SIGNIFICANT DISCOVERIES
DISCOVERED RESOURCES

FIELD	OIL (MMSTB)	GAS (BSCF)	NGL'S (MMSTB)
GRAND BANKS AREA			
HIBERNIA[1]	884	1375	145
TERRA NOVA[1]	406	269	14
HEBRON	325	-	-
WHITE ROSE	283	2722	96
WEST BEN NEVIS	34	-	-
MARA	23	-	-
BEN NEVIS	55	315	30
NORTH BEN NEVIS	18	116	4
SPRINGDALE	14	238	-
NAUTILUS	13	-	-
KING'S COVE	10	-	-
SOUTH TEMPEST	8	-	-
EAST RANKIN	7	-	-
FORTUNE	6	-	-
SOUTH MARA	4	144	8
NORTH DANA	-	472	11
TRAVE	-	30	1
WEST BONNE BAY	36	-	-
SUBTOTAL (GRAND BANKS)	2 126	5 681	309
LABRADOR SHELF			
NORTH BJARNI	0	2 247	82
GUDRID	0	924	6
BJARNI	0	863	31
HOPEDALE	0	105	2
SNORRI	0	105	2
SUBTOTAL (LABRADOR)	0	4 244	123
TOTAL	2 126	9 925	432

Source: C-NOPB

GOVERNMENT OF
NEWFOUNDLAND
AND LABRADOR

http://www.gov.nf.ca/mines&en/

Department of Mines and Energy
Government of Newfoundland and Labrador

OFFSHORE NEWFOUNDLAND AND LABRADOR

CALL FOR BIDS NF01-1

And
Overview of
Newfoundland and Labrador
Offshore Exploration
and Development

Department of Mines and Energy

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR

Offshore Newfoundland and Labrador Call for Bids NF01-1

August, 2001

FOREWORD

The purpose of this report is to provide information on offshore petroleum exploration and development opportunities in the Province of Newfoundland. General geological information is provided, along with specific information on 14 land parcels being offered in a Call for Bids closing November 20, 2001. Information presented is current to August 2001.

TABLE OF CONTENTS

Hibernia Gravity Based Structure (GBS)

Last year the C-NOPB upgraded its Hibernia reserve estimate from 666 million to 884 million barrels recoverable oil.

The East Coast of Canada, including offshore Nova Scotia and offshore Newfoundland and Labrador, has recently come to prominence as a major new territory for petroleum exploration and development.

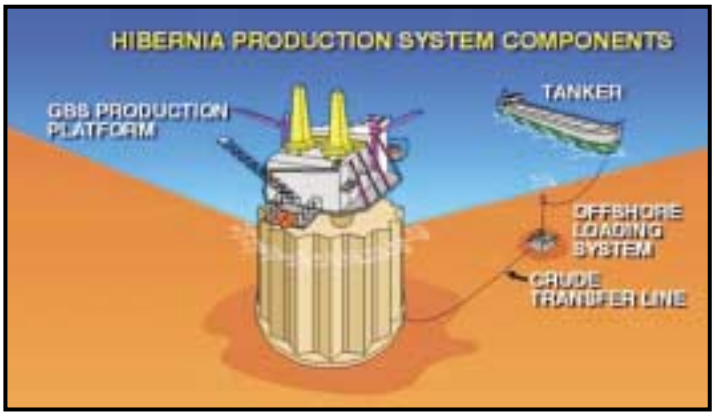
The Hibernia field, in 80 metres of water on the Grand Banks of Newfoundland, began production with a gravity based structure in 1997, and is currently producing about 140,000 barrels of oil per day.

The Terra Nova field, located 35-km southeast of Hibernia, will be brought onstream this fall using a floating production system that is expected to produce about 125,000 barrels of oil per day.

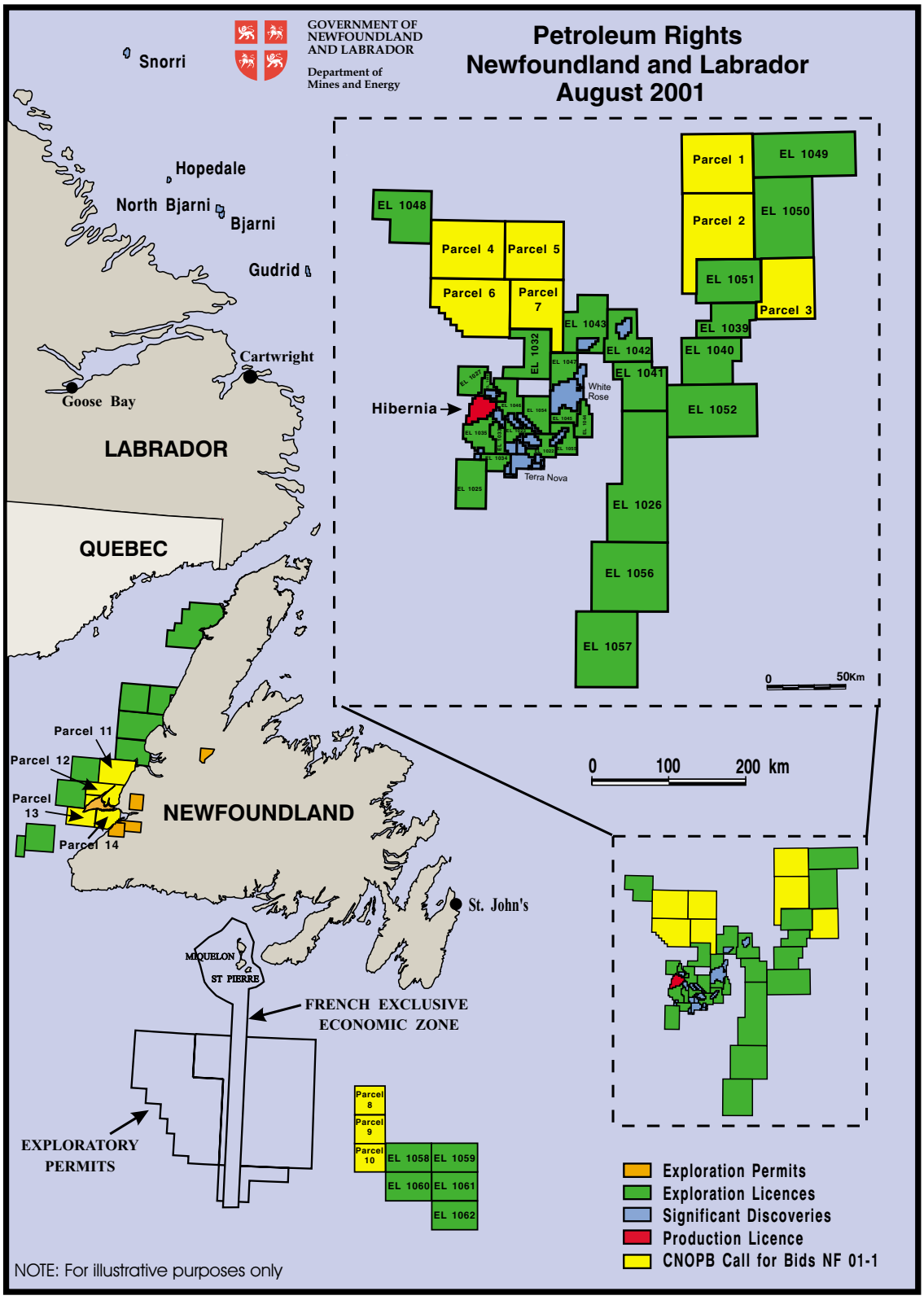
Husky Oil has submitted a development plan to produce 75,000 to 100,000 bopd from the White Rose field by 2004 and Chevron is currently studying the possibility of developing the Hebron/Ben Nevis fields. To date, 127 exploration wells, 30 delineation wells and 32 development wells have been drilled and resulted in the discovery of recoverable resources of 2.1 billion barrels of oil, 9.9 tcf of gas and 432 million barrels of natural gas liquids. The international petroleum industry, along with local companies and research institutions, have successfully adapted technologies developed in the North Sea, Gulf of Mexico and elsewhere to meet the challenges of the northwest Atlantic environment, in a manner that allows for safe and profitable access to the area's considerable petroleum resources. Finding costs for the Grand Banks are less than US $1.00[1] and, based on a reserve of 370 million barrels, the break even cost for Terra Nova is US $9.00 per barrel[2]. Petro-Canada estimates that an undrilled fault block in the field may contain an additional 100 million barrels. More detail on discovered resources and geological framework is provided in Section 1.

Terra Nova Floating Production Storage and Offloading Facility

Finding costs for the Grand Banks are less than US $1.00.



Fourteen parcels of land totaling 1.96 million hectares are offered in the Call for Bids NF01-1 that closes November 20, 2001.



Newfoundland Petroleum Rights

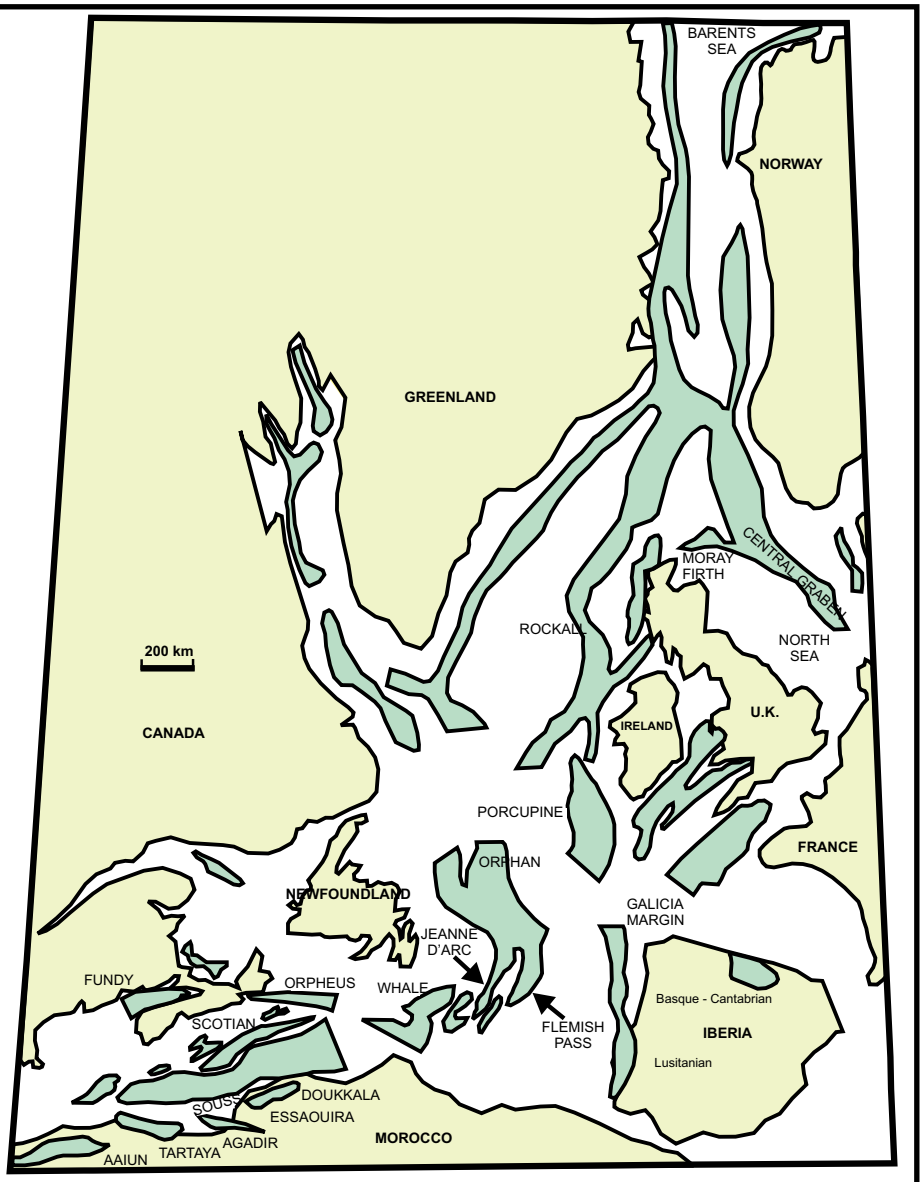
GEOLOGICAL FRAMEWORK

Mesozoic Basins of the North Atlantic

More than 26 billion barrels of oil and 63 tcf of natural gas have been produced from the Mesozoic and Cenozoic basins of the North Atlantic. The primary producing reservoirs thus far have been the Lower Cretaceous, Jurassic and Tertiary sandstones of the British and Norwegian North Sea, but since November, 1997 major production has been achieved from the Lower Cretaceous reservoirs on the west side of the Atlantic - at the Hibernia field. Although the distinction of first oil production in the northwest Atlantic goes to the Cohasset/Panuke field offshore Nova Scotia, which produced about 43 million barrels, Hibernia is the first giant field to be developed and is currently producing at 140,000 bopd from only 14 production wells.

