Current Research (2002) Newfoundland Department of Mines and Energy
Geological Survey, Report 02-1, pages 307-318

DOLOMITE POTENTIAL OF THE CAPE NORMAN AREA, GREAT NORTHERN PENINSULA, NEWFOUNDLAND

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ABSTRACT

The Cape Norman peninsula, at the tip of the Great Northern Peninsula, is underlain by dolostones and limestones of the Catoche Formation of the Early to Middle Ordovician St. George Group. A geochemical sampling program was carried out to determine the economic dolostone potential of the area.

The area's stratigraphy is divided into six major units; thin- to medium-bedded dolostones and limestones at the base (Units 1 to 3), an overlying thick dolostone unit (Unit 4), and an upper sequence of medium-bedded limestones and dolostones (Units 5 and 6). Of these, Unit 4 had been previously determined to have the greatest economic potential for dolostone.

This survey confirms that Unit 4 contains the thickest sequence (up to 18 m) of dolostone. The unit consists of sucrosic-mottled dolostones that replaced large thrombolitic, cryptalgal mound grainstones and bioturbated limestones. Silicified algae form thin layers in some horizons; silicified fossils and small knots of silica are also found. Detailed stratigraphic sampling indicated that dolostone thicknesses of 5 m or more contain only traces or no visible silica. It is estimated that Unit 4 contains about 11 million tonnes of dolostone.

INTRODUCTION

The Cape Norman dolomite deposit is located 2.5 km west of Cook's Harbour at the tip of the Great Northern Peninsula (Figure 1). The dolomitized carbonate rocks outlined by Knight (1986; Figure 2) were first assessed by Delaney and Howse (1988) who estimated that there are 35 million tons of metallurgical-grade dolostone within an area of 50 hectares (0.5 km^2), immediately southwest of the Cape Norman lighthouse. Regional mapping has been carried out in the area by Bostock *et al.* (1983) and by Knight (1986). Knight (*op. cit.*) assigned the dolostones and limestones of the Cape Norman area to the Catoche Formation of the Early to Middle Ordovician St. George Group, and he showed also that a sequence of sucrosic dolostone occurred within a sequence of interbedded, variably dolomitized limestone and dolostone.

The Cape Norman area is an excellent example of a karsted landscape, free of trees and overburden. The carbonate barrens are characterized by abundant exposed bedrock sculptured by joint-controlled clints and grikes. There are only three small ponds and these are not drained by a stream during the summer. Narrow valleys, which are

