

FIGURE 21. Palynostratigraphic cross-section D - D', Rankin M-36 to Gabriel C-60

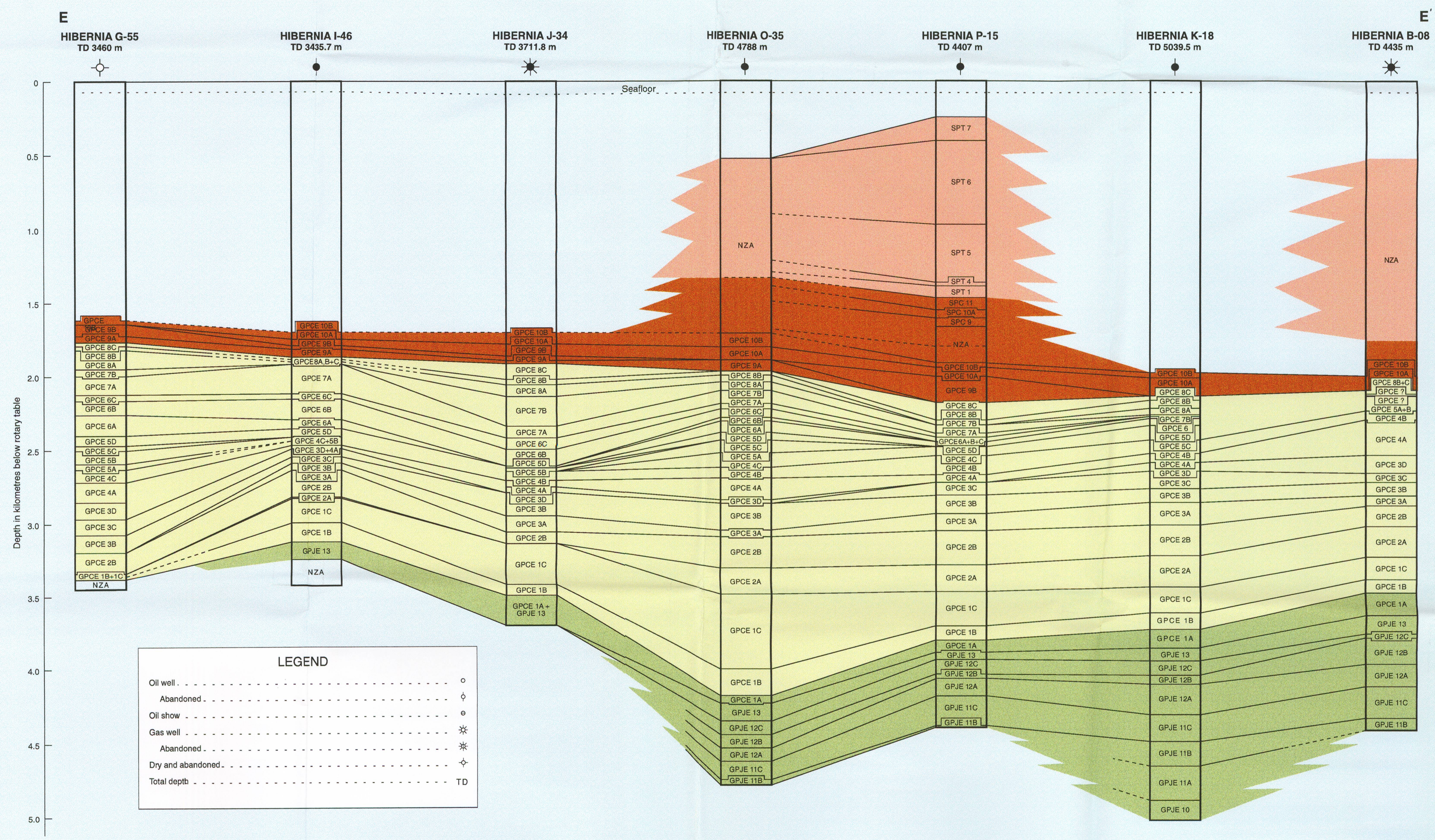


FIGURE 22. Palynostratigraphic cross-section E - E', Hibernia G-55 to Hibernia B-08

