Title: Core descriptions of the Cominco G1 and Cominco G4 wells, District of Mackenzie.

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Technical Description: Detailed lithologic description of cored intervals of Cominco G1 well and Cominco G4 well.

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GEOLOGICAL SURVEY OF CANADA
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OTTAWA
1968

Cominco Test C1

Location 60°51'05" 114°24'30" A - 52 - 61 - 00 - 114 - 15
Elevation Ground 724' Completed 31 - 8 - 52
Core Description by: Helen R. Belyea, 1962

Depth:	Lithology:
	Presqu'ile
13 - 132.6	Dolomite, light grey, very coarse crystalline, vuggy porosity, vugs pin point to 0.5 inch in long diameter; some vug orientation and colour change suggest stromatoporoids (cabbage-type and rod) possible corals, etc. -- colonial type organisms -- 37' loss of core
	Pine Point - fine-grained dolomite mbr)
132.6 - 198	Dolomite, fine to coarse crystalline (may have been fine to coarse grained), euhedral with excellent intercrystalline porosity; pin point porosity and small vugs; light oil stain
198 - 212	Dolomite, light grey, fine to medium crystalline, euhedral, slightly finer than above, small black carbonaceous specks
212 - 230	5' recovered Dolomite, buff, finely crystalline, euhedral; chert at top; good intercrystalline porosity; small black carbonaceous specks
230 - 237	5' recovered Dolomite as above
237 - 247	4' recovered Dolomite, same as above, excellent porosity
247 - 257	2' recovered Dolomite as above, excellent porosity; a few inclusions and veinlets of clear secondary anhydrite
257 - 267	5' recovered Dolomite, as above; small anhydrite veins; a few corals stromatoporoids
267 - 275	1' recovered Dolomite as above, pin-point porosity; a little angular porosity; anhydrite infill
275 - 285	3' recovered Dolomite, buff, euhedral, fine to medium crystalline, excellent porosity; small veinlets of galena and sphalerite; a few inches of calcite
285 - 293	3' recovered Dolomite same as above
293 - 298	2.5' recovered Dolomite, as above ; white spots suggest small corals
298 - 303	1' recovered Dolomite as above

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303 - 310	1.5' recovered Dolomite, buff to brown, finely crystalline; small carbonaceous specks
310 - 316	2.5' recovered Dolomite, as above; calcite veins
316 - 328	1.5' recovered Dolomite as above; large vug lined with calcite
328 - 330	1.5' recovered Dolomite, as above; calcite inclusions
330 - 338	2.5' recovered Dolomite, brown, finely crystalline, argillaceous, veined with calcite, ~~inclusions~~ corals preserved as calcite; limestone is light brown, fine grained, slightly porous, dolomitic, varies to dolomite; in part argillaceous
338 - 342	1' recovered Limestone, dolomitic as above
342 - 352	7' recovered
0-2'	Limestone, as above
2-7'	Dolomite, brown, very argillaceous, ~~and~~ finely crystalline; argillaceous; in part with black shale laminae ppp; scattered corals
352 - 360 0-5'	5' recovered Dolomite, yellow-brown, argillaceous, mostly finely euhedral with inter crystalline porosity; carbonate specks; fine calcite veining; and infill; ~~ppp~~ pin point porosity
360 - 364	18" recovered Dolomite as above
364 - 369	4' recovered Dolomite, buff, euhedral, fine crystalline, argillaceous
369 - 379	6' recovered Dolomite as above, in part with black shale laminae and small crinoids; slightly earthy texture
379 - 384	18" recovered Dolomite, as above, corals
384 - 391	3' recovered Dolomite as above; white-coarse-dolomite-veins-
391 - 399	3' recovered Dolomite as above; white coarse dolomite veins
399 - 404	4' recovered Dolomite, as above; 2" with porosity probably after fossils
404 - 414	7' recovered Dolomite as above; in part laminated with shale; abundant pyrite

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414 - 422	2' recovered Dolomite as above
422 - 432	1' recovered Dolomite, as above, limy, chalky feel, porous
432 - 442	3' recovered Dolomite, buff, finely crystalline, euhedral, less argillaceous than above, limy, chalky feel; vuggy porosity, pin point porosity to small vugs; patches of coarse porous dolomite -- suggest colonial organisms
442 - 452	2.5' recovered Dolomite, as above; patches of coarse porosity, coral
452 - 461	6" recovered As above
461 - 471	18" recovered Dolomite, as above, vuggy
471 - 481	4' recovered Dolomite, buff, finely crystalline as above, vuggy; suggestion of colonial organisms; brachiopods
481 - 489	4' recovered Dolomite, light grey, very finely crystalline, argillaceous
489 - 495.5	4.5' recovered Dolomite, as above, finely crystalline, in part mosaic; argillaceous
495.5 - 502	2' recovered Dolomite, as above
502 - 505.5	18" recovered Dolomite, argillaceous, grey, massive, almost ~~shale~~ mudstone crystalline
E 505.5 - 511	4.5' recovered Shale, grey, dolomitic, mostly fissile, interbeds 3" and 1' thick of dolomite, light yellow brown, finely crystalline, mosaic, tight
511 - 515	2' recovered Dolomite, light brown, finely crystalline as above; some shale
515 - 519	4' Recovered
515 - 517.5	Shale, as above, grey, dolomitic, with intraclasts, some black-coated; crinoids, layer of abundant crinoids at base; sharp contact