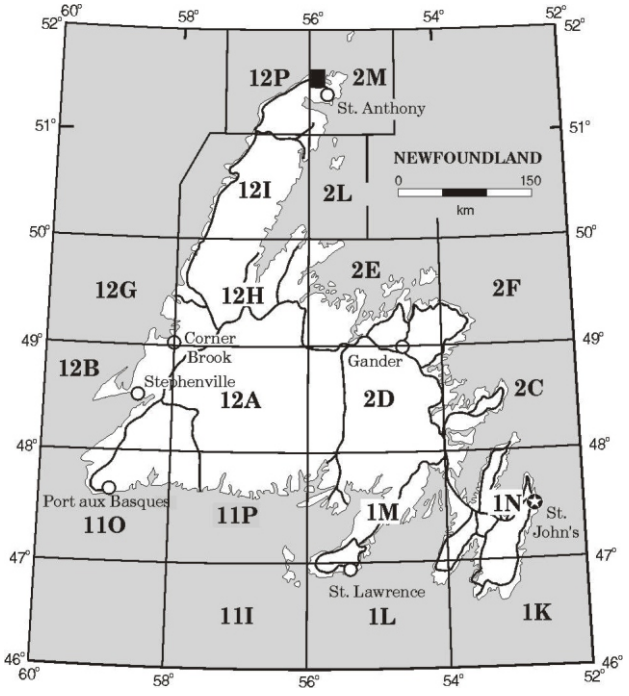

Figure 1. *Location of the Cape Norman area.*

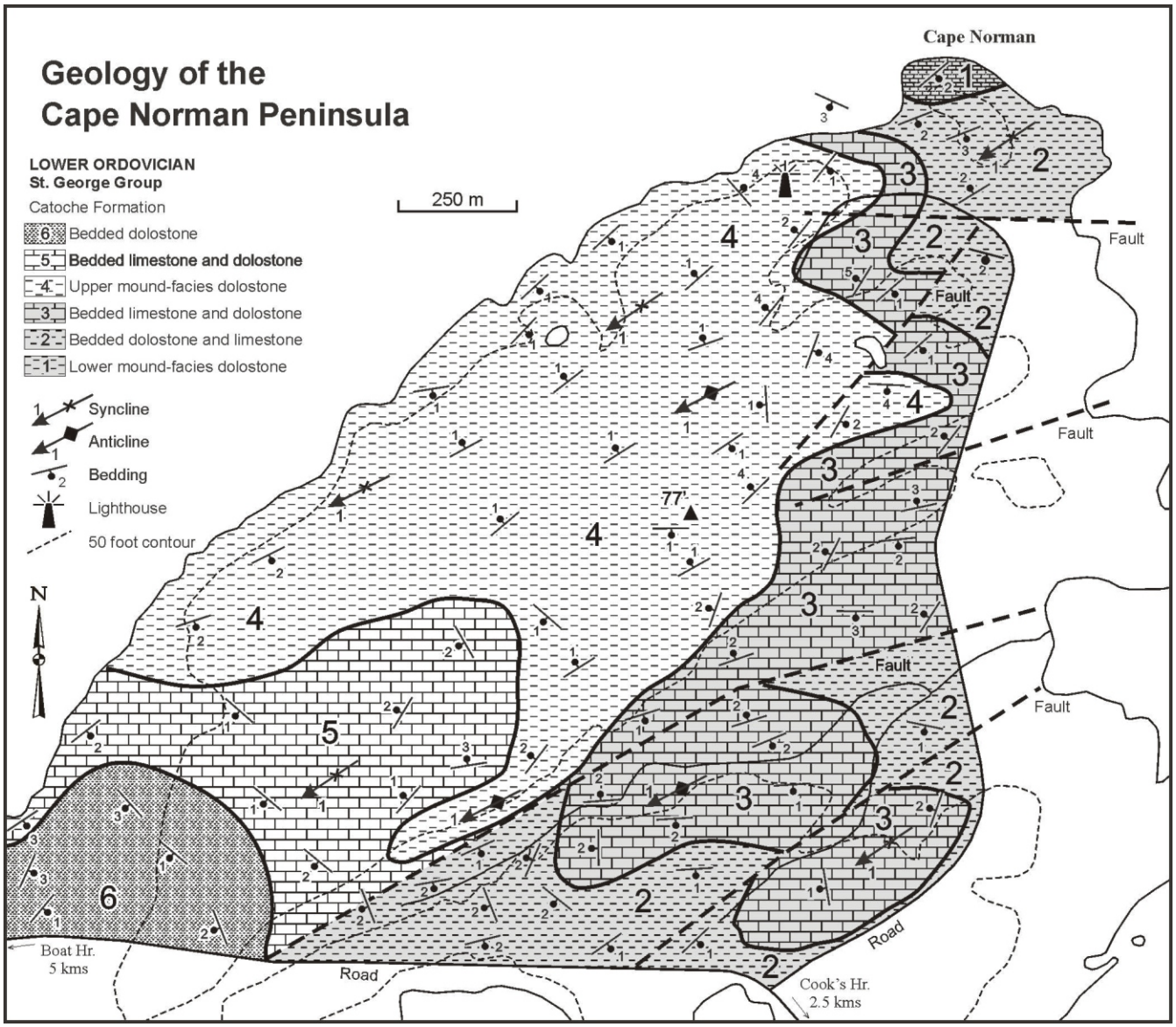

Figure 2. *Geology of the Cape Norman area.*

shallow and contain ephemeral streams, are the only areas having extensive vegetation and comprise patches of scrub spruce, dwarfed birch and grass. The area has a gentle relief with the highest point (from the Edition 2 topographic map) being shown as 77 feet (23.5 m) above sea level. Vegetation and a thin soil occur in grikes, and small patches of peat also obscure the rock. The terrain is noted for the presence of rare plants that are indigenous to carbonate terrains. This includes the endangered plant Fernald's braya (*Braya fernaldii*) that occurs in a few areas of carbonate gravel south of the lighthouse. Prominent glacial erratics are widely scattered throughout the area and include massive granite, tonalite and granite gneiss, amphibolite, various ultramafic rocks, marble and sandstone. These erratics are probably derived from the Hare Bay allochthon and the Grenvillian rocks of the Long Range Mountains over 20 km to the south (*cf.*, Bostock *et al.*, 1983). However, Grant (1992) indicates that the ice advanced from the northwest. No striae were found.

SAMPLING PROCEDURE

The purpose of the current project is to determine the economic dolomite potential of the area by, 1) systematic geochemical sampling and, 2) to more precisely outline the main stratigraphic units. The sampling program was conducted north of the Boat Harbour road and west of the road to Cape Norman. The area was sampled on a grid system with 11 lines oriented at 330° (at right angles to the regional trend in the area) and spaced 250 m apart and drawn on

1:12 500-scale colour aerial photographs. Potential sites at intervals of 100 m were plotted on photographs. At locations with no outcrop, the sample search radius was extended 50 m, of which, six were not sampled.

The location of each sample site was determined using a Garmin GPS 12 having software version 4.52. Site locations were recorded as UTM coordinates using NAD 83 datum, and elevations were recorded in metres. Elevations indicated by the GPS unit in this area were inaccurate by up to 10 m compared to the National Topographic Survey data. The elevation of the survey point southeast of Cape Norman (shown on earlier editions of NTS map 2M/12 as 77 feet) was indicated by the GPS unit to be 33 m (108 feet).

A total of 110 samples were collected (Figure 3) along the traverse lines. About 2 kg of sample and a hand specimen were taken at each site using a sledge hammer. Where there were several rock types at a site, chip samples were collected from the different beds within 2 m of the sampling site. Detailed stratigraphic sampling in six areas of the main (mound) dolostone unit (Unit 4) was carried out from the base of the unit, or the lowest exposed level, to the top of the unit, or to the top of a cliff section. Chip samples were collected over 1 m intervals. This resulted in a series of 8, 17, 9, 13, 12, and 14 samples being collected from the six areas, representing all, or part, of the stratigraphy of the mound-facies dolostone unit.