Figure 1.1 illustrates the parallel ancestry of the North Sea and offshore Newfoundland and Labrador basins, both of which were formed by the separation of Europe and northwest Africa from North America by the continental drift that commenced in the Triassic/Early Jurassic.

To date more than 2600 exploration wells have been drilled in the North Sea and have proven resources of more than 55 billion barrels of oil and 200 tcf of gas[3]. Only 127 exploration wells have been drilled Offshore Newfoundland and Labrador, by which some 2.1 billion barrels of oil and 9.9 tcf of natural gas have been discovered [4]. Studies of undiscovered oil resources in the Newfoundland and Labrador offshore area have focused primarily on the Northern Grand Banks and have resulted in estimates ranging from 6 to 12 billion barrels recoverable. The undiscovered gas resource for the offshore area is estimated to be about 60 trillion cubic feet [5].



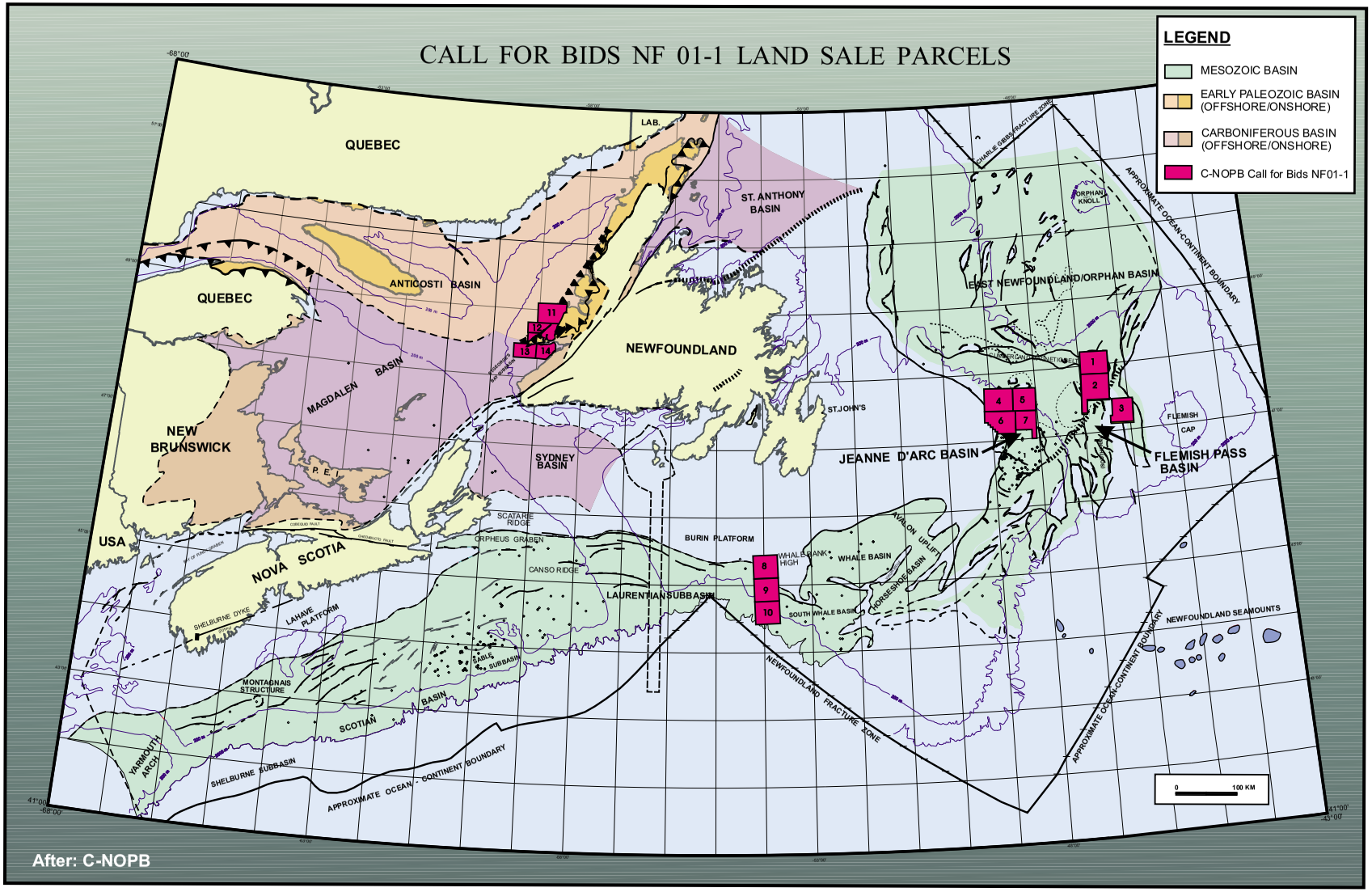
Predrift rift basins of the North Atlantic margins.

After: A. J. Tankard

Figure 1.1

GEOLOGICAL FRAMEWORK

Figure 1.2



Exploration is occurring in the Mesozoic Basins of the Grand Banks and Scotian Shelf as well as in the Paleozoic Basins of Western Newfoundland and throughout Eastern Canada. Lands are being offered in the Mesozoic and Paleozoic Basins in Call for Bids NF 01-1.

GEOLOGICAL FRAMEWORK

Figures 1.3 and 1.4 illustrate the primary reservoirs and field locations within the Jeanne d'Arc basin and Ridge Complex. To date the key reservoirs are the Lower Cretaceous Ben Nevis/Avalon and Hibernia sandstones and the Late Jurassic Jeanne d'Arc sandstones. As in the North Sea the source rock is a regional Kimmeridgian shale with total organic carbon in the neighborhood of 4.5% and a hydrogen index in the range of five hundred to seven hundred - indicating a highly oil prone source rock [6].

The Jeanne d'Arc basin is home to all of the large oil fields discovered to date, including Hibernia, Terra Nova, Hebron and White Rose. Based on current developments (Hibernia and Terra Nova), this basin will be producing about 265,000 barrels per day by late fall of 2001, and if development proceeds as expected at White Rose and Hebron, could be producing 350,000 to 450,000 bopd by 2007. Four parcels in this Call for Bids are located in the northern Jeanne d'Arc Basin (Figure 1.5).

The Hibernia B-16-1 well set a Canadian daily flow rate record in 1998 when it tested at 56,000 barrels of oil per day from the Hibernia Sandstone Reservoir.

Jeanne d'Arc Basin

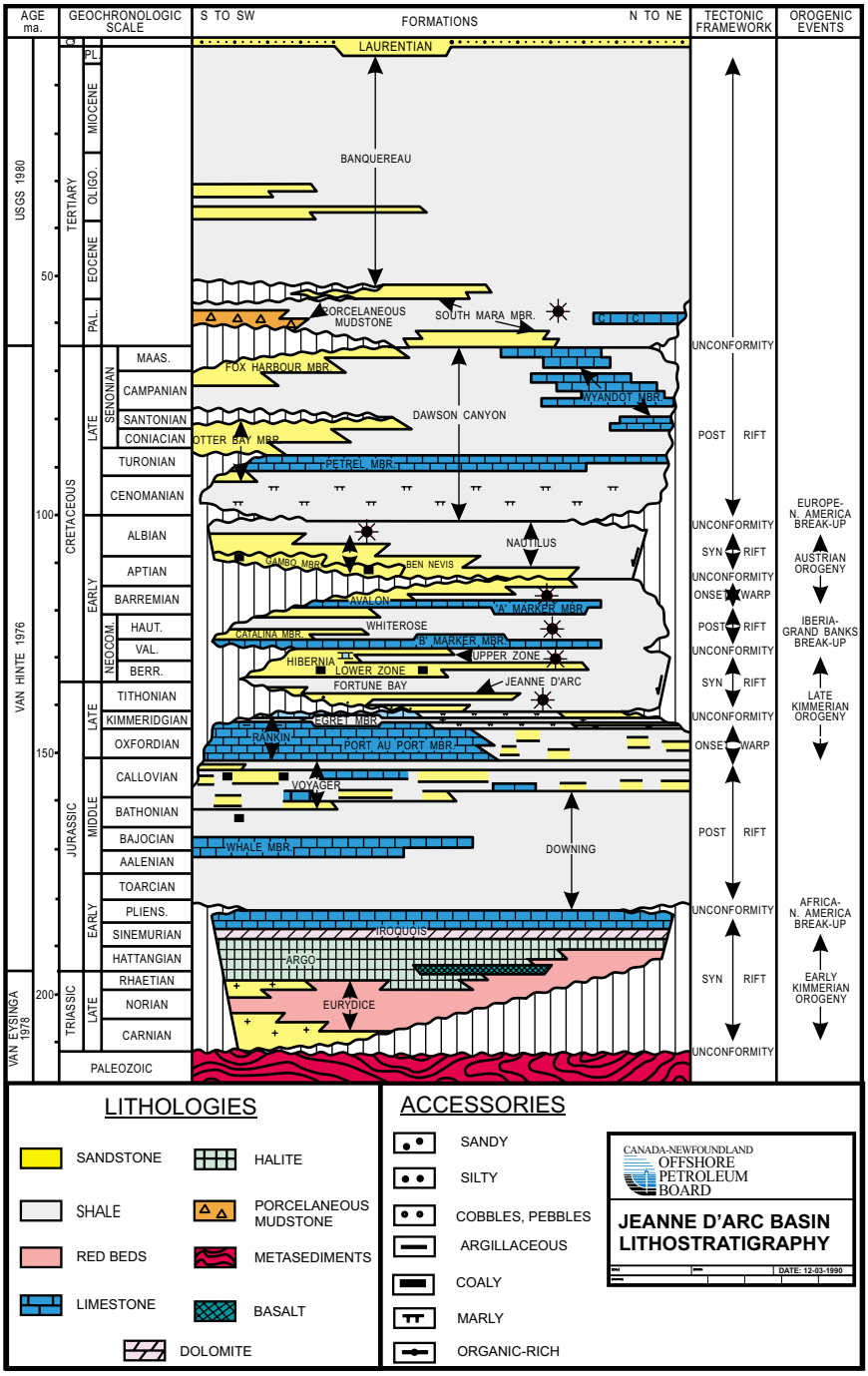
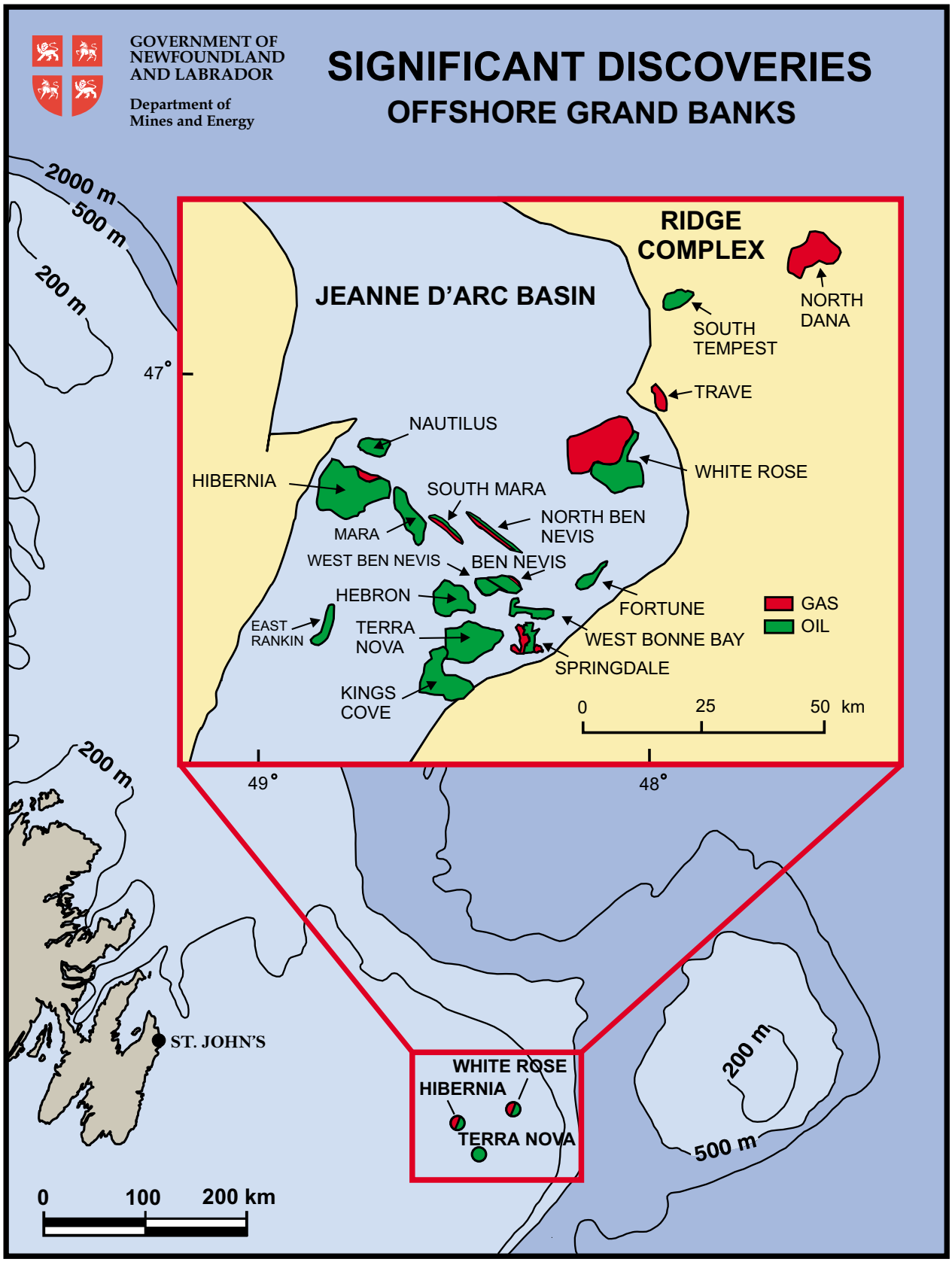


Figure 1.3

The primary reservoirs of the Jeanne d'Arc basin are the Lower Cretaceous Avalon/Ben Nevis and Hibernia Sands, and the Late Jurassic Jeanne d'Arc Sands. The key source rock is the Kimmeridgian aged Egret Member.



