv	anhy
0.68	4.94	4.9	2.94	2.74	2.88	do1	i	p-pv	sv	anhy
0.68	7.32	4.8	2.88	2.71	2.85	do1	i	p-pv	sv	anhy
0.67	2.82	3.1	1.55	2.77	2.86	do1	i	p-pv	sv	anhy
0.38	4.96	2.9	2.03	2.77	2.86	do1	i	p-pv	sv	anhy
0.06	0.35	2.9	2.32	2.80	2.89	do1	i	p-pv	sv	anhy
0.68	10.90	2.8	2.80	2.77	2.85	do1	i	p-pv	sv	anhy
1.68	14.64	2.4	1.92	2.73	2.80	do1	i	p-pv	sv	anhy
0.25	2.21	3.0	2.70	2.78	2.86	do1	i	p-pv	sv	anhy
0.60	11.70	3.1	1.86	2.77	2.86	do1	i	p-pv	sv	anhy
0.79	0.71	4.1	3.28	2.75	2.86	do1	i	p-pv	sv	anhy
0.79	8.79	4.4	3.96	2.75	2.88	do1	i	p-pv	sv	anhy
3.66	6.16	3.2	3.20	2.75	2.84	do1	i	p-pv	sv	anhy
0.49	1.39	4.0	2.80	2.74	2.86	do1	i	p-pv	sv	anhy
0.11	5.04	3.0	1.20	2.77	2.85	do1	i	p-pv	sv	anhy
0.15	0.15	2.9	4.06	2.76	2.84	do1	i	p-pv	sv	anhy
0.05	6.85	2.9	2.03	2.77	2.85	do1	i	p-pv	sv	anhy
0.27	0.47	5.1	5.10	2.74	2.89	do1	i	p-pv	sv	anhy
0.24	2.36	2.4	2.16	2.78	2.85	do1	i	p-pv	sv	anhy
0.50	0.50	6.6	6.60	2.68	2.87	do1	i	p-pv	sv	anhy
5.24	5.24	6.7	6.70	2.71	2.90	do1	i	p-pv	sv	anhy
9.60	9.60	3.5	2.80	2.75	2.85	do1	i	p-pv	sv	anhy
0.03	0.03	5.9	5.31	2.71	2.88	do1	i	p-pv	sv	anhy

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V. Wall
 Examination

CORE LABORATORIES - CANADA, LTD.

Company COLUMBIA GAS DEVELOPMENT OF CANADA LTD.
 Well COLUMBIA ET AL KOTANEELLEE YT E-37
 Formation MAHANNI, MANETOE
 Drilling Fluid WATER BASE MUD