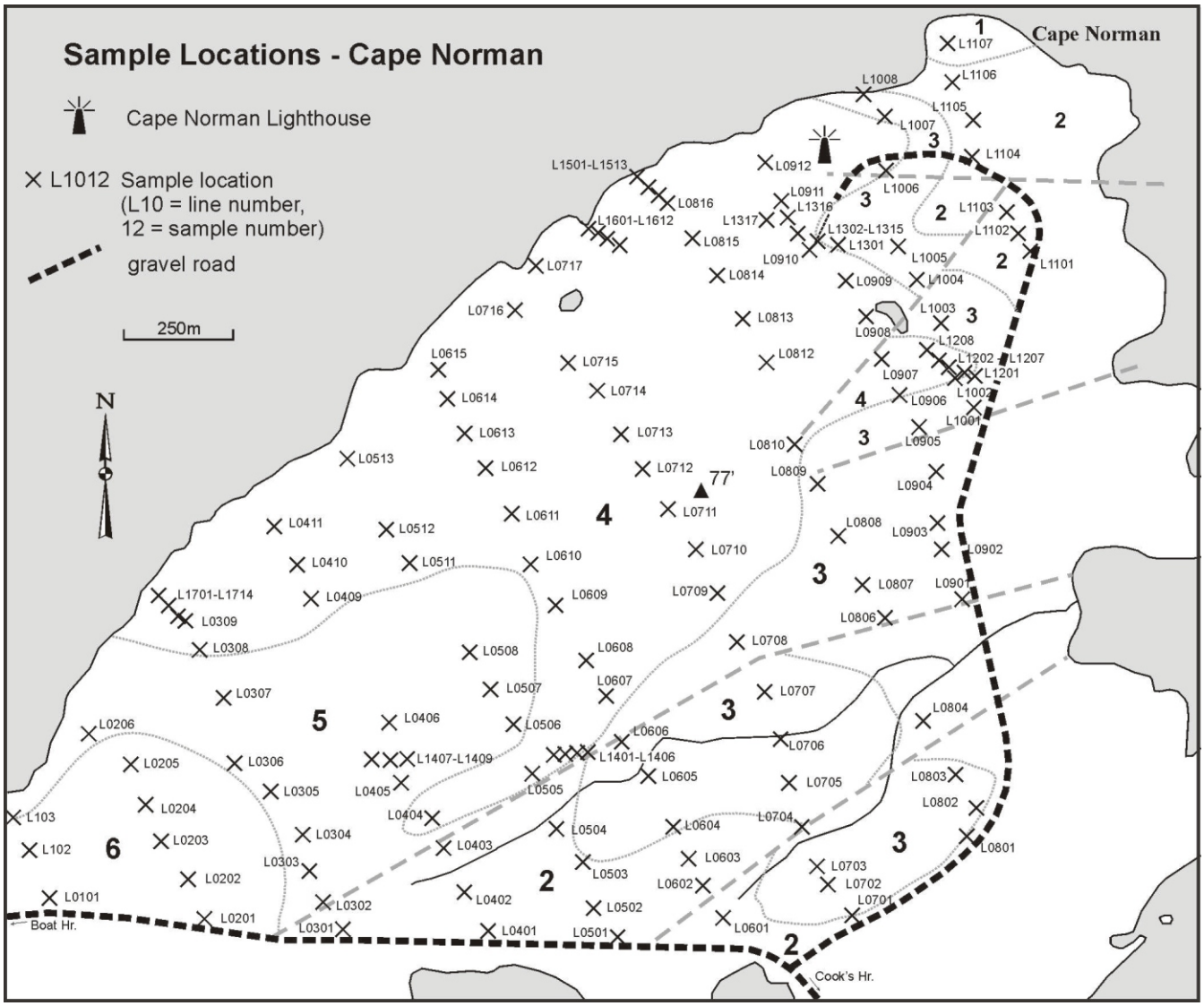

Figure 3. *Sample locations map for the Cape Norman area. The locations are plotted on a simplified geological base map. Legend: 1. lower mound-facies dolostone; 2. bedded dolomite and limestone; 3. bedded limestone and dolostone; 4. upper mound-facies dolostone; 5. bedded limestone and dolostone, and 6. bedded dolostone.*

REGIONAL GEOLOGY

A revised map of the area (Figure 2) shows the distribution of the six main mappable units in the area. Unit 1 is exposed at the tip of Cape Norman and is a dolostone that has replaced cryptalgal mound limestone (Knight, 1986). This is conformably overlain by medium-bedded, bioturbated dolostone (Unit 2), which locally has 1-m-thick silica-cemented breccia units. The dolostone is conformably overlain by medium-bedded, highly bioturbated limestone and minor dolostone (Unit 3; Plate 1). The limestone contains abundant dolomitized burrows, which are prominent and occur throughout the beds. The limestone is commonly capped by massive, more resistant, fine-grained dolostone.