NOTE: For illustrative purposes only
After: C-NOPB

Figure 1.4

GEOLOGICAL FRAMEWORK

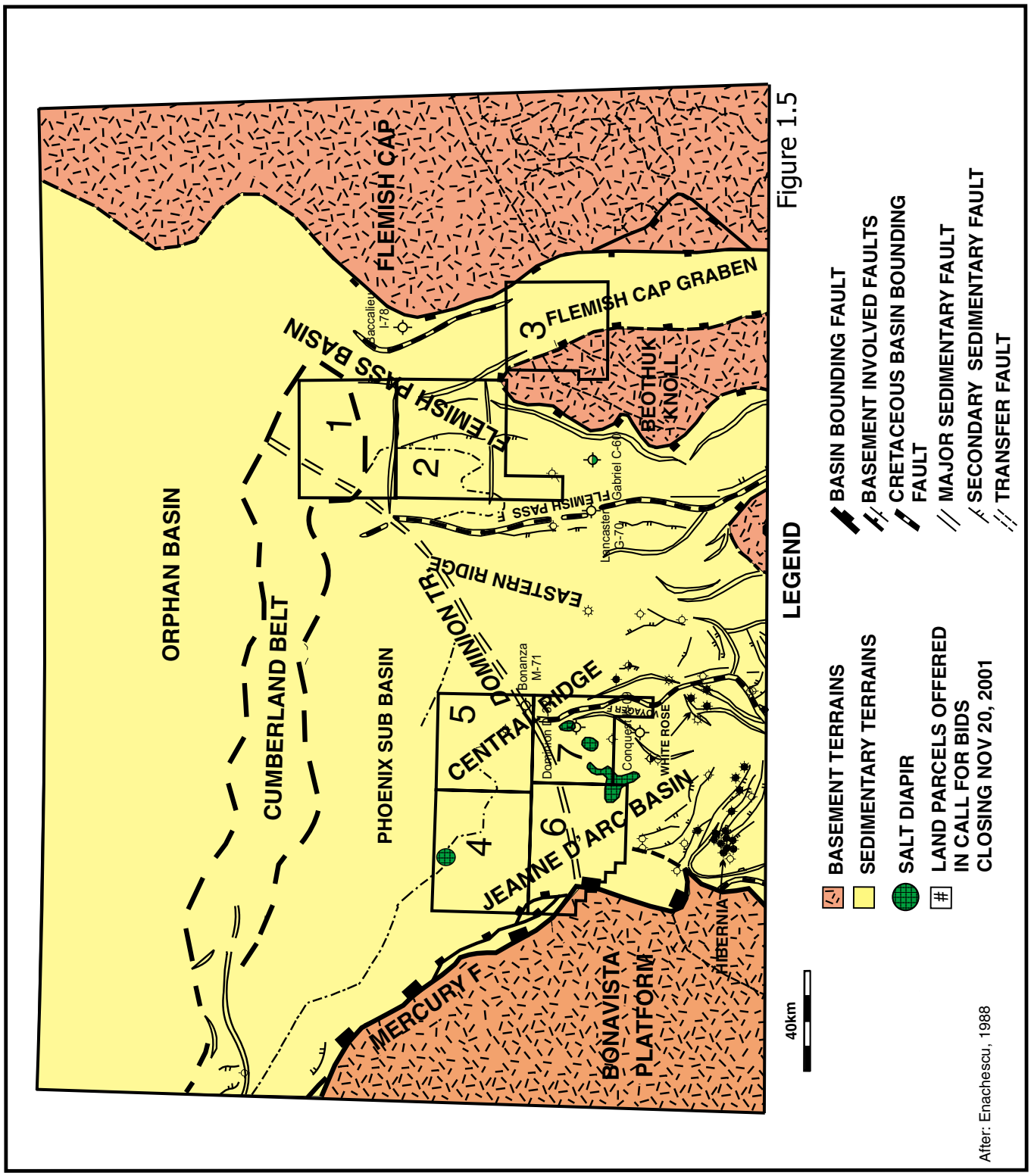


Figure 1.5

GEOLOGICAL FRAMEWORK

Northern Jeanne d'Arc Basin

The northern part of the Jeanne d'Arc Basin (also known as the "Phoenix Subbasin") lies to the north of the Dominion Transfer Fault and south of the Cumberland magnetic belt (Figure 1.5). The subbasin likely opened early in the evolution of the Mesozoic basins as a northwestern arm of the main Jeanne d'Arc Basin. Thus, a full Jurassic section can be inferred to exist in the basin including the Kimmeridgian shales that are the source rock to the south. Seismic data also shows a thick Lower Cretaceous section within the basin. To the east, the northern extension of the Central Ridge ("North Central Ridge") contains a Lower Cretaceous section overlain by thin to absent Upper Cretaceous strata. The Jurassic section on the ridge thins over Paleozoic highs evident on seismic, one of which was drilled by the *Bonanza M-71* well. With the Paleozoic highs to the east and the Bonavista Platform to the west, the northern Jeanne d'Arc Basin could be viewed as a restricted embayment during Jurassic time with a high probability of developing oil prone source rock. During the Early Cretaceous the old highs to the north, west and east could have provided a source of coarse sandstones along the basin edges.

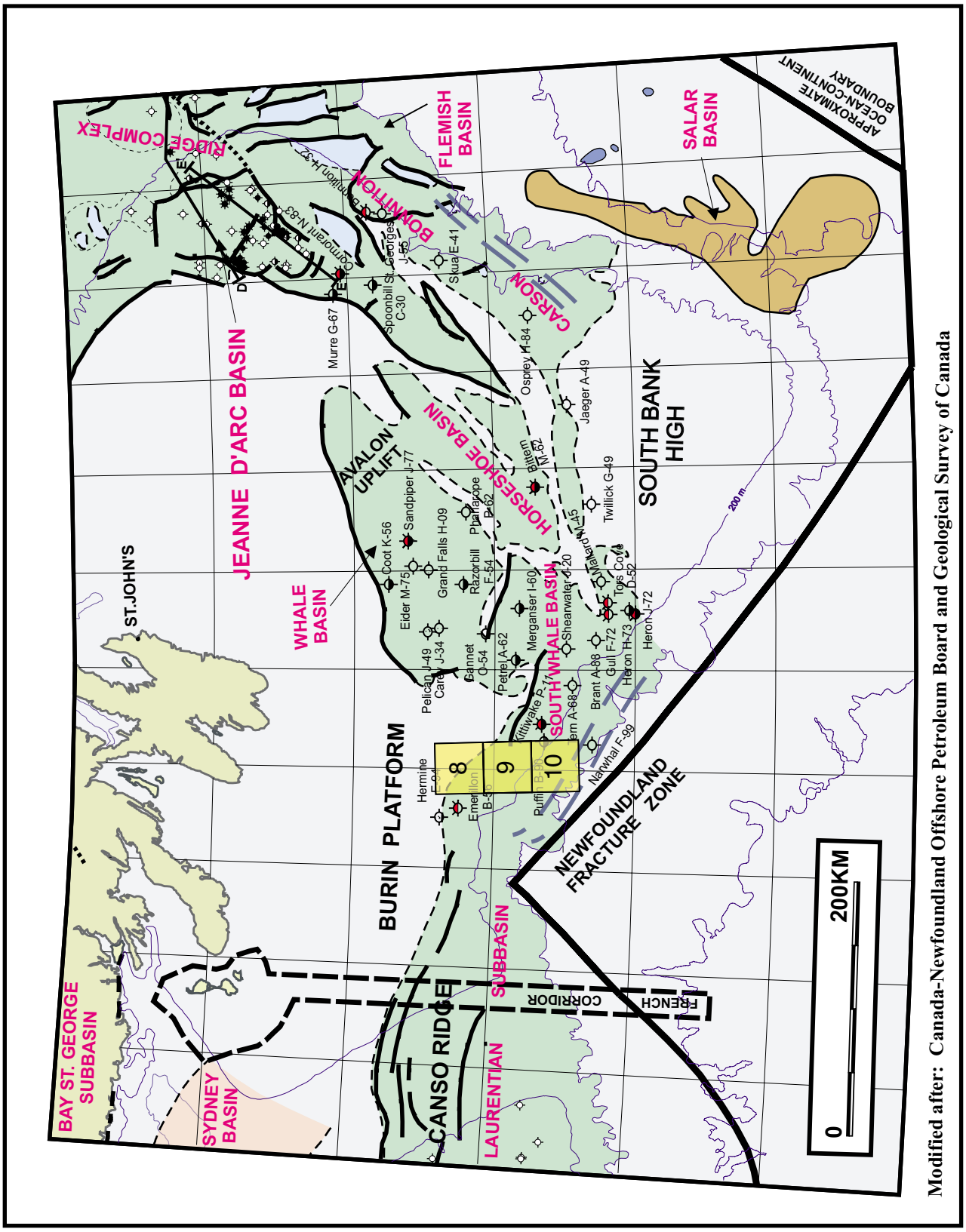
No wells have penetrated the deeper sediments in this area. The ridge wells to the southeast confirm the presence of Kimmeridgian source rocks but are limited in the development of reservoir quality sands. Only one well (*Bonanza M-71*) penetrated the Kimmeridgian in the immediate area. The geochemistry report submitted by Mobil indicated that the sediments "represent a moderately mature, very good oil and associated gas facies" (McIntrye & Sinclair, 1999). Later analysis by Fowler and Snowden questioned this conclusion because of contamination of samples by drilling mud additives. Nevertheless, anti-correlative sonic and resistivity log responses over the interval typify the log responses of known source intervals on the Grand Banks (Sinclair, 1998; Passey et al, 1990). Four parcels (Parcels 4-7) offered in this Request for Bids lie within the northern Jeanne d'Arc Basin.

Flemish Pass Basin

The Flemish Pass Basin has had only three wells drilled to date - *Kyle L-11*, *Baccalieu I-78* and *Gabriel C-60*. These wells have proven the existence of both reservoir and source rock within the basin. *Gabriel C-60* is listed as having an oil show (a sandstone core of equivalent age to the Hibernia Formation bled oil), and gas shows while drilling. Most of the basin is in water depths of about 1000 meters. Recent land sale parcels in this basin have attracted record bids and extensive 3D seismic has been acquired over the past couple of years. Petro-Canada has indicated that it has identified five targets on its acreage in this basin, each having reserve potential in the 500 million barrel range. Seismic data in the area indicates that the Tertiary contains widespread submarine fan sequences which also exhibit numerous amplitude anomalies. Petro-Canada and its partner Norsk Hydro are expected to drill two wells in the basin next year.

Three parcels (Parcels 1-3) offered in this Call for Bids lie within the Flemish Pass basin.

