

## POLYGON ATTRIBUTE TABLES

There are two polygon shapefiles (tables):

**Bedrock\_geology:** The polygons are the unit outcrop areas digitized from the source maps and each polygon has a full set of polygon attributes. Use this file for viewing the geology and for most other purposes.

**Map\_reference:** The polygons are the areas of coverage for individual source maps. This file provides an index map and the only geological polygon attribute is the short-form reference to the source map, MAP\_REF, which corresponds to the MAP\_REF field in the Bedrock\_geology file.

### BEDROCK: OVERVIEW OF FIELDS

The polygon attribute table contains one record for each polygon representing the outcrop area of a map unit. A raw text file of the table, **All\_polygons.txt**, is included in the **Documentation** folder and attribute tables derived from this file are attached to the various map files. Each record in the table has the following 64 fields (GIS software may generate the additional fields, FID, Shape\* and Shape\_Leng, which contain non-geological data):

#### *Polygon*

1. Polygon identifier

*Abbreviated Name*  
POLY\_ID

#### *Generalized Geology Fields*

2. Unit name (generalized)
3. Full label (generalized)
4. Dominant label (generalized)
5. Summary rock type (generalized)
6. Age range of unit (generalized)
7. Age of base of unit (generalized)
8. Age of top of unit (generalized)

G\_UNITNAME  
G\_FULLLABEL  
G\_DOMLABEL  
G\_ROCKTYPE  
G\_AGERANGE  
G\_AGEBASE  
G\_AGETOP

#### *Detailed Geology Fields*

9. Full label (detailed)
10. Dominant label (detailed)
11. Summary rock type (detailed)
12. Age range of unit (detailed)
13. Age of base of unit (detailed)
14. Age of top of unit (detailed)
15. Supergroup
16. Group
17. Formation
18. Member
19. Sub1-unit
20. Sub2-unit
21. Sub3-unit
22. Sub4-unit

D\_FULLLABEL  
D\_DOMLABEL  
D\_ROCKTYPE  
D\_AGERANGE  
D\_AGEBASE  
D\_AGETOP  
D\_SUPERGRP  
D\_GROUP  
D\_FORMATN  
D\_MEMBER  
D\_SUB1UNIT  
D\_SUB2UNIT  
D\_SUB3UNIT  
D\_SUB4UNIT

### ***Lithofacies Fields***

23. Full label (lithofacies)	L_FULLLABEL
24. Dominant label (lithofacies)	L_DOMLABEL
25. Summary rock type (lithofacies)	L_ROCKTYPE
26. Tectonic division (lithofacies)	L_TECTDIV
27. Tectonic subdivision (lithofacies)	L_TECTSUB

### ***Tectonic Assemblage Fields***

28. Full label (tectonic assemblage)	A_FULLLABEL
29. Dominant label (tectonic assemblage)	A_DOMLABEL
30. Summary rock type (tectonic assemblage)	A_ROCKTYPE
31. Tectonic division (tectonic assemblage)	A_TECTDIV
32. Tectonic subdivision (tectonic assemblage)	A_TECTSUB

### ***Source Map Fields***

33. Map ID	MAP_ID
34. Unit ID	UNIT_ID
35. Map number	MAP_NUMB
36. Publisher	MAP_PUBL
37. Map reference	MAP_REF
38. Map scale	MAP_SCALE

### ***Ordering Number Fields***

39. Generalized unit ordering number	ON_G.LABEL
40. Detailed unit ordering number	ON_D.LABEL
41. Lithofacies unit ordering number	ON_L.LABEL
42. Lithofacies tectonic subdivision ordering number	ON_L.ZONE
43. Tectonic assemblage ordering number	ON_A.LABEL
44. Tectonic assemblage tect. subdiv. ordering number	ON_A.ZONE