Plate 1. *Flat-lying, interbedded, thin- and medium-bedded limestone of Units 2 and 3 below the mound-facies dolostone (Unit 4) at top of cliff below the Cape Norman lighthouse (in fog). Large patches of sucrosic and sparry dolostone replace the limestones locally adjacent to joints and along beding.*

Unit 4 conformably overlies Unit 3 and consists of sucrosic, mottled dolostones that replaced large, thrombolitic cryptalgal mound grainstones and bioturbated limestones (Knight, 1986). Cavities up to 1 cm in diameter are common in the thrombolites. Silicified trace and body fossils such as worm burrows, cephalopods and algal patches are scattered throughout the unit. Unit 4 contains beds of dolostone some in excess of 3 m thick (Plate 2). The beds and the unit are thickest toward the coastline (Plate 3). To the south, there are fewer and thinner mound-facies dolostones, and grainstones are much more common than that seen in the north. Detailed mapping in the area of the Cape Norman lighthouse indicates a minimum thickness of 17 m for Unit 4 whereas to the southeast and south, thicknesses of >8 m and 9 m were measured. It appears that Unit 4 is replaced laterally to the south by bedded dolostones.

Plate 2. *Thick-bedded, mound-facies dolostone of Unit 4 showing grikes along intense vertical jointing (= cleavage), Cape Norman.*

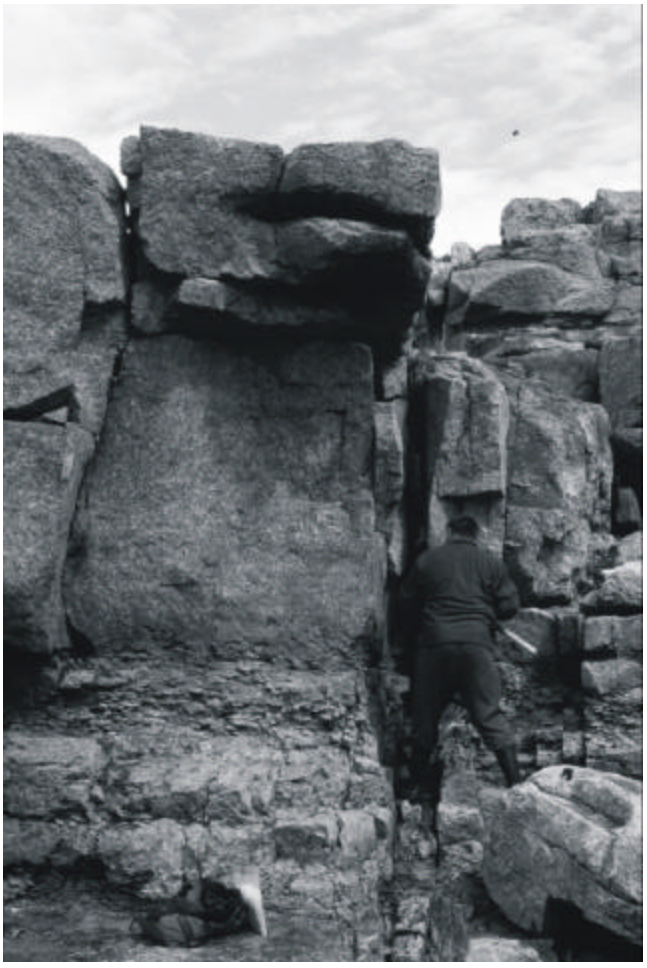

Plate 3. *Thick-bedded, mound-facies dolostone overlying medium-bedded platy dolostone (Unit 4, section 16, southwest from Cape Norman). Barry Wheaton (1.82 m) for scale.*

Conformably overlying Unit 4, Unit 5 is a thin but extensive sequence of medium-bedded bioturbated, limestone, (similar to Unit 3), and fossiliferous limestone commonly containing silicified crinoids, gastropods and cephalopods and also fragments of unsilicified trilobites and gastropods (Plate 4). Interbedded massive dolostone beds are common and some form caps in transitional contact with the burrowed limestone (Plate 5). A rare bed of silicified limestone contains two well-preserved longitudinal sections of 15-cm-long strait cephalopods that show well the internal chambers of the shell.

Plate 4. *Silicified cephalopod and gastropod ghost in medium-bedded limestone of Unit 5 that overlies the mound-facies dolostone of Unit 4, 1.5 km southwest of Cape Norman. Lens cap is 5 cm in diameter.*

Plate 5. *Top of a flat-lying, burrowed limestone bed replaced by fine-grained dolostone (Unit 5, 1 km south of Cape Norman). The eroded dolostone "caps" are 2 to 5 cm thick in this view.*

Unit 6 is the uppermost unit and consists of massive, medium-bedded dolostone. The unit commonly contains siliceous laminae and scattered small knobs of silica, usually less than 1 cm in diameter.

STRUCTURAL GEOLOGY

The six units are very gently folded into slightly southwest-plunging anticlines and synclines and are cut by six faults, of which only one continues through the area. These faults are generally parallel to, or coincident with, the fold axial planes, or terminate along axial planes. The topography is a clear reflection of the structure and rock type. For example, the top of one bed can be extensively exposed over large areas. This is particularly apparent within the extensive mound-facies dolostone unit (Unit 4) southwest from the lighthouse.