GEOCHRONOLOGIC UNIT	G S C		DAVIES		
	ZONE CODE	SUBZONE CODE	ZONE CODE		
QUATERNARY	Pleistocene	SPT 11	SPT 11B		
	Pliocene	L	SPT 10	SPT	
		M	SPT 9		
	Miocene	E	SPT 8		
		L	SPT 7		
	TERTIARY	PALEOGENE	Oligocene	SPT 6	SPT 6B
			Eocene	SPT 5	SPT 6A
			Miocene	SPT 4	
			Eocene	SPT 3	
	CRETACEOUS	LATE	Paleocene	SPT 2	
			Maastrichtian	SPC	
			Cenomanian	SPC 10	SPT 10A
Santonian			SPC 9		
CRETACEOUS	EARLY	Coniacian	SPC 8	GPCE 10	
		Campanian	SPC 7	GPCE 9	
		Coronarian	SPC 6	GPCE 8	
		Albanian	SPC 5	SPC 5B	
		Aptian	SPC 4	SPC 4A	
		Beremian	SPC 3	GPCE 6	
		Halysian	SPC 2	GPCE 5	
		Valanginian	SPC 1	GPCE 4	
		Berriasian	SPC 1	GPCE 3	
		Porterian	SPU 10	GPCE 2	
JURASSIC	LATE	Kimmeridgian	SPU 9	GPJE 13	
		Oxfordian	SPU 8	GPJE 12	
				GPJE 11	
				GPJE 10	
		MIDDLE	Callovian	SPU 7	SPU 7B
			Bathonian	SPU 6	SPU 7A
			Bigonian	SPU 5	
			Amersian	SPU 4	
			Talocan	SPU 3	
			Therapsidian	SPU 2	
EARLY	Sinemurian	SPU 1			
	Halysian	SPU 1			
	Frasnian				
	Norman				
L. TRIASSIC					

FIGURE 23. Generalized stratigraphy, incorporating an explanation of the zone codes used in the cross-sections (NZA = no zonal assignment)

**EAST COAST BASIN ATLAS SERIES
GRAND BANKS OF NEWFOUNDLAND
BIOSTRATIGRAPHY AND MATURATION DATA 6
PALYNOSTRATIGRAPHIC CROSS-SECTIONS 2**

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PALYNOSTRATIGRAPHIC SECTION D-D'
(Figure 21)
For the course of this section, see the location map (Figure 24). The section shows the stratigraphy, as delineated by the palynological zonation, across the northwestern part of the Jeanne d'Arc Basin (Rankin M-36, Hebron I-13, Ben Nevis I-45 and Whitehorse N-22) over the Outer Ridge Complex (Trave E-87, Golconda C-64) and into the Flemish Pass Basin (Gabriel C-60). For an explanation of the zone codes, see Figure 23. The colours differentiate Lower, Middle and Upper Jurassic, Lower and Upper Cretaceous, Paleogene, Miocene and Pliocene rocks.

There is a general deepening of zonal boundaries and thickening of strata towards the axis of the Jeanne d'Arc Basin (Ben Nevis I-45) from both the basin's western margin (Rankin M-36) and its eastern margin (Golconda C-64 on the Outer Ridge Complex). East of Golconda C-64, boundaries deepen again and strata thicken into the Flemish Pass Basin (Gabriel C-60). Lower Jurassic strata were recorded only in Golconda C-64 on the Outer Ridge Complex. Middle Jurassic strata were reported only in this well and Rankin M-36 on the western margin of the Jeanne d'Arc Basin. Upper Jurassic strata were moderately well to very well developed in all wells except Gabriel C-60, in which pre-Cretaceous rocks were not reached, despite the fact that this well is the deepest in the section. Lower Cretaceous rocks were present in all wells and reached their greatest developments in the axes of the two basins (Ben Nevis I-45 and Gabriel C-60). Upper Cretaceous strata were proven in moderate thicknesses in the three eastern wells (Rankin M-36, Hebron I-13 and Ben Nevis I-45). However, the Upper Cretaceous sequence is extremely thin and incomplete in Whitehorse N-22, Golconda C-64 and Gabriel C-60, and is absent altogether in Trave E-87, where Paleogene strata appear to directly overlie Valanginian rocks. Paleogene strata are moderately to thickly represented in all wells, but Neogene rocks were proven only in Gabriel C-60.

The zonation used for the wells represented in this section is essentially that shown in Figure 23, but with slight modifications. The zonation used, and the depths of zones in each well, are presented in Figure 20, which is adapted from Williams et al. (1990).

PALYNOSTRATIGRAPHIC SECTION E-E'
ZNATION OF HIBERNIA WELLS
(Figure 22)
For the course of this section, see the location map (Figure 24). The section shows the stratigraphy, as

delineated by palynological zonation, in the Hibernia area of the Jeanne d'Arc Basin. Hibernia G-55, Hibernia I-46, Hibernia J-34 and Hibernia K-18 have been analyzed only from the Turonian down; the whole of Hibernia O-35, Hibernia P-15 and Hibernia Q-35 have been analyzed. For an explanation of the zone codes, see Figure 23. The colours differentiate Upper Jurassic, Lower and Upper Cretaceous and Paleogene rocks.

As can be seen from the inset map, the section runs generally from the southwest to the northeast. The Upper Jurassic was penetrated in all wells except Hibernia G-55, though only thin Jurassic sections were penetrated in Hibernia I-46 and Hibernia J-34, whereas thick sections were reported in the other wells. This variation is due primarily to the different depths to which the wells penetrated.