### ***Colour Fields***

45. Red (generalized)	G_RED
46. Green (generalized)	G_GREEN
47. Blue (generalized)	G_BLUE
48. RGB quad (generalized)	G_RGBQUAD
49. Red (detailed)	D_RED
50. Green (detailed)	D_GREEN
51. Blue (detailed)	D_BLUE
52. RGB quad (detailed)	D_RGBQUAD
53. Red (lithofacies)	L_RED
54. Green (lithofacies)	L_GREEN
55. Blue (lithofacies)	L_BLUE
56. RGB quad (lithofacies)	L_RGBQUAD
57. Red (tectonic assemblage)	A_RED
58. Green (tectonic assemblage)	A_GREEN
59. Blue (tectonic assemblage)	A_BLUE
60. RGB quad (tectonic assemblage)	A_RGBQUAD
61. RGB quad as text (detailed)	D_RGBText
62. RGB quad as text (generalized)	G_RGBText

63. RGB quad as text (tectonic assemblage)	A_RGBText
64. RGB quad as text (lithofacies)	L_RGBText

## DETAILED EXPLANATION OF FIELDS

### *Polygon*

#### **1. Polygon identifier [POLY\_ID]:**

This is the identifier attached to each map polygon. Identifiers have the form NFxxx\_yyyy, where xxx is a number representing the source map from which the polygon was digitized, and yyyy is a number from 0001 to 1999 representing a particular polygon within a map.

### *Generalized Geology Fields*

Seven variables provide names, labels and ages of units for a generalized version of the map, subdivided at the highest level of the stratigraphic hierarchy, usually by Supergroup, Group or Formation. This level of subdivision corresponds to the legend provided in **Generalized\_Legend.pdf**.

#### **2. Unit name (generalized) [G\_UNITNAME]:**

The field contains the name of the highest ranking stratigraphic division to which the polygon belongs (*e.g.*, "Springdale Group"). The field is the same as the first of Supergroup, Group or Formation to have an entry in the more detailed classification (see fields 15 to 17). An unnamed unit is represented by its unit label, **Dominant label (generalized)**.

#### **3 and 4. Unit labels (generalized) [G\_FULLLABEL, G\_DOMLABEL]:**

Labels are composed of one or two characters indicating the age of a unit, separated by a colon from one or two characters representing the stratigraphic division to which the unit belongs (*e.g.*, "eS:S" stands for "early (e) Silurian (S) Springdale Group (S)"). Labels are listed on the Generalized Legend with descriptions of the units.

Most polygons on a geological map have a simple label, indicating a single unit within the polygon; for these polygons the **Full label (generalized)** and the **Dominant label (generalized)** are the same. However, some polygons have complex labels that list two or more unseparated units. For these polygons, the dominant unit is usually the most important unit in the polygon (*e.g.*, "eS:S") and is used to determine the colour of the polygon; its unit label is in field 4. The full label, in field 3, shows the complete list of unseparated units (*e.g.*, "eS:S/eS:T").

**IMPORTANT: Secondary units are included in the legend but the various polygon attributes, including unit names, age values and summary rock type, refer only to the dominant unit.**

#### **5. Summary rock type (generalized) [G\_ROCKTYPE]:**

The entry comes from the standard rock types listed in **Rock\_Types.pdf**. The field contains the phrase that most accurately describes the lithology of the stratigraphic division in **Unit name (generalized)**. Descriptions are structured with the most general term first, followed by more specific terms, *e.g.*, "volcanic felsic marine"; this allows searches at various levels of lithological detail.

**6. Age range of unit (generalized) [G\_AGERANGE]:**

The field provides the age range of the stratigraphic division in **Unit name (generalized)** in terms of eons and eras in the Archean, eras and periods in the Proterozoic, periods and subperiods in the Paleozoic and Mesozoic, and periods and epochs in the Cenozoic. The range is based on the numerical values for the ages of the base and top of the generalized unit (fields 7 and 8), and the values in **Time\_Scale.pdf**.

**7. Age of base of unit (generalized) [G\_AGEBASE]:**

This is the oldest age, expressed in millions of years, that might reasonably be assigned to the base of the stratigraphic division in **Unit name (generalized)**. It may be derived from either radiometric or paleontological dating. Radiometric dates are adjusted for errors and paleontological dates are converted to absolute ages using the values in **Time\_Scale.pdf**.

**8. Age of top of unit (generalized) [G\_AGETOP]:**

This is the youngest age that might reasonably be assigned to the top of the stratigraphic division in **Unit name (generalized)**.