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517.5 - 519 Dolomite, light yellow brown, finely crystalline, tight

519 - 526 2.5' recovered
Dolomite, buff, finely crystalline, mosaic, tight, scattered vugs

526 - 531 1' recovered
Dolomite as above, in small fragments

531 - 537 2.5' recovered
Dolomite as above

537 - 541 3' recovered
541 - 547 6' recovered
547 - 551 2.5' recovered
551 - 553.5 1' recovered
553.5 - 558 1.5' recovered
558 - 564 1' recovered
564 - 574 4' recovered

Dolomite, as above, finely crystalline, tightly cemented; scattered vugs, some suggest brachiopods; vugs lined with dolomite

574.4 - 581 4' recovered
581 - 591 10' recovered
591 - 596 4.5' recovered

574.4 - 594
Dolomite, light yellow brown, buff, finely crystalline with patches of coarse crystalline, probably largely crinoidal; numerous scattered small broken crinoids

594 - 596 Limestone, brown, aphanitic with scattered coarse fossil grains; broken crinoids, small; a few shale laminae

596 - 635 ~~2.5'~~ 13' recovered
Limestone, light yellow brown, aphanitic with scattered (< 10%) coarse grains of probable organic origin; abundant scattered small crinoids, scattered intraclasts most black-coated

635 - 640 Limestone, light yellow brown, fine grained with scattered small crinoids; a few black-stained intraclasts

640 - 651 11' recovered 1" core
Limestone, light brown, aphanitic to fine grained, wispy shale laminae at intervals; small crinoids, concentrated in shaly laminae ; a few brachiopods at 644'

651 - 657 4' recovered
Limestone as above; brachiopods abundant at 653; coarse calcite vein

657 - 660 2' recovered
As above; a few crinoids and brachiopods

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660 - 675	5' recovered	Limestone, light yellow brown, aphanitic with scattered organic fragments, some bands with abundant crinoid fragments and small debris
665 - 670	3' recovered	
670 - 675	5' recovered	
675 - 681	5' recovered	
675-680.5	Dolomite, brown, coarse crystalline matrix with abundant finely crystalline light patches probably organisms; crinoids; a few black shale laminae	
680.5 - 681	Dolomite, light yellow brown, euhedral crystalline, laminated, suggests coarse lime sand, ~~reed~~ millimeter lamellae	
681 - 686	4.5' recovered	
681 - 682.5	Dolomite, yellow brown, euhedral, fine to medium crystalline; intercrystalline porosity excellent, seems to be dolomitized lime sand; almost vertical calcite veins; sharp contact with a few angular fragments of underlying dolomite included in black shale and dolomite in bottom 1/2 inch	
682.5	Chinchaga Formation	
682.5 - 686	Dolomite, buff, finely crystalline, argillaceous or anhydritic, intercrystalline porosity; some leaching towards base probably of anhydrite; small angular vugs, vertical calcite veins	
686 - 694	<1' recovered	
686-692½	Dolomite, same as above	
693½ - 694	Anhydrite, light grey	
694 - 699	5' recovered	Dolomite and anhydrite banded, layers 0.5 to 2" thick; dolomite as above; argillaceous; some almost white clayey anhydrite veined with clear crystalline anhydrite; dolomite and anhydrite about equal in amount; dips vary from flat to 20°
699 704	4.5' "	
704 - 709	5' "	
709 - 713	4' "	
713 - 718	5' "	
718 - 722	76' "	
722 - 727	5' "	
727 - 732	3.5' "	
732 - 739	5' "	
739 - 866	Recovered 5' intervals	
866 - 872	5.5' "	
872 - 877	5' "	
877 - 889	10' recovered Anhydrite, grey, massive; only a few layers of dolo dip flat to 30°	