Southern Grand Banks Basin



Modified after: Canada-Newfoundland Offshore Petroleum Board and Geological Survey of Canada

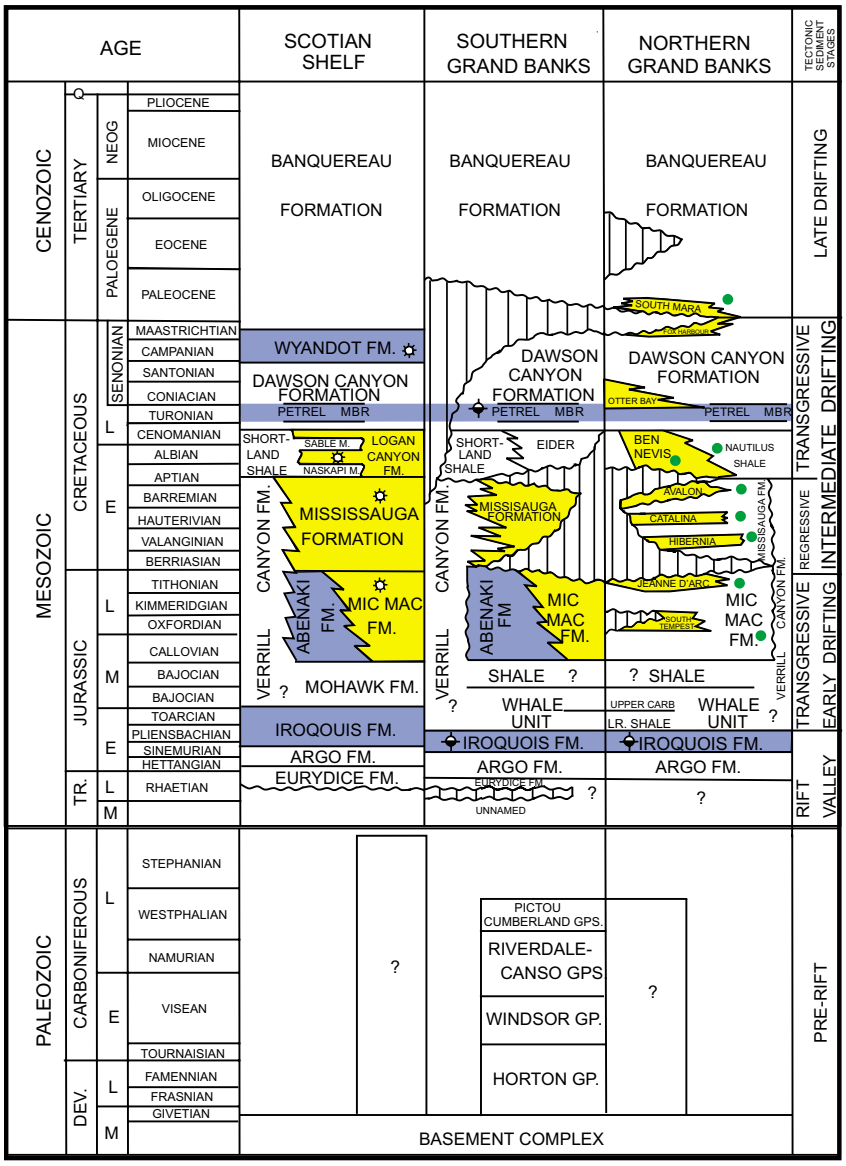
Figure 1.6

GEOLOGICAL FRAMEWORK

South Whale Subbasin

The South Whale Subbasin was the first to be drilled offshore Newfoundland and Labrador. Fourteen wells were drilled between 1966 and 1974 and one well (*Narwhal F-99*) was drilled in 1987. In the first phase of Grand Banks exploration the companies primarily targeted the salt piercement features involving the Lower Jurassic Argo Salt. It appears, however, that the Argo salt movement may have postdated the migration of hydrocarbons, and no discoveries were made. There were several oil and gas shows in the South Whale Subbasin but a source rock has yet to be identified. However, given that the South Whale Subbasin lies on trend with the Scotian Basin which has a rich gas-prone source rock in the Upper Jurassic Verill Canyon Shales, there is a very good chance of similar age source rocks in the deeper parts of the South Whale. It is also possible that the Egret Member, that has sourced the oil and gas discoveries of the Jeanne d'Arc Basin may be present in this area. Although similarities to the Scotian Basin suggests that the area may be gas prone, large basement ridges (observed on seismic data) that run parallel to the shelf may have provided the restricted marine conditions that favor the development of oil-prone source rocks.

Figure 1.7



After Northcor Energy Report 1984 & MacLean and Wade, 1990

Comparative stratigraphy of Scotian Shelf, Southern Grand Banks and Northern Grand Banks.

The South Whale Subbasin contains the equivalent of the Micmac and Mississauga sandstones that are key reservoirs in the Scotian Basin. Seismic data indicates the presence of an Upper Jurassic reef front, that is known to contain thick porous intervals on the Scotian Shelf, but which has never been drilled offshore Newfoundland. Pan-Canadian Petroleum recently announced a major gas discovery within such a reef front offshore Nova Scotia. Individual wells in this "Deep Panuke" discovery have flow-tested in excess of 50 million cubic feet per-day, with the flow rates limited by equipment.

Three parcels (Figure 1.6) offered in Call for Bids NF01-1 are located within the South Whale Subbasin.

GEOLOGICAL FRAMEWORK

Western Newfoundland

The presence of petroleum in Western Newfoundland has been recognized in surface seeps and shallow drilling since the late 1800's. The first modern exploration effort - using seismic to select a well location - was carried out by Hunt Oil and Pan Canadian in 1994-95 and resulted in the Hunt/Pan Canadian *Port au Port #1* discovery. This well encountered four zones of good reservoir quality in the Cambro-Ordovician platform. The two lower zones were wet, but the upper two zones flowed oil at rates of 1528 and 1742 b/d respectively. Although follow up drilling at four other locations failed to make additional discoveries, the *Port au Port #1* well proved the presence of a viable petroleum system in the area. Released seismic data show that large undrilled prospects remain to be tested throughout the offshore and onshore areas of western Newfoundland. Four parcels (Figure 1.11) are offered in the Western Newfoundland offshore area under this Call for Bids NF01-1.

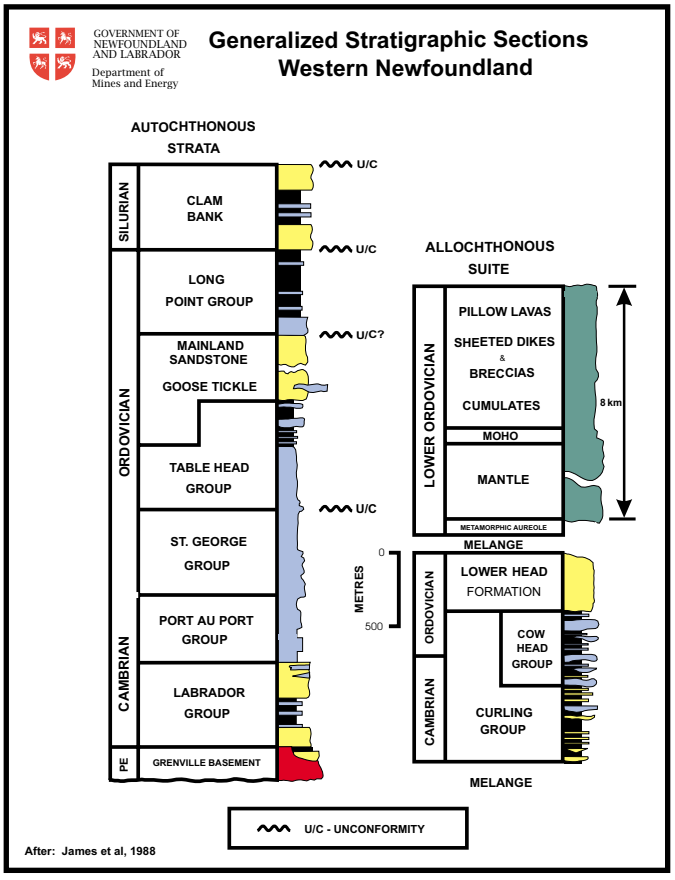


Figure 1.8

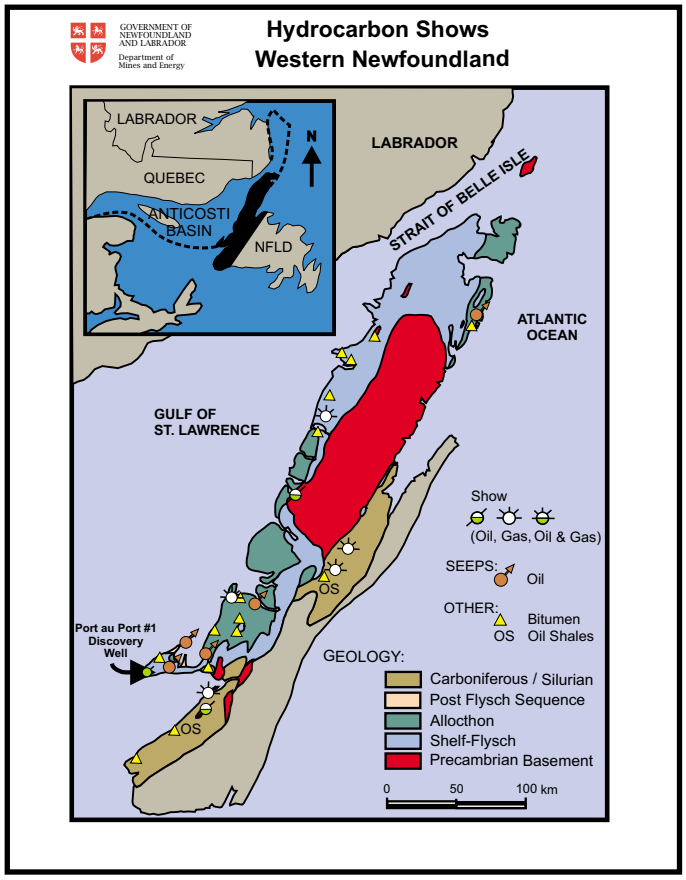


Figure 1.9

In Western Newfoundland and offshore in the Gulf of St. Lawrence, a Cambro-Ordovician carbonate platform overlies Paleozoic clastic sediments of the Labrador Group and crystalline basement. The Ordovician carbonates and clastics are locally overlain by Carboniferous clastic, evaporite and carbonate sediments. Reservoir quality rocks have been identified in both the Cambro-Ordovician and the Carboniferous. The tectonic history of the area is complex. In the late Ordovician subsidence reactivated faulting that had initiated during a period of extension in the Cambrian and produced normal faults within the carbonate platform. Later, compression brought the onset of thrusting and reverse faulting of the carbonate platform and older formations. Strike slip faulting along the Cabot Fault Zone during the Carboniferous led to the creation of pull apart basins.

GEOLOGICAL FRAMEWORK

Western Newfoundland

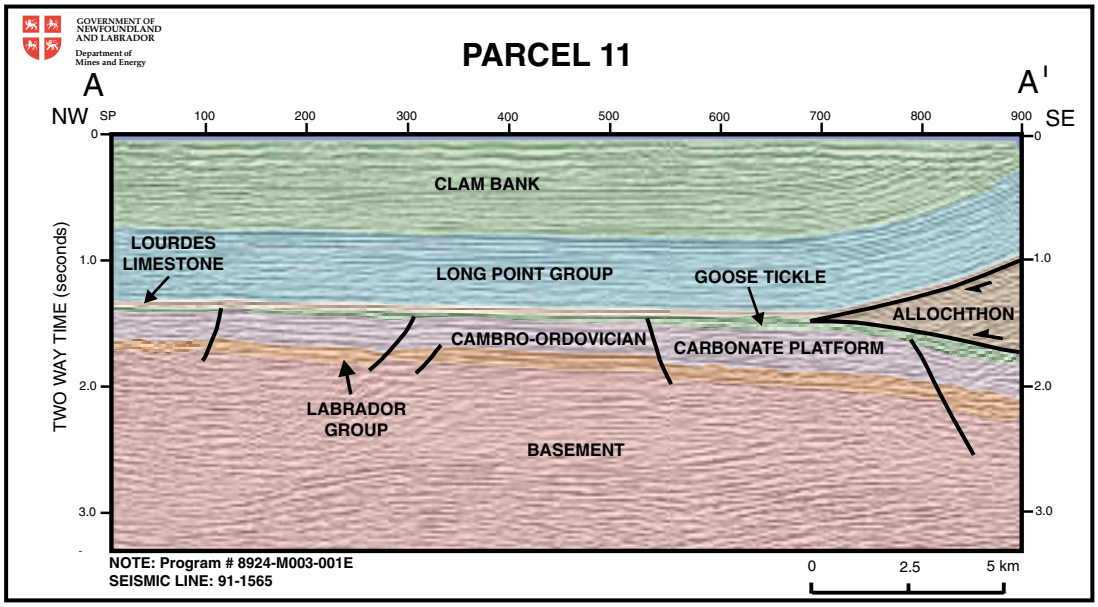


Figure 1.10 (See Figure 1.11 for section location)