*Detailed Geology Fields*

Fourteen variables provide names, labels, rock types and ages of units for displaying a detailed version of the map. This is the same level of detail as is shown on the source maps from which the line work was digitized; most of these maps were produced at the 1:50 000 scale. This level of subdivision corresponds to the legend provided in **Detailed\_Legend.pdf**.

**9 and 10. Unit labels (detailed) [D\_FULLLABEL, D\_DOMLABEL]:**

As for generalized units, field 9 shows the full label and field 10 shows the label for just the dominant unit. The first one or two characters indicate the age of the unit and the succeeding characters represent the stratigraphic divisions of the unit in descending order (*e.g.*, "eS:Svf" stands for "early (e) Silurian (S) Springdale Group (S) volcanic (v) felsic (f)").

Note that the generalized and detailed labels are consistent. The characters indicating age are only different if the detailed subdivision has a more restricted age range than the generalized division. The character indicating the top rank unit is always the same and the characters indicating lower rank subdivisions are simply omitted from the generalized label.

**11. Summary rock type (detailed) [D\_ROCKTYPE]:**

The entry comes from the standard rock types listed in **Rock\_Types.pdf**. The field contains the phrase that most accurately describes the lithology of the dominant detailed unit in a polygon. Note that the description is of a unit, not of a particular polygon, so it may not be accurate for some polygons.

**12. Age range of unit (detailed) [D\_AGERANGE]:**

The field provides the age range of the detailed unit in terms of eons and eras in the Archean, eras and periods in the Proterozoic, periods and subperiods in the Paleozoic and Mesozoic, and periods and epochs in the Cenozoic. The range is

based on the numerical values for the ages of the base and top of the detailed unit (fields 13 and 14) and the values in **Time\_Scale.pdf**.

**13. Age of base of unit (detailed) [D\_AGEBASE]:**

This is the oldest age, expressed in millions of years, that might reasonably be assigned to the base of the detailed unit. In most cases, a junior unit is not dated directly and what is actually shown is the age of a more senior unit to which it belongs.

**14. Age of top of unit (detailed) [D\_AGETOP]:**

This is the youngest age that might reasonably be assigned to the top of the detailed unit.

**15 to 18. Supergroup, Group, Formation, Member [D\_SUPERGRP, D\_GROUP, D\_FORMATN, D\_MEMBER]:**

These four fields give the names of the stratigraphic divisions to which a unit belongs. Both formal and informal names are used.

Note that unnamed units have a "dummy" name entered in brackets in the Formation field so that they can be distinguished from other units.

**19 to 22. Sub1-unit, Sub2-unit, Sub3-unit, Sub4-unit [D\_SUB1UNIT, D\_SUB2UNIT, D\_SUB3UNIT, D\_SUB4UNIT]:**

These four fields are used for unnamed subdivisions below the Member level. Subunits are usually indicated by a single, lower case character, which is also used in the unit label. They are structured hierarchically to allow maps to be generalized at several different levels. For example, units may be divided into volcanic (v) and sedimentary (s) in Sub1-unit, and the volcanic units may be further subdivided into felsic (f) and mafic (m) in Sub2-unit. The felsic units can then be split again into flows (f) and pyroclastics (p) in Sub3-unit, and the pyroclastics into tuffs (t) and breccias (x) in Sub4-unit.

Some units contain "(u)" in Sub1-unit. This is a "dummy" entry used to facilitate sorting of the legend and the unit at this level is not geologically distinct from the named subdivision above it.

***Lithofacies Fields***

Five fields allow the map to be displayed in the same format as the 1:1 million-scale Map 90-01, "Geology of the Island of Newfoundland" (Colman-Sadd *et al.*, 1990). This map uses a tectonic lithofacies classification for units rather than a stratigraphic classification; the units are described on the legend in **Lithofacies\_Legend.pdf**. Note that, although the legend is generalized to about the same level as on the printed 1:1 million map, the line work is not. As a result, the digital map shows the distribution of units in much more detail and with much more accuracy than the printed map.

**23 and 24. Unit labels (lithofacies) [L\_FULLLABEL, L\_DOMLABEL]:**

As for the generalized and detailed units, field 23 shows the full label and field 24 shows the label for just the dominant unit. The labels are similar to those used

on Map 90-01 and unit descriptions are given on the Lithofacies Legend. Note that some Dunnage Zone units have been divided in two with "n" or "x" suffixes to distinguish between the Notre Dame and Exploits subzones respectively. There are also a few units that are not represented on Map 90-01 because all their outcrop areas are too small to show at the 1:1 million scale.