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889 - 895	5' rec.
895 - 903	4' "
903 - 909	5' "
909 - 914	5' "
914 - 920	5.5' "
920. - 925	5' "
925 - 930	5' "
930 - 936	5' "
936 - 941.5	5' "
941.5 - 947	5' "
950	base anhydrite
950 - 953	Shale, green-grey, anhydritic and anhydrite as above
953 - 958	5' "
953 - 955	Anhydrite, grey, massive
955 - 958	Shale, green-grey, anhydritic, probably laminated with anhydrite
958 - 963	6' rec. Shale as above; interbedded anhydrite in thin layers and as massive grey anhydrite
963 - 969	5' rec.
968-966	Anhydrite, grey, massive, grades through interbedded anhydrite and shale to
966-969	Shale, green, anhydritic, chunks of hardened clay in softer Shale matrix; spots of grey and pink anhydrite
969 - 974	2' rec.
0 - 2'	Anhydrite, grey, massive, interbedded shale in upper 6 inches
974 - 979	4' rec. Anhydrite, grey and red mottled
979 - 989	10' rec.
979 - 982	Anhydrite as above
982 - 983	Anhydrite and red shale interbedded; shale is soft, brick red
983 - 988	Shale, brick red, a little gypsum as irregular inclusions

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988 - 989 ~~Coquina~~ Conglomerate or breccia, red shale matrix; angular "pebbles" of red, green shale, gypsum

989 - 995 5' rec.
Breccia - red shale matrix, at least 2 types of red shale, gypsum, grey and red gypsum, anhydrite; green claystone pebbles, mostly angular, grades to

995 - 1000 5' rec.
995 - 996 Breccia as above; grades to

996 - 997.5 Shale with inclusions of anhydrite and claystone, grading to

997.5 - 998 Anhydrite and gypsum, grey

998 - 998.5 Shale, red with anhydrite lenses and inclusions

998.5-1000 Shale breccia, same as above

1000 - 1005 2' rec.
Shale breccia as above

1005 - 1010 5.5' rec.
Breccia as above

1010 - 1021 8' rec.
Breccia as above

1021 - 1031 10' rec.
Breccia as above

1031 - 1045 12' rec.

0 - 1 Shale as above; broken into small fragments

1 - 1.5 Shale, light green, anhydritic; fragments of white gypsum at base

1.5 - 2.5 Core box eaten, core missing

2.5 - 12 Gypsum and anhydrite, clear to light brown; interbeds up to 3" thick with white elongate gypsum pebbles, grains or boudinage cf. G4 1072

1045 - 1050 5' rec.

1045 - 1046 Anhydrite with some red shale interbedded

1046 - 1048 Anhydrite, buff, grades to interbedded anhydrite and buff, aphanitic dolomite, to

1048 - 1050 Dolomite, buff, aphanitic to very firely crystalline, laminated, anhydrite as small inclusions

1050 - 1056 2.5' rec.
Dolomite as above, pin point porosity; black shale laminae cf. G4 1080.5 et seq.

1056 - 1061 Dolomite, buff, fine to medium crystalline, euhedral with good intercrystalline porosity, relict coarse grained "sandy" texture, possibly with shells; shale laminae

Corinco G1

1061 - 1074 Rec. '2'
Broken; Anhydritic, dolomitic claystone, pale gray

1074 - 1087 7.5' rec.

0 - 2 Anhydrite, grey, massive, in part gypsum

2 - 3.5 Breccia, coarse angular fragments of light grey dolomitic claystone; gypsum matrix

3.5 - 6.5 Anhydrite and/or gypsum, massive

6.5 - 7.5 Breccia of anhydrite and dolomite cemented by clear gypsum

1087 - 1094 6" rec.
Anhydrite

1094 - 1099 5' rec.
Shale, brick red; a few layers of gypsum
cf. G4 1125

1099 - 1104 5' rec.
Claystone, brick red, massive, veined with gypsum

1104 - 1122)
1122 - 1127)
1127 - 1132) Claystone, red veined with gypsum as above
1132 - 1135)

1135 - 1137 Gypsum and red shale, mottled, grades to gypsum

1137 - 1142 3' rec. Gypsum, white to pale grey, mottled, red; massive cf. G4 1193

1142 - 1147 5' rec.

1142 - 1146 Gypsum as above

1146 - 1147 Dolomite, argillaceous, band of gypsum

1147 - 1162 5' rec.

1147 - 1147.5 Dolomite, as above, becomes mottled, purple-red gradually; pin-point angular pores in upper 6"

1147.5 - 48.5 Dolomite, grey, mottled, maroon; thin red shale partings

1148.5 - 49 Gypsum; reddish grey includes a little red shale

1149 - 52 Shale, red and maroon, white gypsum inclusions

1152 - 57 1' rec.
Gypsum, white, mottled, pink; a little dolomite, grey, shale included

1157 - 1162 5' rec.
Shale, brick red, fissile; 2 bands of gypsum about 0.5" thick

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1162 - 1167 5' rec.

1162 - 1163 Shale, red with inclusions or layers of selenite, pale orange pink

1163 - 1167 Dolomite, argillaceous, silty, red and grey mottled, varies to shale; gypsum veins; probably more argillaceous in bottom foot

1167 - 1168 Shale, red silty, mottled green

1168 - 1171.5 Dolomite, grey, mottled red, argillaceous, silty at top becoming sandy downwards; pebbles underlying ~~shale~~ quartzite at base

1171.5 Quartzite