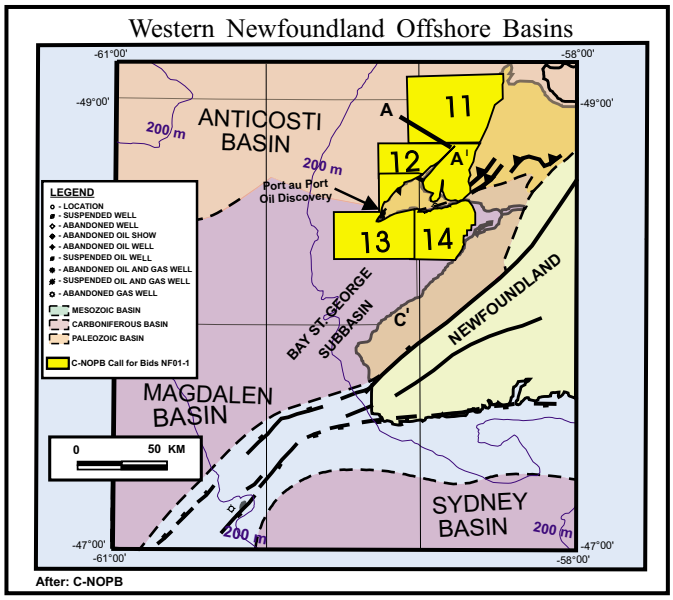


Figure 1.11

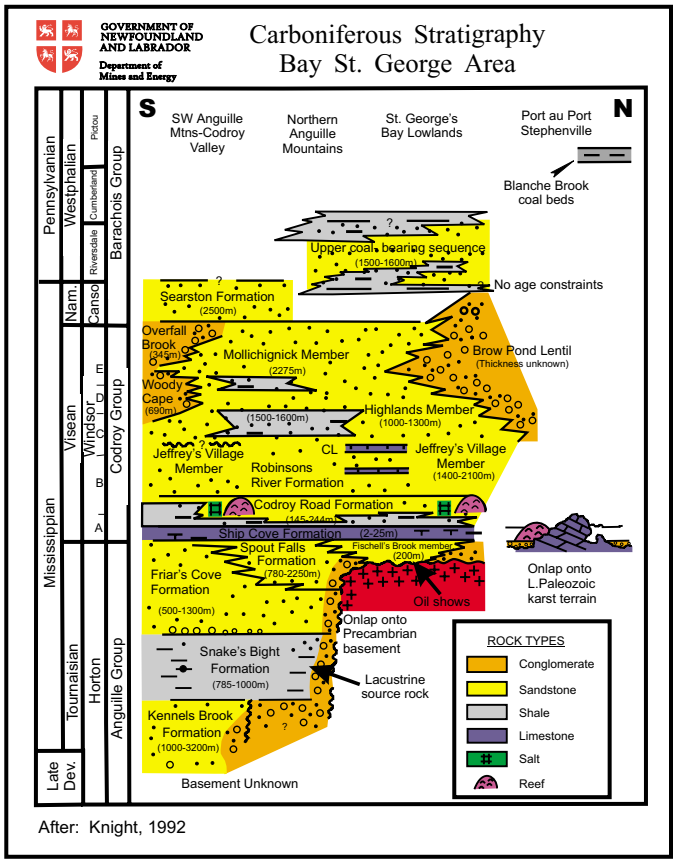


Figure 1.12

Cross section AA' shows the transition from the Triangle Zone to the foreland basin within the Anticosti Basin. Fault blocks within the foreland basin present the possibility of very large traps.

Request For Bids Parcels

This section provides a detailed description of each landsale parcel. Maps provided show the location of the land parcels and the released seismic data on those parcels. Hard copies and interpretive reports based on these data are available from the Canada-Newfoundland Offshore Petroleum Board for the cost of reproduction. For the purposes of this report representative seismic sections that show the general geology and recognizable play types have been selected. The seismic data quality varies with area and data vintage.

Recent Landsale Results

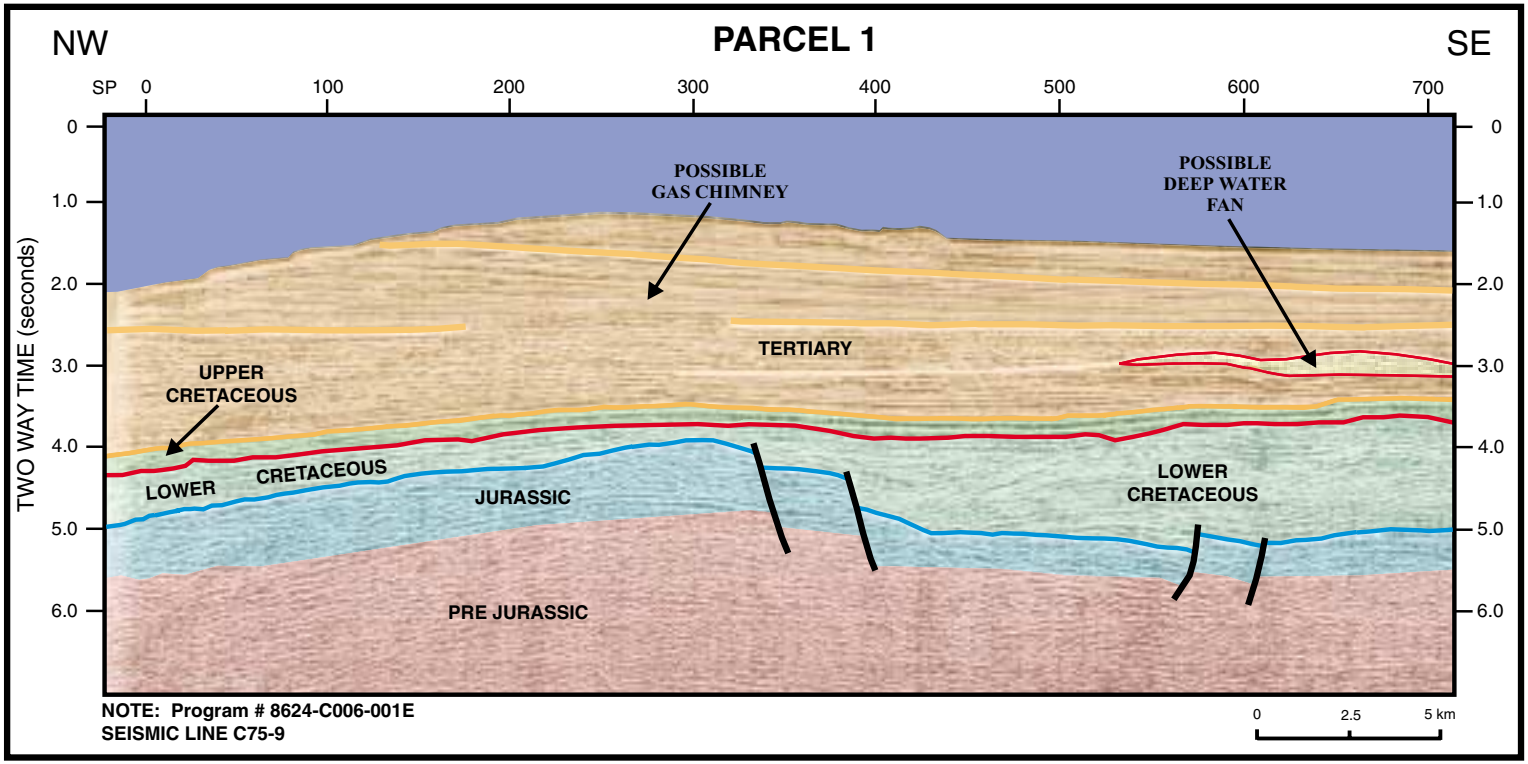
Year	Number of Parcels Bid	Bids ($Can Millions)
1996	8	126.1
1997	7	97.0
1998	13	175.2
1999	5	192.3
2000	10	88.6
Total	43	679.2

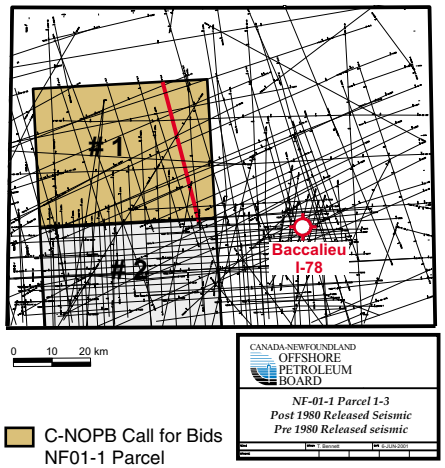
Conversion rate: $CAN 1.00 ~ $US .65

Table 1.1

Interpretation Notes

Seismic interpretations are, where possible, based on well ties and, otherwise, based on reflection character. Where high amplitudes within stratigraphic packages have been interpreted to represent potential sandstone reservoirs, they have been highlighted in yellow. Stratigraphic packages with a fan-like appearance are also highlighted in yellow and sometimes given a red outline.



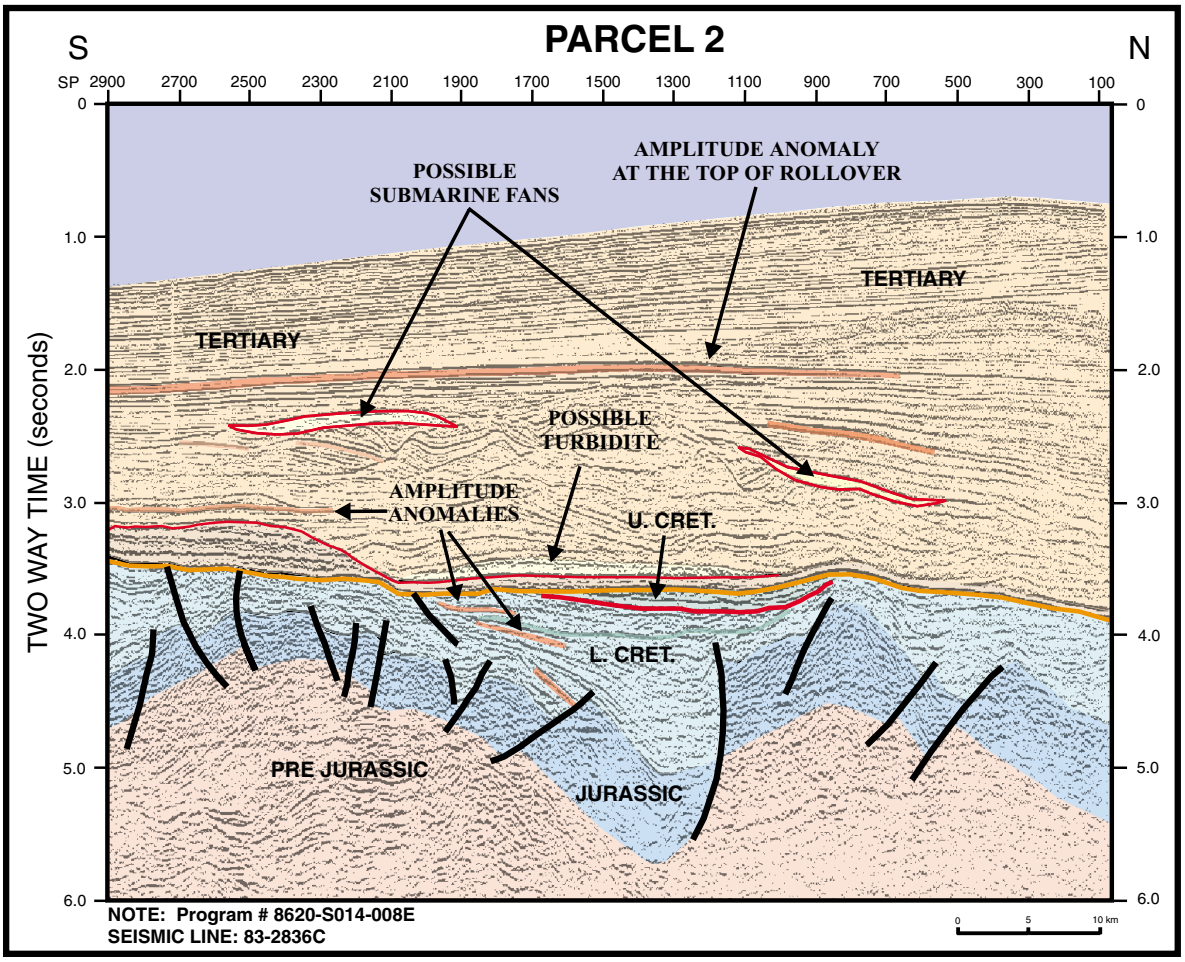


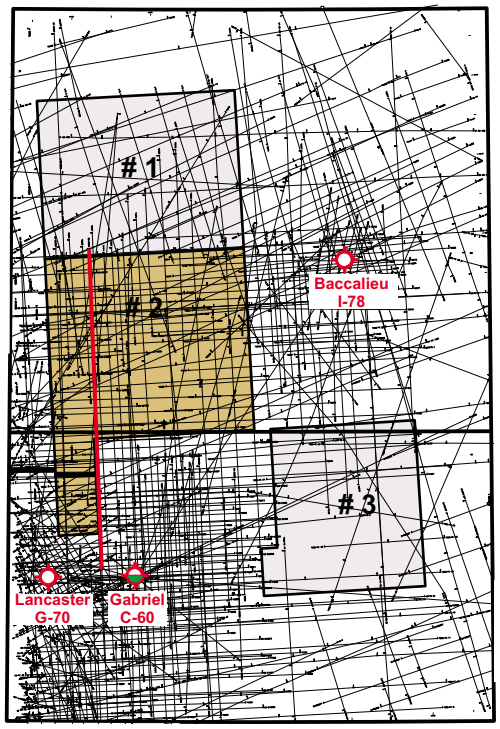
Location: Eastern Ridge
Parcel Area: 172,175 hectares
Water depth: 1000 - 1500 m
Released Seismic Data: 4730.9 km
Data Vintages: 1966 –1984

Play Types:
- Tertiary submarine fans
- Tertiary sands draping over Jurassic structures
- Cretaceous and Jurassic sands in tilted fault blocks

This parcel is in the Eastern Ridge area of the Flemish Pass Basin. A Jurassic section underlies Cretaceous and Tertiary strata. Ridge wells to the southwest that penetrated the Jurassic have encountered both reservoir (Tempest sandstones) and source rock (Upper and Lower Kimmeridgian shales). The *North Dana I-43* gas well, to the southwest, produced from Lower Tempest sandstones (Jurassic). To the southeast, the *Baccalieu I-78* well encountered rich Kimmeridgian source rocks and Lower Cretaceous sandstone reservoirs that tested wet. Maps at the top of Jurassic indicate that block faulting on the parcel has created three closed structures. The largest has approximately 80 sq km of closure at the top of Jurassic with closure evident up to the base of Tertiary. Seismic line C75-9 is an older vintage line reproduced from a poor quality microfiche original. It shows this structure - a Jurassic fault block overlain by Lower Cretaceous strata between shot points 200 and 400. Abrupt termination of a strong Tertiary reflector by a zone of weak, incoherent energy may indicate the presence of a gas chimney. The line also shows a possible deep water fan within the Tertiary.