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 File 7004-8573

CORE NO. 7 CONTINUED

Sample Number	Interval Represented, Feet		K Max	Permeability to Air, Millidarcys		Porosity, Per Cent	Porosity, Feet	Density, gm/cc		Visal Examination	
	Depth	Thick		K _{90°}	KV			Bulk	Grain		
200	13156.5-57.3	0.8	29.20	21.40	0.82	23.36	2.7	2.16	2.80	2.88	do1 i p-pv sw anhy
201	13157.3-57.8	0.5	3.98	3.87	0.22	1.99	2.7	1.35	2.79	2.87	do1 i p-pv sw anhy
202	13157.8-58.4	0.6	20.10	7.84	0.16	12.06	2.6	1.56	2.79	2.86	do1 i p-pv sw anhy
203	13158.4-59.2	0.8	10.40	9.63	1.77	8.32	2.6	2.08	2.78	2.86	do1 i p-pv sw anhy
204	13159.2-59.9	0.7	4.21	2.86	1.31	2.95	3.0	2.10	2.78	2.87	do1 i p-pv sw anhy
205	13159.9-60.7	0.8	9.78	5.81	0.15	7.82	3.1	2.48	2.77	2.86	do1 i p-pv sw anhy
206	13160.7-61.4	0.7	2.28	1.78	0.26	1.60	2.7	1.89	2.78	2.86	do1 i p-pv sw anhy
207	13161.4-62.0	0.6	23.60	14.70	0.81	14.16	1.0	0.60	2.78	2.81	do1 i p-pv sw anhy
208	13162.0-62.6	0.6	4.67	2.96	0.36	2.80	4.1	2.46	2.74	2.86	do1 i p-pv sw anhy
209	13162.6-63.6	1.0	1.0	0.84	0.48	1.07	2.6	2.60	2.78	2.86	do1 i p-pv sw anhy
210	13163.6-64.4	0.8	14.40	9.02	1.52	11.52	3.9	3.12	2.74	2.86	do1 i p-pv sw anhy
211	13164.4-65.7	1.3	2.85	2.79	0.93	3.71	2.8	3.64	2.77	2.86	do1 i p-pv sw anhy
212	13165.7-66.6	0.9	1.62	0.76	0.13	1.46	3.2	2.88	2.75	2.84	do1 i p-pv sw anhy
b213	13166.6-67.4	0.8	1.37	-	-	1.10	4.8	3.84	2.72	2.86	do1 i p-pv sw anhy
214	13167.4-68.2	0.8	4.79	3.08	1.09	3.83	3.3	2.64	2.75	2.84	do1 i p-pv sw anhy
215	13168.2-68.9	0.7	15.70	9.79	0.84	10.99	3.4	2.38	2.75	2.84	do1 i p-pv sw anhy
216	13168.9-69.8	0.9	85.70	29.60	3.85	77.13	4.9	4.41	2.71	2.85	do1 i p-pv sw anhy
217	13169.8-70.4	0.6	60.50	26.40	3.23	36.30	5.4	3.24	2.70	2.86	do1 i p-pv sw anhy
218	13170.4-71.2	0.8	25.70	6.69	0.47	20.56	3.1	2.48	2.76	2.85	do1 i p-pv sw anhy
219	13171.2-71.7	0.5	9.03	6.16	1.12	4.52	4.0	2.00	2.73	2.85	do1 i p-pv sw anhy
220	13171.7-72.1	0.4	4.18	3.98	1.62	1.67	9.3	3.72	2.57	2.85	do1 i p-pv sw anhy
221	13172.1-73.4	1.3	6.74	4.56	0.80	8.76	6.0	7.80	2.57	2.73	do1 i p-pv sw anhy carb
222	13173.4-74.4	1.0	1.60	5.18	2.02	11.60	5.5	5.50	2.70	2.85	do1 i p-pv sw anhy
223	13174.4-75.2	0.8	42.30	23.30	3.48	33.84	8.0	6.40	2.64	2.87	do1 i p-pv sw anhy
224	13175.2-75.8	0.6	13.90	4.92	1.67	8.34	4.9	2.94	2.71	2.86	do1 i p-pv sw anhy
225	13175.8-76.3	0.5	37.00	25.00	21.60	18.50	9.6	4.80	2.59	2.87	do1 i p-pv sw anhy
226	13176.3-77.0	0.7	7.40	6.05	0.81	5.18	2.8	1.96	2.77	2.85	do1 i p-pv sw anhy
227	13177.0-77.7	0.7	9.17	6.35	1.25	6.42	4.4	3.08	2.73	2.85	do1 i p-pv sw anhy
228	13177.7-78.7	1.0	2.48	2.33	0.37	2.48	2.2	2.20	2.78	2.84	do1 i p-pv sw anhy
229	13178.7-79.3	0.6	19.90	16.70	0.30	11.94	6.7	1.62	2.76	2.84	do1 i p-pv sw anhy
b230	13179.3-80.3	1.0	0.60	-	-	0.60	2.7	6.70	2.75	2.84	do1 i p-pv sw anhy
231	13180.3-81.3	1.0	10.80	9.05	0.91	10.80	3.4	3.40	2.65	2.84	do1 i p-pv sw anhy
232	13181.3-82.2	0.9	2100.00	25.50	1.20	1890.00	8.8	7.92	2.61	2.86	do1 i p-pv sw anhy

CORE LABORATORIES - CANADA, LTD.