**25. Summary rock type (lithofacies) [L\_ROCKTYPE]:**

The entry comes from the standard rock types listed in **Rock\_Types.pdf**. The field contains the phrase that most accurately describes the lithology of the dominant lithofacies unit in a polygon.

**26. Tectonic division (lithofacies) [L\_TECTDIV]:**

The name of the tectonostratigraphic division to which the polygon belongs. Three divisions are used for rocks generated during the Appalachian orogenic cycle: "Laurentian Margin", "Iapetus Ocean" and "Gondwanan Margin". To these are added two divisions for post-orogenic overlap sequences and intrusive rocks.

**27. Tectonic subdivision (lithofacies) [L\_TECTSUB]:**

The name of the tectonostratigraphic subdivision to which the polygon belongs. These are zones and subzones adapted from the classification of Williams *et al.* (1988).

***Tectonic Assemblage Fields***

Five fields allow the map to be displayed in a format similar to the tectonic assemblage maps of the Western Cordillera (Gabrielse *et al.*, 1991). This format distinguishes terranes in more detail than the lithofacies version. For example, the Notre Dame Subzone is subdivided into a number of different arc-backarc systems; the units are described on the legend in **Tect\_Assemb\_Legend.pdf**.

**28 and 29. Unit labels (tectonic assemblage) [A\_FULLLABEL, A\_DOMLABEL]:**

As for the generalized, detailed and lithofacies units, field 28 shows the full label and field 29 shows the label for just the dominant unit. The unit descriptions are given on the Tectonic Assemblage Legend.

**30. Summary rock type (tectonic assemblage) [A\_ROCKTYPE]:**

The entry comes from the standard rock types listed in **Rock\_Types.pdf**. The field contains the phrase that most accurately describes the lithology of the dominant tectonic assemblage in a polygon.

**31. Tectonic division (tectonic assemblage) [A\_TECTDIV]:**

The name of the tectonostratigraphic division to which the polygon belongs. Three divisions are used for rocks generated during the Appalachian orogenic cycle: "Laurentian Margin", "Iapetus Ocean" and "Gondwanan Margin". To these are added two divisions for post-orogenic overlap sequences and intrusive rocks.

**32. Tectonic subdivision (tectonic assemblage) [A\_TECTSUB]:**

The name of the tectonostratigraphic subdivision to which the polygon belongs. These are zones and subzones adapted from the classification of Williams *et al.* (1988).

### *Source Map Fields*

#### **33. Map ID [MAP\_ID]:**

Each polygon has been digitized from an existing hard-copy map. This field gives the Geological Survey of Newfoundland and Labrador Geofiles number for the map. Note that line work has not been changed from that shown on the original maps.

#### **34. Unit ID [UNIT\_ID]:**

The unit label used for a polygon on the original published source map referred to in **Map ID**. Numbers in {brackets} following some unit labels distinguish different parts of what were originally single units and do not occur on the source maps.

#### **35. Map number [MAP\_NUMB]:**

The number of the source map in the publisher's map series.

#### **36. Publisher [MAP\_PUBL]:**

The publisher of the source map.

#### **37. Map reference [MAP\_REF]:**

The short-form reference to the map from which the polygon was digitized. The full reference can be found in **Reference\_List.pdf**. Note that this field corresponds to the only geological polygon attribute in the Map\_Ref polygon file.

#### **38. Map scale [MAP\_SCALE]:**

The scale of the published source map. Digitizing was generally done from source maps at publication scale and it has corresponding topographic accuracy. In a few cases, maps were digitized at more detailed scales than the published versions, using manuscript material.

### *Ordering Number Fields*

These six fields are the same as fields 4, 10, 24, 27, 29 and 32, except that they have numeric prefixes that allow them to be sorted in a specific order. They are provided for use in GIS viewing software that creates screen legends of values in selected fields. Such software could use field 4 to make a screen legend of all the labels for top ranking units. However it would have no means of sorting the labels in a geologically sensible way. If field 39 is used instead, the numeric prefix ensures that the labels are sorted with the oldest units at the bottom of the list and the youngest ones at the top. Once the labels are sorted, the prefixes can be deleted.