Request For Bids Parcels



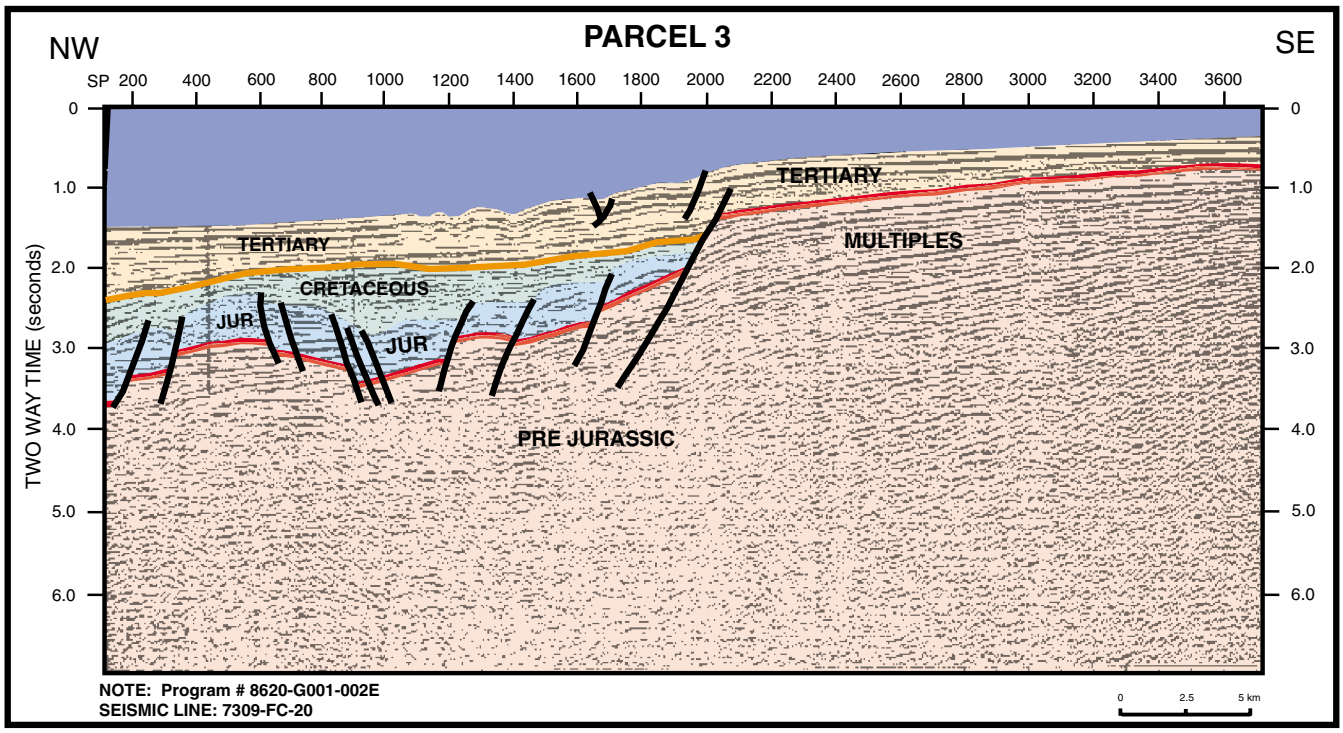


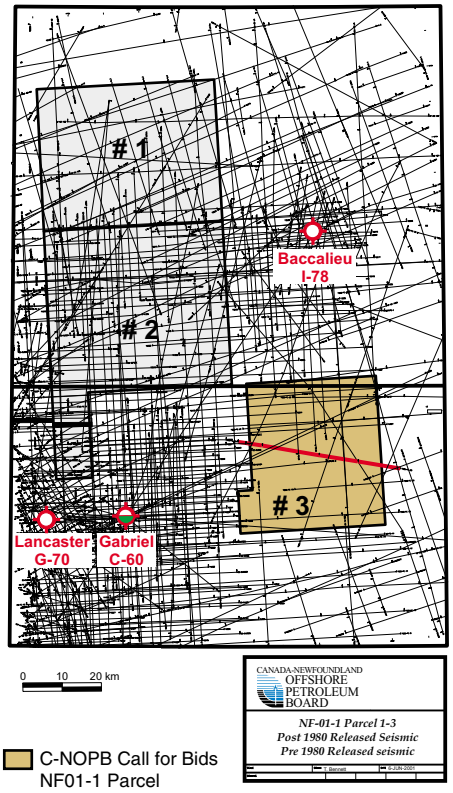
Location: Flemish Pass Basin
Parcel Area: 220,290 hectares
Water depth: 750 - 1100 m
Released Seismic Data: 3832.93 km
Data Vintages: 1966 –1985

Play Types:
- Tertiary fan, channel and turbidite sequences
- Tertiary sands in broad, gentle rollover
- Pinchout of Cretaceous sands against regional unconformities
- Cretaceous and Jurassic sands in tilted fault blocks and horst structures

The wells in this area - *Baccalieu I-78*, *Kyle L-11*, *Lancaster G-70* and *Gabriel C-60* - have demonstrated the presence of both source rock and Lower Cretaceous sandstone reservoirs. Several tilted fault blocks and horst structures are present on the parcel. Line 83-2836 crosses a large Jurassic horst block (SP 600-1200) that has approximately 190 sq km of closure mapped at the top of Jurassic in addition to a large Jurassic anticline (SP 1300-2900). A complex fan/channel system contains a number of amplitude anomalies that have been highlighted in red and yellow. An amplitude anomaly in the mid-Tertiary drapes over the fan system and fades as one moves off the structure. A possible turbidite is also observed at the base of a paleo shelf edge in the Lower Tertiary.

Request For Bids Parcels



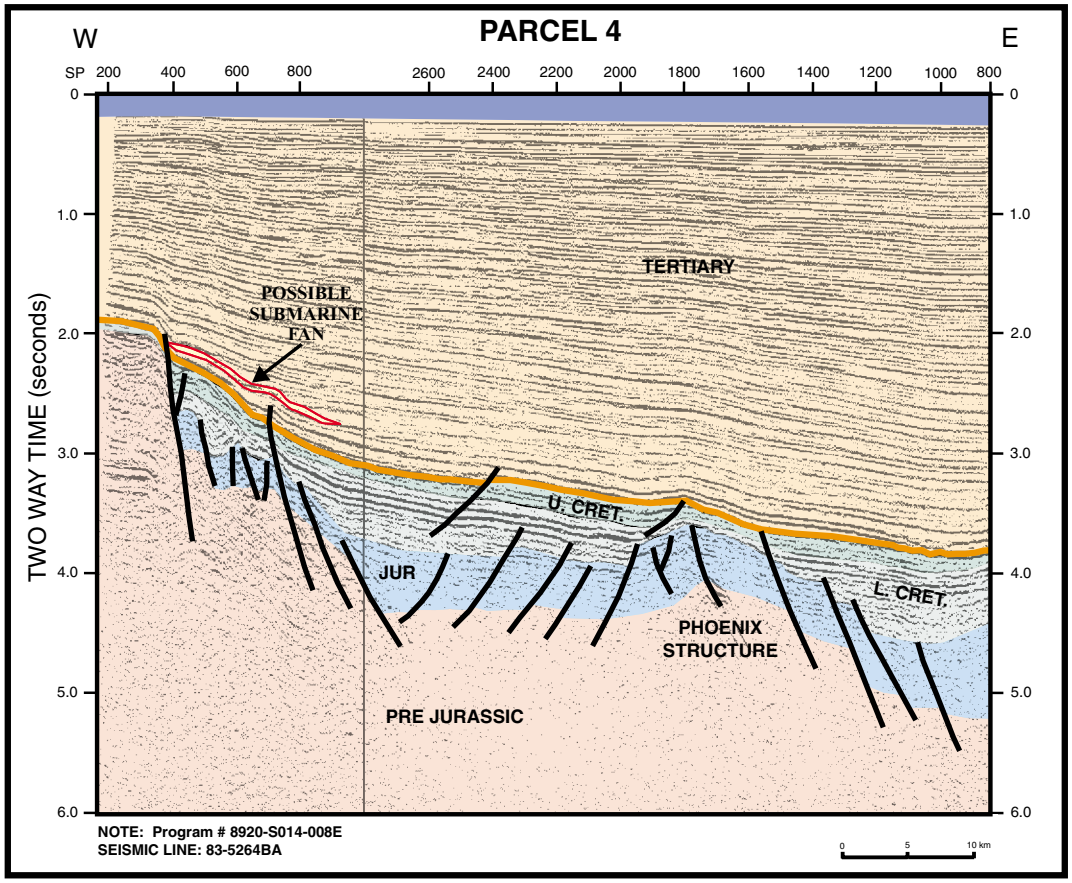


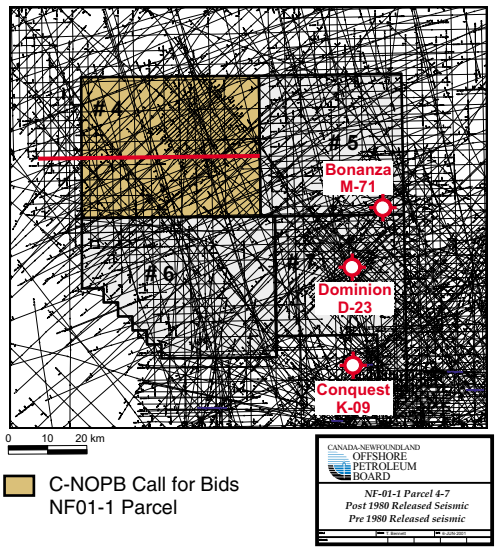
Location: Flemish Pass Basin (Flank of Flemish Cap)
Parcel Area: 135,206 hectares
Water depth: 350 - 1200 m
Released Seismic Data: 4885.06 km
Data Vintages: 1966 –1985

Play Types:
- Pinchout of Tertiary sands against mid-Tertiary unconformity
- Termination of Cretaceous sands against basement fault footwall
- Drape of Cretaceous sands over Jurassic horst block
- Cretaceous and Jurassic sands on horst structure

Located on the western flank of the Flemish Cap, line 7309-FC-20 (a poor quality seismic line reproduced from a microfiche original) shows a faulted Jurassic anticline with Cretaceous cover. The Cretaceous section is draped over the anticline indicating two-way closure up to the base of Tertiary level. To the southeast and northwest tilted Jurassic fault blocks may also provide trapping mechanisms. The Cretaceous section also pinches out to the southeast against the basin-bounding fault that is the flank of the Flemish Cap.