SUMMARY OF RESULTS

Detailed chip sampling through Unit 4 was carried out in six areas and detailed notes taken on each metre sampled (Tables 1 to 6; Figure 3). As noted previously, the thickest section through Unit 4 lies to the southwest of the lighthouse. From Tables 2, 4, 5, and 6, it can be seen that the unit has an exposed thickness of up to 18 m. It is possible that there are higher beds in the area but the very thick-bedded mound dolostones and the general lack of bedding indicators make it impossible to determine if higher beds of Unit 4 are present in the vicinity of the lighthouse.

The use of dolostone for magnesium production requires that the SiO_2 values be very low. An estimate of the silica content was obtained by noting the presence of the various varieties of silicified features in the unit. As silica (quartz, chert, etc.) resists disolution by water and acid rain, it becomes quite prominent on the exposed carbonate surfaces. Consequently, specks as small as 2 mm are quite conspicuous on the fairly smooth dolostone surfaces. Silica varies in abundance in Unit 4, locally reaching about 10 percent (over 1 m thickness), where silicified algal masses are present, through 1 to 2 percent where isolated knobs of apparently coarse quartz stand out. In some beds, no quartz is detectable (Plate 6).

From stratigraphic section 13 (Table 2), it is apparent that the section comprises a lower silica-poor interval overlain by an upper silica-rich unit. The lower level is virtually free from visible quartz for thicknesses of up to 9 m and the quartz present is estimated to be much less than 1 percent by volume. Higher stratigraphic levels in this section are much richer in silica (as silicified algae) and mats of silica up to 50 cm long are common. The underlying silica-poor horizons form the extensive calcareous barrens that extend to the southwest from the lighthouse.

Stratigraphic section 12 starts at the same stratigraphic level as section 13. It shows a similar concentration of low-silica dolostone from 4 m above the base, to the top of the available strata. However, the lower strata contain conspicuous silica knobs and patches (Plate 7). Section 14 contains

Table 1. Stratigraphic description of vertical section 12 of Unit 4 dolostones. Start (sample LD01-1201) at UTM 576106E 5719813N; end at 576033E 5719862N; NAD 83. No stratigraphic top reached. Visible silica estimates: trace silica = <0.1% (by volume); minor silica = 0.1 to 1%; common silica = <1 to 5%; very common = > 5% silica

Sample No. Height in Section	Description of rock in sample interval	Visible silica content
LD01-1208 7 - 8 m	Very thick-bedded massive mound-facies dolostone	trace silica as isolated grains
LD01-1207 6 - 7 m	Very thick-bedded, massive mound-facies dolostone containing dolomite vugs	trace silica as isolated grains
LD01-1206 5 - 6 m	Very thick-bedded, massive mound-facies dolostone with dolomite vugs	minor silica as isolated grains
LD01-1205 4 - 5 m	Very thick-bedded, massive mottled mound-facies dolostone	minor silica; silicified straight cephalopod
LD01-1204 3 - 4 m	Very thick-bedded, massive to stylolite-parted, bedded dolostone	common silica knobs to 1 cm; silicified tubes
LD01-1203 2 - 3 m	Medium-bedded grainstone dolostone facies	very common silica knobs and thin siliceous layers
LD01-1202 1 - 2 m	Medium-bedded grainstone dolostone facies	common silica knobs
LD01-1201 0 - 1 m	Medium-bedded, burrow-mottled and massive dolostone	very common silica knobs to 1 cm diameter

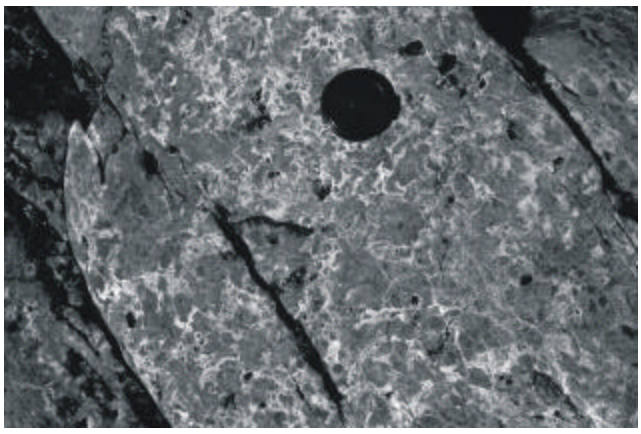

Plate 6. *Vuggy, apparently silica-free, mound-facies dolostone breccia (Unit 4) cemented by pale sparry dolomite cement and apparently free of silica. The breccia problably occurs in the centre of a mound. Site L17-02 is located along the coastline southwest from Cape Norman. Lens cap is 5 cm in diameter.*

Plate 7. *Thick-bedded mound-facies dolostone of Unit 4 containing small coarse-quartz concentrations; Site L12-4 is located along the coastline southwest from Cape Norman. Lens cap is 5 cm in diameter.*

Table 2. Stratigraphic description of vertical section 13 of Unit 4 dolostones. Start (sample LD01-1301) at UTM 575821E 5720083N; end at 575682E 5720136N; NAD 83. No stratigraphic top reached. Visible silica estimates: trace silica = <0.1% (by volume); minor silica = 0.1 to 1%; common silica = <1 to 5%; very common = > 5% silica