Company
COLUMBIA GAS
DEVELOPMENT OF CANADA LTD.
COLUMBIA ET AL KOTAMEELEE YT E-37
Well

Formation
Drilling Fluid
NANAIMI, MANITOE
WATER BASE MUD

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File 7004-8573

CORE NO. 7 CONTINUED

Sample Number	Interval Represented, Feet		K.M.	Permeability to Air, Millidarcys		KV	Permeability Feet	Porosity, Per Cent	Porosity Feet	Density, gm./cc.		Visc. Examination
	Depth	Thick		K900	KV					Bulk	Grain	
233	13182.2-82.6	0.4	38.10	38.10	2.14	15.24	5.0	2.00	2.69	2.84	do1 i	p-pv sv anhy
234	13182.6-83.4	0.8	1.48	1.29	0.76	1.18	3.0	2.40	2.76	2.85	do1 i	p-pv sv anhy
235	13183.4-84.1	0.7	29.90	9.66	2.55	20.93	5.4	3.78	2.68	2.84	do1 i	p-pv sv anhy
236	13184.1-85.1	1.0	34.10	34.10	1.52	34.10	5.3	5.30	2.70	2.85	do1 i	p-pv sv anhy
237	13185.1-85.7	0.6	23.10	6.42	1.37	13.86	6.7	4.02	2.64	2.83	do1 i	p-pv sv anhy
238	13185.7-87.0	1.3	0.18	-	-	0.23	7.2	9.36	2.64	2.85	do1 i	p-pv sv anhy
-	13187.0-92.0	5.0	-	-	-	-	-	-	-	-	lost core	

CORE LABORATORIES - CANADA, LTD.

Petroleum Reservoir Engineering

COLUMBIA ET AL KOTANNELEEE YT E-37

NAHANNI, MANEJOE

PAGE: 11 OF 11

WELL: COLUMBIA ET AL KOTANNELEEE YT E-37

FILE: 7004-8573

FORMATION: NAHANNI, MANEJOE

SUMMARY INTERVAL: 11412.0 - 13192.0

TOTAL FOOTAGE: 1730.0

FOOTAGE ANALYZED: 215.5

FOOTAGE NOT ANALYZED: TOTAL 1564.5

DENSE 10.0

LOST 19.5

DRILLED 503.0

*NABR 32.0

RUBBLE 0.0

BY PERM RANGES:

ESS THAN 0.01 MD.

0.01 0.09 MD.

0.10 0.49 MD.

0.50 0.99 MD.

1.0 9.99 MD.

GREATER THAN 9.99 MD.

FOOTAGE	% OF ANALYZED CORE	WEIGHTED AVERAGE POROS. %	POSSIBLY NET	WEIGHTED AVERAGE PERM. MD.	PERM. FEET	WEIGHTED RESID. OIL %	WEIGHTED TOT. WATER %
215.5	100.0	3.4	732.31	26.278	5662.869	0.0	0.0
0.0	0.0	0.0	0.00	0.000	0.000	0.0	0.0
2.1	1.0	4.3	9.11	0.034	0.071	0.0	0.0
15.0	7.0	3.7	55.19	0.308	4.617	0.0	0.0
14.0	6.5	3.4	45.92	0.697	9.763	0.0	0.0
124.9	57.9	3.2	398.87	3.904	487.638	0.0	0.0
59.5	27.6	3.7	222.22	86.736	5160.780	0.0	0.0

*NOT ANALYZED BY REQUEST



CORE LABORATORIES - CANADA LTD.

Petroleum Reservoir Engineering

COLUMBIA GAS

COMPANY DEVELOPMENT OF CANADA LTD. FIELD KOTANEELEE FILE 7004-8573

WELL COLUMBIA ET AL KOTANEELEE YT E-37 DATE

60° 06' 27" N

LOCATION 124° 07' 16" W PROV NORTHWEST TERRITORIES ELEV.