Request For Bids Parcels

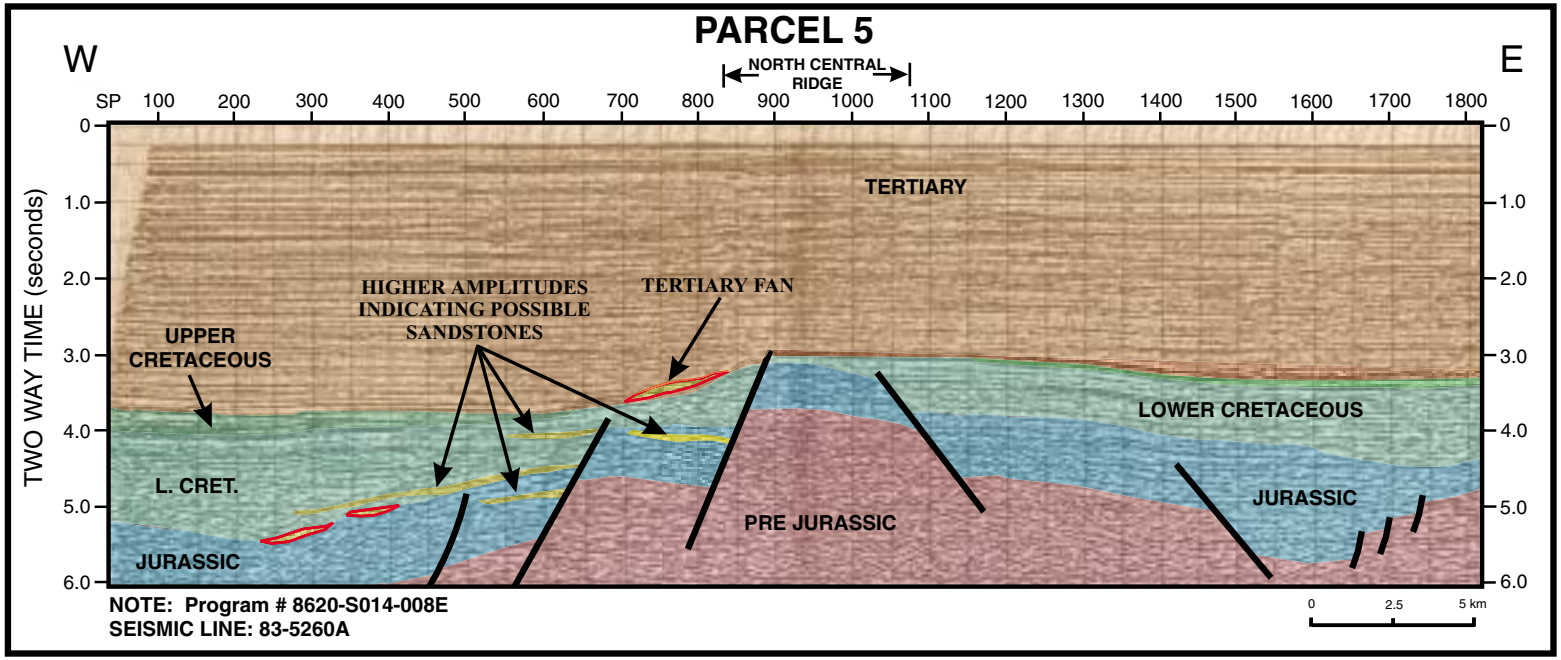


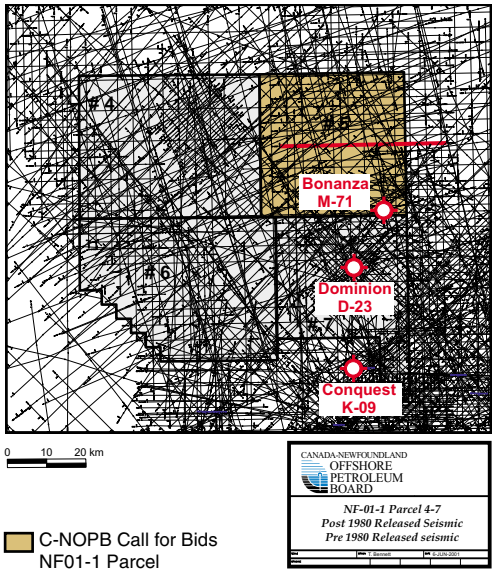


Location: Northern Jeanne d'Arc Basin
Parcel Area: 173,825 hectares
Water depth: ~200 m
Released Seismic Data: 6154.90 km
Data Vintages: 1966 –1985

Play Types:
- Tertiary fans
- Cretaceous and Jurassic sands in tilted fault blocks and horst structures
- Pinchouts of Cretaceous sands against regional unconformities and basement fault blocks.
- Drape of Lower Tertiary Sands over the Phoenix Structure

This parcel lies within the northern extension of the Jeanne d'Arc Basin - sometimes called the Phoenix Sub-basin (north of the Dominion Transfer Fault, east of the Bonavista Platform and west of the Ridge Complex). The area has thick Cretaceous and Jurassic sections. The parcel is dominated by the Phoenix structure - a north-northwest to south-southeast trending horst (or salt-cored structure?) that is 4-5 km wide and 24 km long. To the west of the Phoenix structure, fault blocks downthrown against the Bonavista Platform form potential traps within the Jurassic and Cretaceous sections. Pinchouts occur at levels of known reservoir quality Cretaceous sandstones. A possible submarine fan that appears to be connected to the Jurassic (which contains the known source rock) by a normal fault is highlighted on the west side of the line.

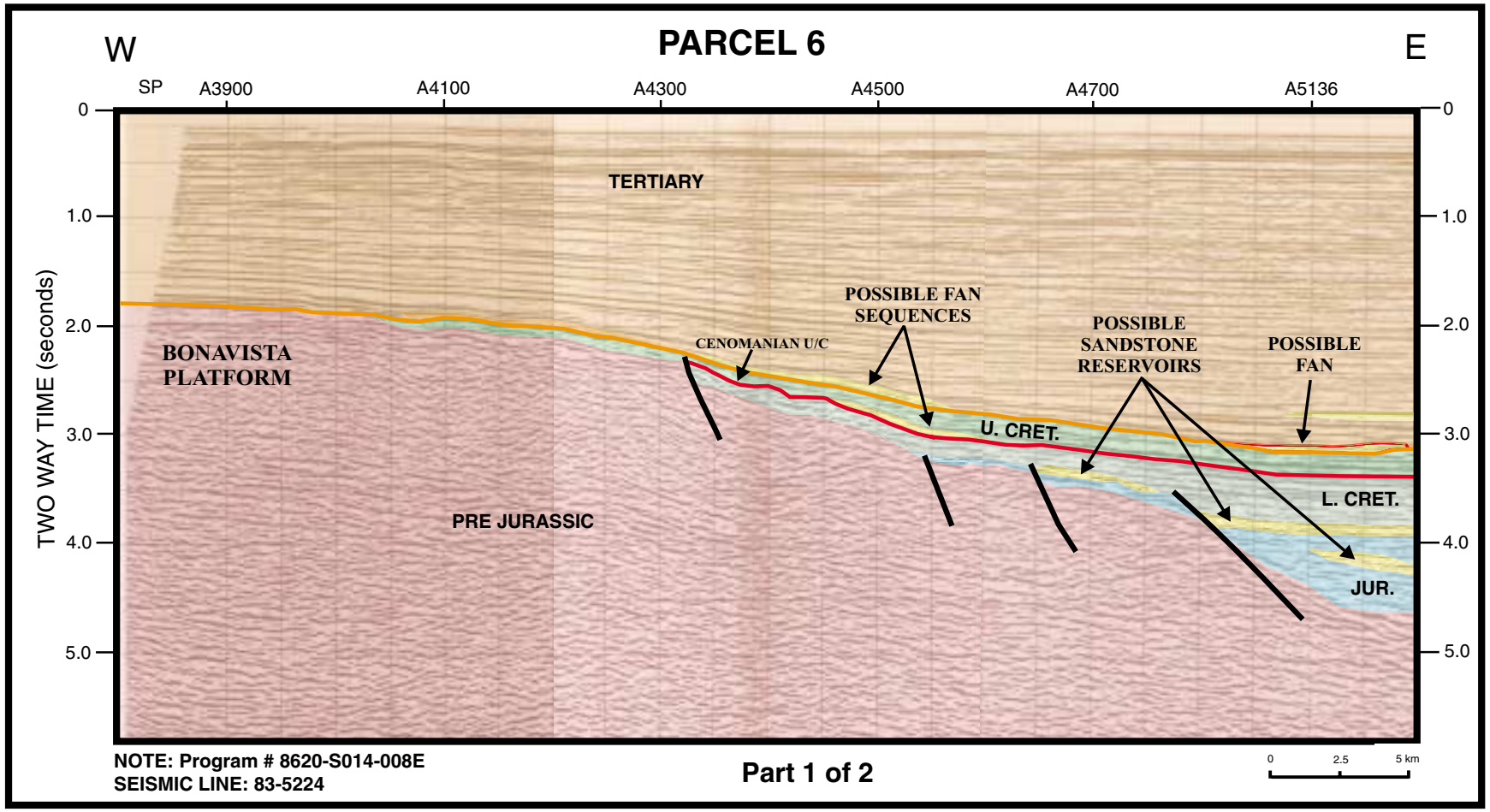




Location: North Central Ridge
Parcel Area: 139,060 hectares
Water depth: ~150 m
Released Seismic Data: 1399.19 km
Data Vintages: 1971 –1984

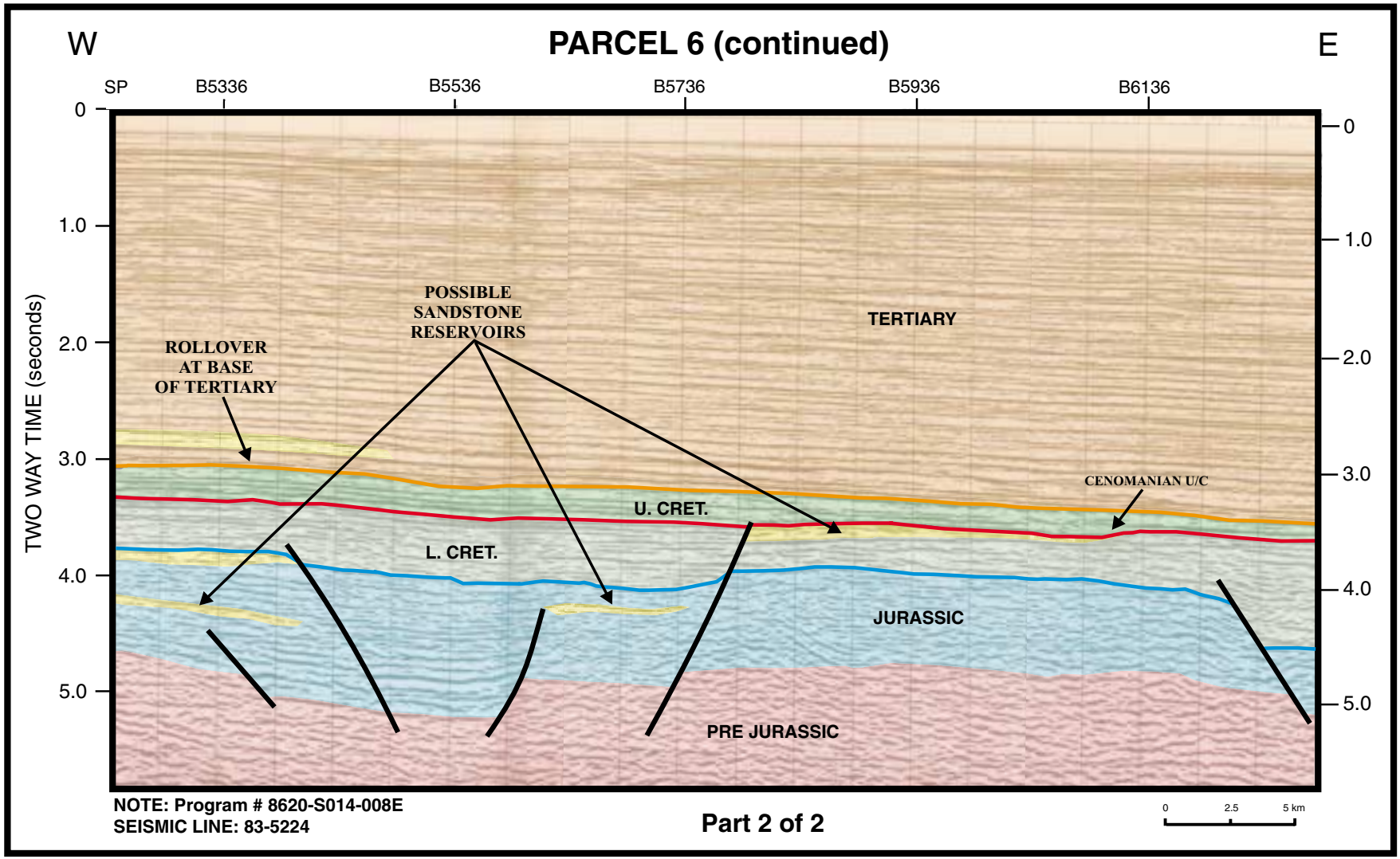
Play Types:
- Base of Tertiary fan sequences
- Cretaceous and Jurassic sands in tilted fault blocks
- Pinchouts of Cretaceous sands against regional unconformities and basement footwall

The North Central Ridge is the northern extension of the Central Ridge Complex, north of the Dominion Transfer Fault. The *Bonanza M-71* well penetrated a relatively thin Jurassic section (715 m) overlying a Paleozoic ridge. The well encountered Kimmeridgian shales that have been identified as good source rock in other Ridge wells and throughout the Jeanne d'Arc and Flemish Pass Basins. Because of contamination of the samples by drilling mud additives it was not possible to confirm that these shales are source rocks in this well (see page 9). Line 83-5260 shows thicker Jurassic and Cretaceous sections in downthrown fault blocks on either side of the ridge. Possible sandstone reservoirs have been highlighted in yellow. A thick fan package is evident in the Lower Tertiary to the west of the ridge. Potential Lower Cretaceous traps also exist where sands terminate against normal faults.