Sample No. Height in Section	Description of rock in sample interval	Visible silica content
LD01-1317 17 - 18 m	Massive, very thick-bedded, mound-facies dolostone	trace silica
LD01-1316 16 - 17 m	Massive, very thick-bedded, mound-facies dolostone	none to trace silica
LD01-1315 15 - 16 m	Massive, very thick-bedded, mound-facies dolostone	minor small silica clots
LD01-1314 14 - 15 m	Massive, very thick-bedded, mound-facies dolostone	common silica patches to 100 cm2
LD01-1313 13 - 14 m	Massive, very thick-bedded, mound-facies dolostone	very common silica patches up to 1 cm thick
LD01-1312 12 - 13 m	Massive, thick-bedded, mound-facies dolostone; thin grainstone bed	trace silica
LD01-1311 11 - 12 m	Massive, thick-bedded, mound-facies dolostone; vugs of dolomite	minor silica knobs to 1 cm
LD01-1310 10 - 11 m	Massive, thick-bedded, dolostone grainstone facies	no silica
LD01-1309 9 - 10 m	Massive, very thick-bedded, mound-facies dolostone	no silica
LD01-1308 8 - 9 m	Massive, very thick-bedded, mound-facies dolostone	minor silica knobs to 1 cm
LD01-1307 7.5 - 8 m	Massive bed of dolostone, grainstone facies	no silica
LD01-1306 6.5 - 7.5 m	Massive bed of mound-facies dolostone	trace silica
LD01-1305 6 - 6.5 m	Massive bed of dolostone, grainstone facies	minor silicified fossils (cephalopods?)
LD01-1304 5 - 6 m	Massive, very thick-bedded, mound-facies dolostone; continuation of 1303	trace silica
LD01-1303 4 - 5 m	Massive, very thick-bedded, mound-facies dolostone; continuation of 1302	trace silica
LD01-1302 3 - 4 m	Massive, very thick-bedded, mound-facies dolostone	very common silica in lower half - trace in top
LD01-1301 2 - 3 m	Massive mound-facies dolostone	trace silica
not sampled 0 - 1 m	Bedded dolostone and limestone	local silicified fossils

Table 3. Stratigraphic description of vertical section 14 of Unit 4 dolostones. Start (sample LD01-1401) at UTM 575370E 5719045N; end at 574907E 5719012N; NAD 83. Sampled to stratigraphic top of section. Visible silica estimates: trace silica = <0.1% (by volume); minor silica = 0.1 to 1%; common silica = <1 to 5%; very common = > 5% silica

Sample No. Height in section	Description of rock in sample interval	Visible silica content
LD01-1410 not sampled	Unit 5 burrowed limestone and interbedded dolostone	very common silicified fossils, knobs, laminae and silicified horizons
LD01-1409 10 - 11 m	Vuggy, medium-bedded dolostone grainstone	common silicified fossils; patches to 5 cm diam.
LD01-1408 9 - 10 m	Massive, medium-bedded dolostone grainstone	common silicified worm burrows and local patches of silica
LD01-1407 8 - 9 m	Medium-bedded, vuggy dolostone grainstone	minor silicified fossils - cephalopods
LD01-1406 8 - 9 m	Massive, medium-bedded, mound-facies dolostone and grainstone	very common silica patches; silicified worm burrows and specks of silica
LD01-1405 7 - 8 m	Thick-bedded dolostone grainstone	minor silica knobs to 2 cm; some silici fied worm burrows
LD01-1404 6 - 7 m	Thick-bedded, mound-facies dolostone	trace silica
LD01-1403 5 - 6 m	Vuggy mound-facies dolostone and pseudobreccia	minor silica patches
LD01-1402 4 - 5 m	Vuggy, medium-bedded dolostone and mound-facies dolostone	common silica laminae and minor patches
LD01-1401 3 - 4 m	Grainstone and interbedded mound-facies dolostone	common silica patches to 4 cm
Not sampled 0 - 4 m	Interbedded, thin- to medium-bedded, uniform and bioturbated dolostone - Unit 3	very common silica

less of the thick-bedded mound-facies dolostone as seen in sections 12 and 13 but contains only about 2 m of low-silica dolostone. The section overall has a high silica content.

Sections 15, 16 and 17 are cliff exposures located southwest of the Cape Norman lighthouse. These sections were sampled to the top of the cliffs where the dolostone plateau starts. These sections are up to 17 m thick but the lowest levels were not sampled, being vertical cliff immediately above the ocean. Significant thicknesses of low-silica dolostone are exposed in the coastal sections, i.e., lower units (Plate 8) but in section 17 silica is rarely absent in the upper beds and is only free of silica below the highly cavitied, mound-facies dolostone.

The samples are being analysed for major elements, loss-on-ignition and 22 trace elements. The initial trace-element data indicates that there is a low content of detrital heavy minerals having values for total iron as Fe, generally well below 0.1 percent and Ti values below 100 g/t. The major-element analyses are currently in progress. They will determine the SiO_2 and Al_2O_3 values, which will indicate the silica and detrital feldspar content of the samples.