In each well, most Lower Cretaceous zones and subzones were penetrated. However, gaps and condensation of parts of the section can be seen; note, for example, the incompleteness of the section between subzones GPCE4B and GPCE5B in Hibernia J-34. Cenomanian-Turonian strata are of more or less consistent thickness in the westernmost three wells, but Upper Cenomanian strata appear to be missing in Hibernia O-35, and from this well eastwards there is a progressive loss of the older Upper Cretaceous subzones; thus, in the easternmost well, Hibernia B-08, Upper Turonian strata almost directly overlie middle Aptian strata, with a very thin intervening thickness of Lower Cenomanian.

The zonation used for the wells represented in this section is essentially that shown in Figure 23, but with slight modifications. The zonation used, and the depths of zones in each well, are presented in Figure 20, which is adapted from Williams et al. (1990).

References
Williams, G. L., Ascoli, P., Bars, M. S., Bujak, J. P., Davies, E. H., Fensome, R. A. and Williamson, M. A.: 1990, Biostratigraphy and maturation data, Chapter 3 in Geology of the Continental Margin of Eastern Canada, M. J. Keen and G. L. Williams (eds.), Geological Survey of Canada, Geology of Canada, no. 2 (also Geological Society of America, The Geology of North America, v. 1-1).

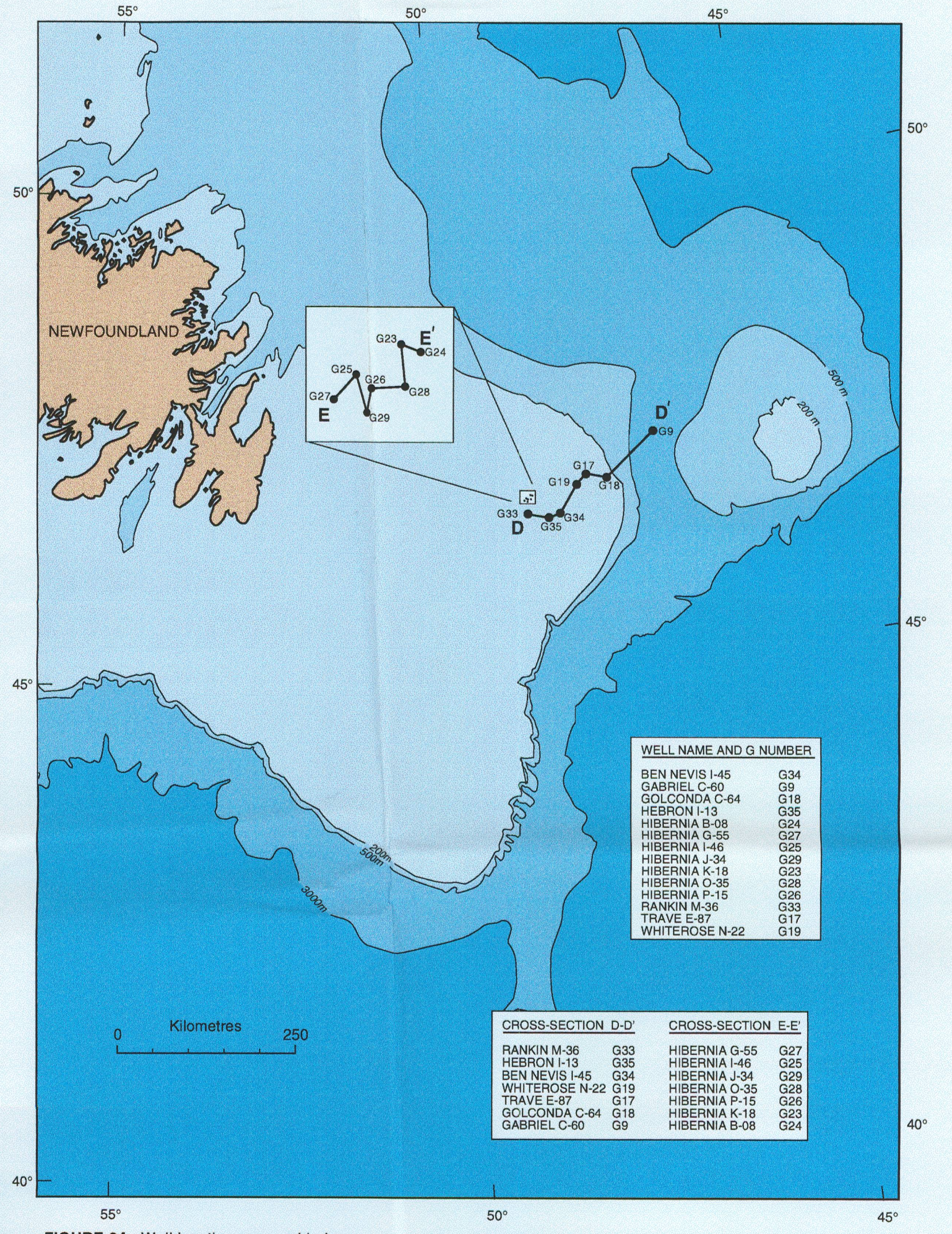


FIGURE 24. Well location map and index

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