#### **39. Dominant label ordering number (generalized) [ON\_G.LABEL]:**

Equivalent to field 4. Sorting is by age and older units have higher numbers.

#### **40. Dominant label ordering number (detailed) [ON\_D.LABEL]:**

Equivalent to field 10. Sorting is by age and older units have higher numbers.

**41. Lithofacies label ordering number [ON\_L.LABEL]:**

Equivalent to field 24. Sorting is by tectonic division and subdivision, rock class and age, and the order of units matches that on the **Lithofacies\_Legend.pdf**.

**42. Lithofacies tectonic subdivision ordering number [ON\_L.TECT]:**

Equivalent to field 27. Sorting is by tectonic division and subdivision.

**43. Tectonic assemblage ordering number [ON\_A.LABEL]:**

Equivalent to field 29. Sorting is by rock class, tectonic division and subdivision, and age, and the order of units matches that on the **Tect\_Assemb\_Legend.pdf**.

**44. Tectonic assemblage tectonic subdivision ordering number [ON\_A.TECT]:**

Equivalent to field 32. Sorting is by tectonic division and subdivision.

*Colour Fields*

The polygon attribute tables have three fields for Red, Green and Blue (RGB) for each level of detail. They also have **RGB quad** fields, which combine the three RGB values into single numbers using the formula ((red x 65536) + (green x 256) + blue); the **RGB text** fields store these values as text. The colour fields give the values preassigned to the polygons on the coloured versions of the polygon files. Although these values can be edited, editing has no effect on the colours of the polygons in these files. Use the uncoloured polygon files to produce a map with a customized colour scheme.

**45 to 48. Generalized polygon colours [G\_RED, G\_GREEN, G\_BLUE, G\_RGBQUAD]:**

The RGB values assigned to polygons in the generalized version of the map and corresponding to the generalized stratigraphic units distinguished by **Dominant label (generalized)** (field 4).

**49 to 52. Detailed polygon colours [D\_RED, D\_GREEN, D\_BLUE, D\_RGBQUAD]:**

The RGB values assigned to polygons in the detailed version of the map and corresponding to the detailed stratigraphic units distinguished by **Dominant label (detailed)** (field 10).

**53 to 56. Lithofacies polygon colours [L\_RED, L\_GREEN, L\_BLUE, L\_RGBQUAD]:**

The RGB values assigned to polygons in the lithofacies version of the map and corresponding to the lithofacies units distinguished by **Dominant label (lithofacies)** (field 24). The colours match those used on Map 90-01, "Geology of the Island of Newfoundland".

**57 to 60. Tectonic assemblage polygon colours [A\_RED, A\_GREEN, A\_BLUE, A\_RGBQUAD]:**

The RGB values assigned to polygons in the tectonic assemblage version of the map and corresponding to the tectonic assemblages distinguished by **Dominant label (tectonic assemblage)** (field 29).

**61 to 64. RGB quad values as text** [D\_RGBText, G\_RGBText, A\_RGBText, L\_RGBText]:

The RGB quad values (fields 48, 52, 56, 60) in text format for the four levels of detail.

## REFERENCES

Colman-Sadd, S. P., Hayes, J. P., and Knight, I.

1990: Geology of the Island of Newfoundland. Newfoundland Department of Mines and Energy, Geological Survey Branch, Map 90-01.

Gabrielse, H., Monger, J.W.H., Wheeler, J.O. and Yorath, C.J.

1991: Part A. Morphological belts, tectonic assemblages and terranes. *In* Chapter 2 of Geology of the Cordilleran Orogen in Canada, *edited by* H. Gabrielse and C.J. Yorath. Geological Survey of Canada, Geology of Canada, No. 4, pages 15-28 (also Geological Society of America, The Geology of North America, Volume G-2).

Williams, H., Colman-Sadd, S. P., and Swinden, H. S.

1988: Tectonic-stratigraphic subdivisions of central Newfoundland. *In* Current Research, Part B. Geological Survey of Canada, Paper 88-1B, pages 91-98.