Table 4. Stratigraphic description of vertical section 15 of Unit 4 dolostones. Start (sample LD01-1501) at UTM 575423E 57202109N; end at 575447E 5720184N; NAD 83. Sampled to start of plateau. Visible silica estimates: trace silica = <0.1% (by volume); minor silica = 0.1 to 1%; common silica = <1 to 5%; very common = > 5% silica

Sample No. Height in section	Description of rock in sample interval	Visible silica content
	Section ends about 3 m below cleaved mound-facies dolostone	
LD01-1513 15.5 - 16.5 m	Very coarsely mottled, massive to locally cavitied, mound facies dolostone	none
LD01-1512 14 - 15.5 m	10 m section across very thick-bedded, mound-facies and grainstone dolostone; locally small sparry vugs to 1 cm long x 3 mm	common silica as small concentration of 1 cm knobs
LD01-1511 13.5 - 14 m	Massive very thick-bedded, mound-facies dolostone having abundant cavities	trace silica as isolated orange specks
LD01-1510 12.5 - 13.5 m	Massive very thick-bedded, mound-facies dolostone having abundant cavities	trace silica as isolated specks
LD01-1509 11.5 - 12.5 m	Massive very thick-bedded, mound-facies dolostone containing scalloped to uniform dolostone; some dolomite-lined vugs	common 1 cm knobs of silica
LD01-1508 10 - 11.5 m	Sample across an 8-m-wide section of cavity-rich mound-facies and massive-mottled dolostone; local vugs lined with sparry dolomite	none
LD01-1507 9 - 10 m	Massive, very thick-bedded, mottled mound-facies dolostone; abundant dolomite-lined cavities	common silica as 1 mm specks, up to 2 cm knobs, and chert sheets
LD01-1506 8.2 - 9 m	Massive, very thick-bedded, mottled mound-facies dolostone; abundant cavities and scattered dolomite-lined vugs	none
LD01-1505 7 - 8.2 m	Massive, very thick-bedded, mottled mound-facies dolomite; cavities more abundant than lower samples	none
LD01-1504 6 - 7.5 m	Massive, very thick-bedded, mottled mound-facies dolomite	none
LD01-1503 5 - 6 m	Massive, very thick-bedded, mottled mound-facies dolomite	none
LD01-1502 4 - 5 m	Massive, very thick-bedded, mottled mound-facies dolomite	none
LD01-1501 3 - 4 m	Massive, very thick-bedded, mottled mound-facies dolomite (lower 3 m inaccessible)	none

Table 5. Stratigraphic description of vertical section 16 of Unit 4 dolostones. Start (sample LD01-1601) at UTM 575324E 5720106N; end at 575375E 5720081N; NAD 83. Sampled to start of plateau. Trace silica = <0.1% (by volume); minor silica = 0.1 to 1%; common silica = <1 to 5%; very common = > 5% silica

Sample No. Height in section	Description of rock in sample interval	Visible silica content
	About 5 m of dolostone exposed on plateau to south	overlying beds to south commonly have sheets of cherty silica
LD01-1612 16 - 17 m	Cavity-rich mottled, mound-facies dolostone	none
LD01-1611 15 - 16 m	5-m-wide horizontal section across very cavity-rich,	common silica as local concentrations of quartz patches
LD01-1610 14.3 - 15 m	Scallop-surfaced, mottled, mound-facies dolostone; cavities 2 - 4 cm	trace silica as isolated granules
LD01-1609 13.3 - 14.3 m	Massive slightly vuggy, mottled dolostone in bottom overlain by scallop-surfaced, mottled dolostone mound	common quartz in mound
LD01-1608 12.5 - 13.3 m	Very thick-bedded, massive and cavity-rich, mottled mound-facies dolostone; minor dolomite-lined vugs	common silica as local patches of small knobs
LD01-1607 11.5 - 12.5 m	Very thick bed of cavity-rich, mottled, mound-facies dolostone with abundant dolomite-filled cavities	common silica as scattered 1 cm2 patches
LD01-1606 10.5 - 11.5 m	Very thick-bedded, mottled, cavity-rich mound-facies dolostone with dolomite-filled vugs	none
LD01-1605 9.5 - 10.5 m	Massive very thick-bedded, mottled dolostone with some cavities and a few dolomite-filled vugs	trace silica as orange specks to 2 mm
LD01-1604 8.5 - 9.5 m	Very thick-bedded, mottled, cavity-rich, mound-facies dolostone	trace silica as specks
LD01-1603 7 - 8.5 m	Very thick-bedded mottled massive dolostone; bed over 3 m thick; abundant dolomite-filled vugs	trace silica as specks
LD01-1602 6 - 7 m	Medium-bedded, massive to friable, grey, uniform, very vuggy dolostone; dolostone with abundant dolomite-filled vugs to 1 cm long	none
LD01-1601 5 - 6 m	Start of sampling approx 5 m above sea level; shear cliff to water level; very thick-bedded, mottled massive mound-facies dolostone with dolomite-filled vugs	none
No sample 0 - 5 m	Lower 5 m to sea-level is massive very thick-bedded mound-facies dolostone; no joints or open vugs	none apparent