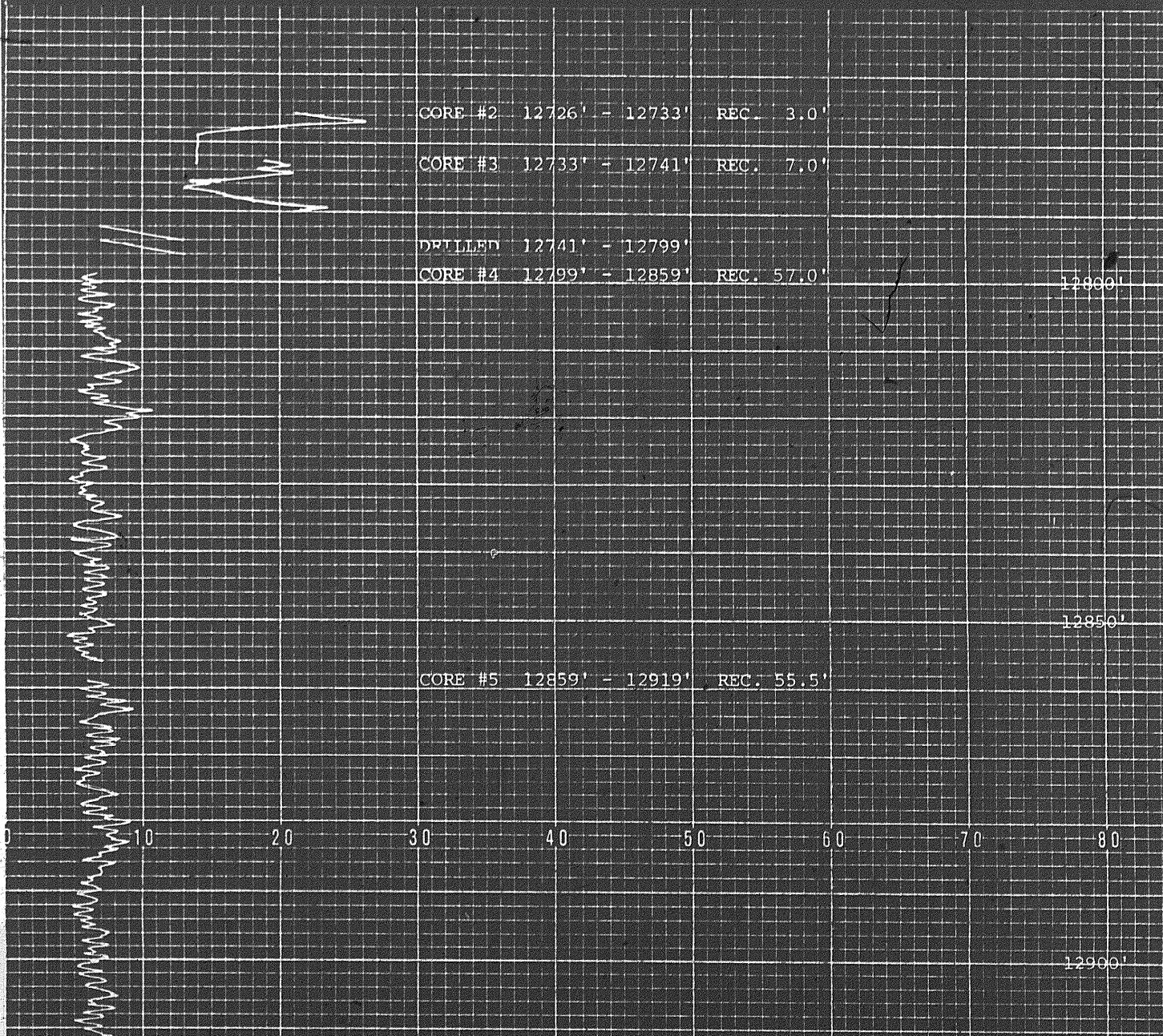
CORE-GAMMA CORRELATION

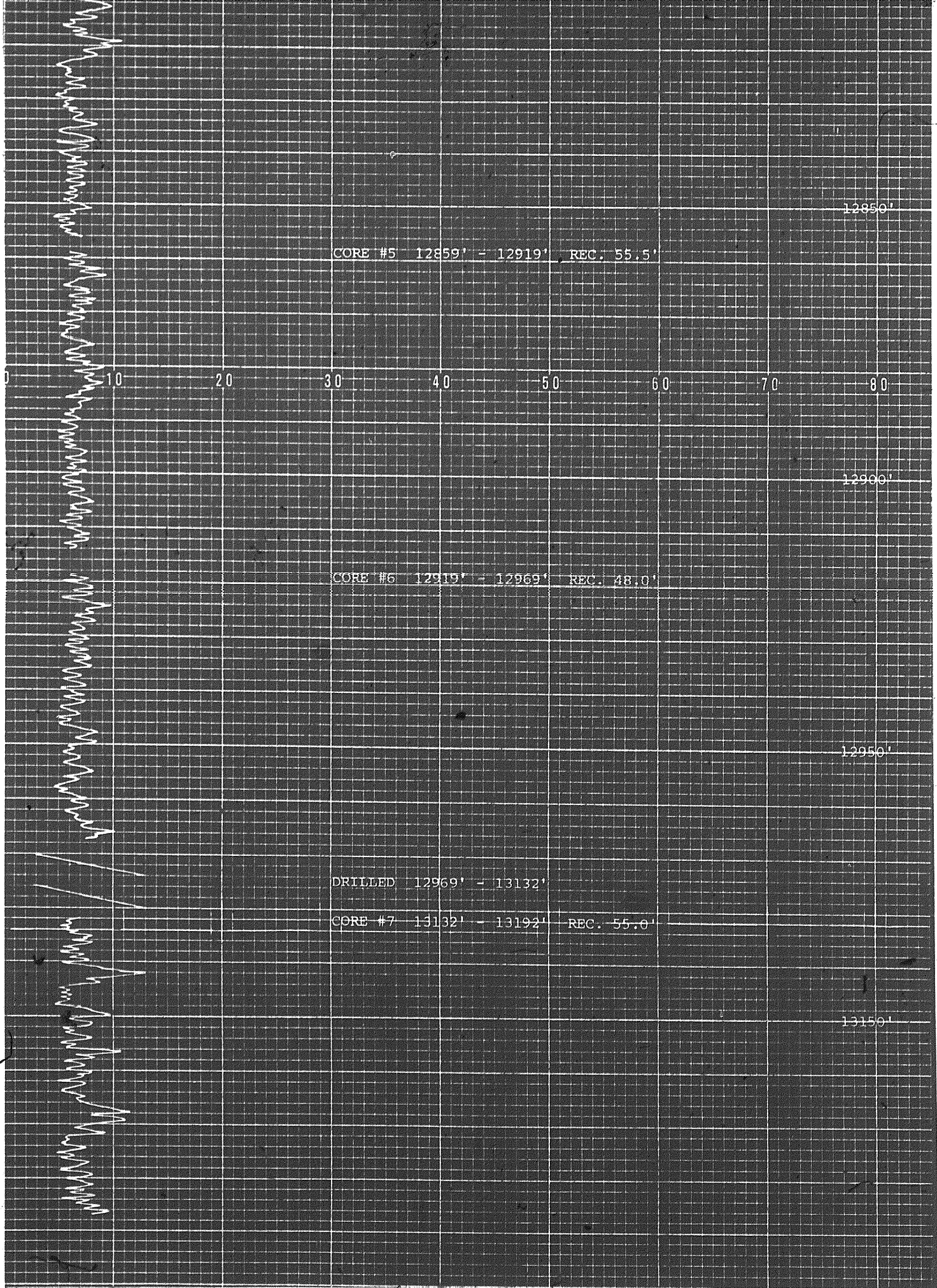
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T.C. 11 SECS.

VERTICAL SCALE: 5" = 100'

SENS. 5000 CPM.





12850'

CORE #5 12859' - 12919' REC. 55.5'

10

20

30

40

50

60

70

80

12900'

CORE #6 12919' - 12969' REC. 48.0'

12950'

DRILLED 12969' - 13132'

CORE #7 13132' - 13192' REC. 55.0'

13150'