Table 6. Stratigraphic description of vertical section 17 of Unit 4 dolostones. Start (sample LD01-1701) at UTM 574410E 5719347N; end at 574457E 5719304N; NAD 83. Sampled to stratigraphic start of plateau. Visible silica content: trace silica = <0.1% (by volume); minor silica = 0.1 to 1%; common silica = <1 to 5%; very common = > 5% silica

Sample No. Height in section	Description of rock in sample interval	Visible silica content
LD01-1714 14 - 15 m	Sampled over 10 m horizontally and 1 m vertically; mainly intermound grainstone dolostone with dolomite veinlets and dolomite-lined vugs, adjacent to mound-facies dolostone; have large sponge (*Archeoscyphia minganensis*) about 35 cm in diameter	minor silica as scattered quartz knobs and specks
LD01-1713 13 - 14 m	Sample over 10 m horizontally and 1 m vertically; mixture of mound-facies dolostone and grainstone; both uniform, very thick-bedded, grey dolostone	very common silica as small quartz fragments
LD01-1712 12 - 13 m	Highly cavitied, massive, thick-bedded, mound-facies dolostone	common silica as quartz grains and 1-3 cm concentrations of granular quartz masses
LD01-1711 11 - 12 m	Sample over 10 m horizontally and 1 m vertically; massive, thick-bedded grainstone and minor mound facies in sample; minor dolomite-veining	minor silica as isolated blebs and grains of quartz plus 1 silicified belemnite
LD01-1710 10 - 11 m	Slightly scalloped, massive and slightly dolomite-veined grey dolomite containing small dolomite-lined vugs	trace silica as 1 small chert fragment
LD01-1709 9 - 10 m	Slightly scalloped, very thick-bedded massive grey dolostone cut by thin white dolomite veins	minor silica as scattered specks of quartz
LD01-1708 7.8 - 9 m	Very thick-bedded, scalloped, mound-facies dolostone; continuation of bed at 1707; sample over 10 m	common silica as quartz clusters to 2 cm
LD01-1707 6.8 - 7.8 m	Very thick-bedded, scalloped, mottled, mound-facies dolostone containing abundant dolomite-lined vugs; (1705, 1706, 1707, 1708 are the same bed)	common silica as knots of coarse-grained quartz
LD01-1706 5.8 - 6.8 m	Massive, very thick-bedded, mottled, massive to scalloped mound-facies dolostone containing dolomite-lined cavities	trace silica as rare specks
LD01-1705 4.3 - 5.8 m	Very thick bed of highly cavitied, mound-facies dolostone having dolomite-lined cavities	minor silica as scattered 1 - 2 cm knobs
LD01-1704 4.0 - 4.3 m	30-cm-thick bed of fine-grained, tan, massive, parallel laminated dolostone	none
LD01-1703 3 - 4 m	Sample over 10 m horizontally and 1 m vertically; section across buff, massive dolostone cut by cream and white dolomite veins - few vugs; contains abundant dissolved-out pods of ?limestone	none
LD01-1702 2 - 3 m	Buff, massive, very thick-bedded dolostone cut by cream and white dolomite veins - few cavities	none
LD01-1701 1 - 2 m	Very thick-bedded grey dolostone breccia composed of dolostone fragments in white dolomite matrix; some dolomite-filled vugs are apparent	none
	Start of sampling at high water mark; have about 2 m of cliff below	none

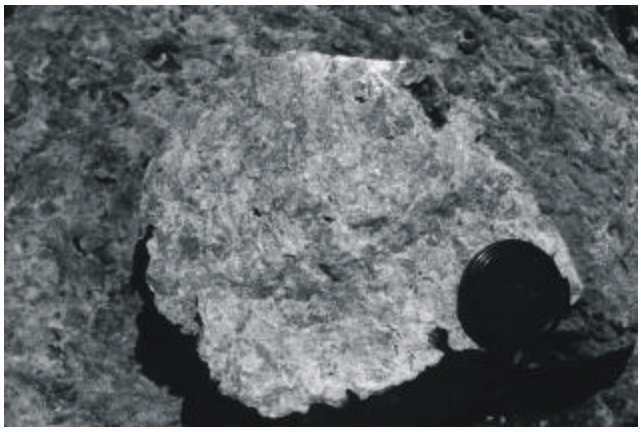

Plate 8. *Sample of fresh vuggy, colour-mottled, mound-facies dolostone of Unit 4; Site L06-11, southwest from Cape Norman. The texture comprises dark areas of sucrosic dolomite enclosed by a buff sparry dolomite. Lens cap is 5 cm in diameter.*

CONCLUSION

The economic potential for high-magnesium, low-silica dolostone lies in the thick-bedded mound-facies dolostone of Unit 4. The unit is generally, but not always, free of visible silica. The unit comprises a lower silica-poor unit, up to 9 m thick, and an upper silica-rich unit up to 6 m thick. Abundant silica does occur within narrow horizons within the low-silica dolostone.

ACKNOWLEDGMENTS

Field assistance was provided by Barry Wheaton. This paper benefited from reviews by Baxter Kean, Jerry Ricketts and Ian Knight.

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