NOTE: Program # 8620-S014-008E
SEISMIC LINE: 83-5224

Part 1 of 2


W
PARCEL 6 (continued)
E
SP
B5336
B5536
B5736
B5936
B6136
0
1.0
2.0
3.0
4.0
5.0
TWO WAY TIME (seconds)
POSSIBLE
SANDSTONE
RESERVOIRS
ROLLOVER
AT BASE
OF TERTIARY
TERTIARY
CENOMANIAN U/C
U. CRET.
L. CRET.
JURASSIC
PRE JURASSIC
NOTE: Program # 8620-S014-008E
SEISMIC LINE: 83-5224
Part 2 of 2
0
2.5
5 km

Request For Bids Parcels

Parcel 6

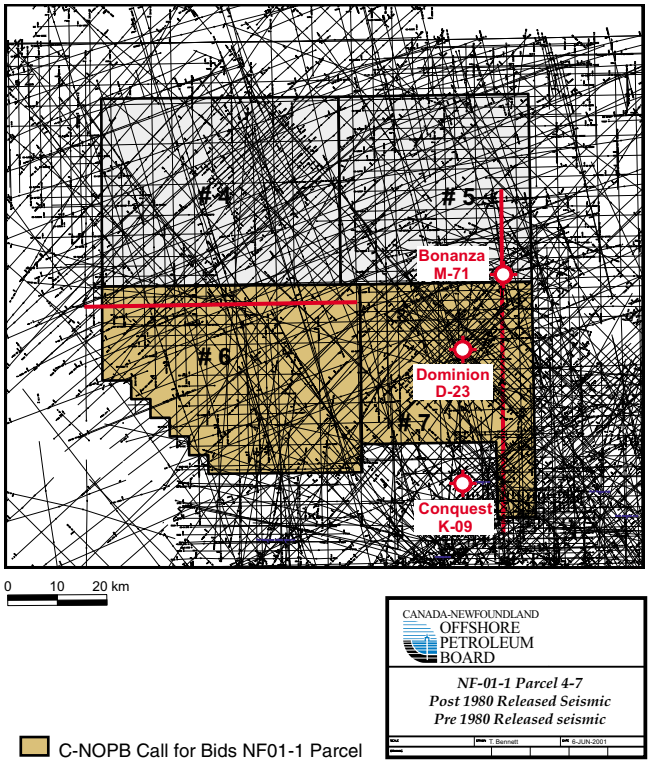
Location: Northern Jeanne d'Arc Basin
Parcel Area: 164,379 hectares
Water depth: ~150 m
Released Seismic Data: 4506.23 km
Data Vintages: 1971 –1985

Play Types:
- Tertiary fan sequences
- Cretaceous and Jurassic sands in tilted fault blocks and horst structures
- Pinchouts of Tertiary, Cretaceous and Jurassic sands against regional unconformities and basement faults

In this area of the Northern Jeanne d'Arc Basin, the west boundary is a gently sloping basement ramp onto the Bonavista Platform, clearly seen on Line 83-5224. This ramp could be a source of coarse sediments creating reservoirs that stratigraphically pinchout. Possible sandstone reservoirs have been noted on the basis of seismic amplitude and are highlighted in yellow and include the Base of Tertiary (South Mara Unit?), Upper Cretaceous (Otter Bay/Fox Harbor Units?), Lower Cretaceous (Avalon and Hibernia Fm.) and Jurassic (Jeanne d'Arc?/Tempest?/Voyager Fm?). Tilted fault blocks within the basin provide additional trapping possibilities and a horst structure on the eastern portion of the parcel is overlain by a clastic wedge just below the Cenomanian Unconformity (Ben Nevis Sandstone level?). A subtle rollover is indicated within the Base of Tertiary to L. Cretaceous section. A possible L. Tertiary submarine fan onlaps the west side of this rollover.

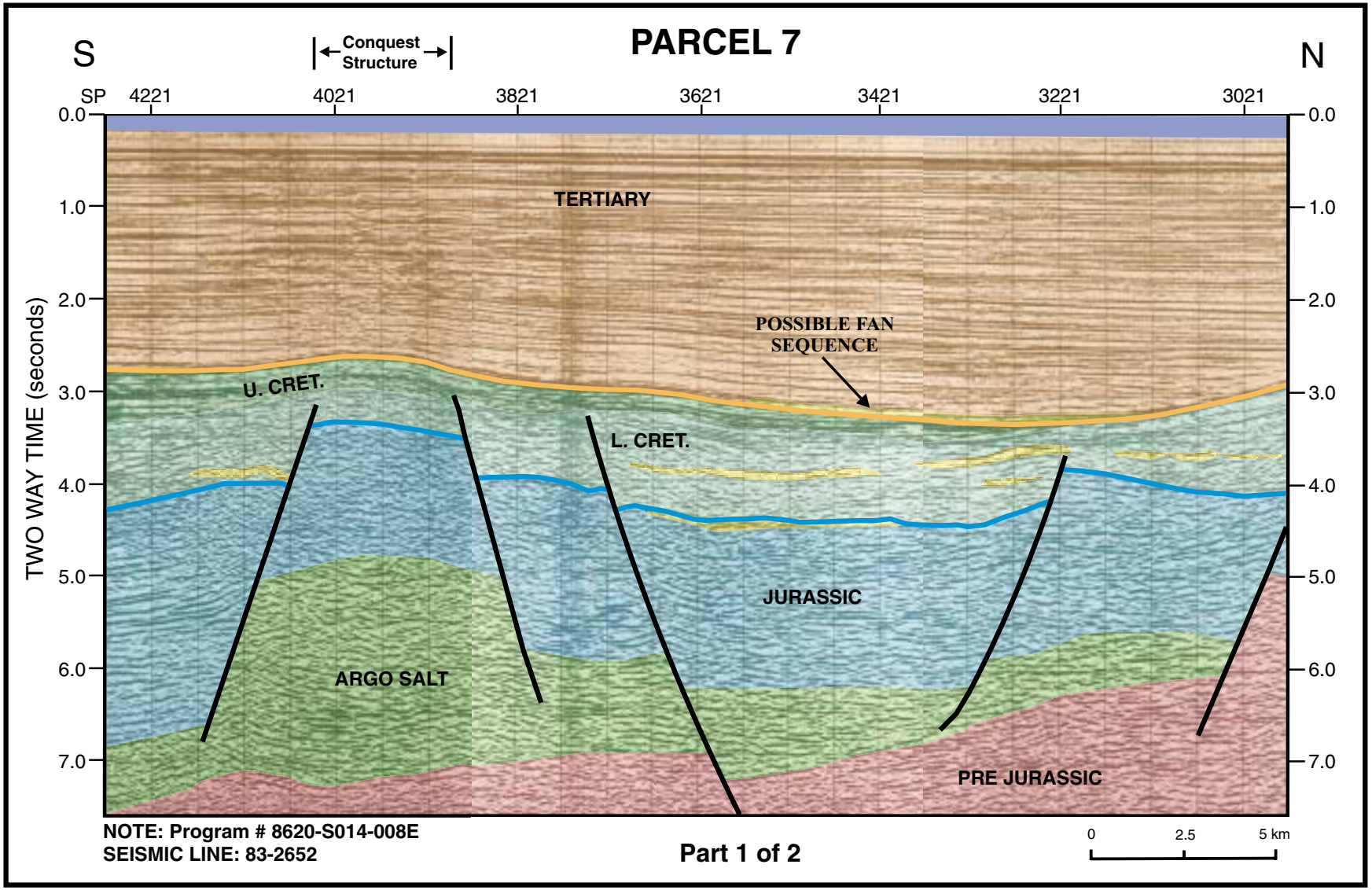
Parcel 7

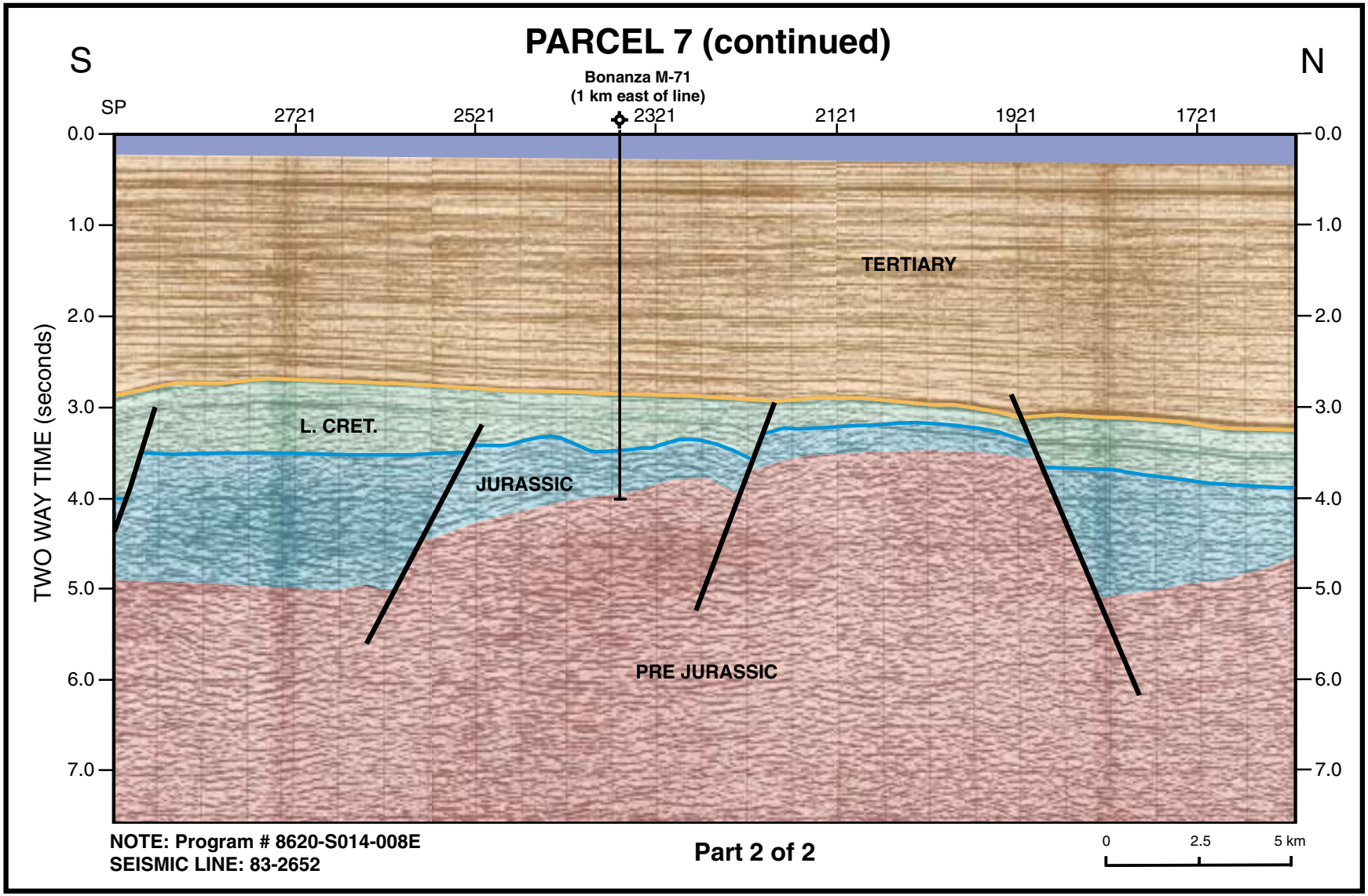
This parcel encompasses part of the North Central Ridge and the Northern Jeanne d'Arc Basin. Line 83-2652 (shown in two parts) is a north-south seismic line that extends from the Conquest salt dome, across the Dominion Transfer Fault, and onto the North Central Ridge to tie the *Bonanza M-71* well. Higher amplitudes (yellow highlights) have been interpreted as evidence of possible reservoir sands within the L. Cretaceous and Jurassic. The large Jurassic structure between shot points 3021 and 3221 remains untested. A large, thick fan sequence is noted at the base of Tertiary.

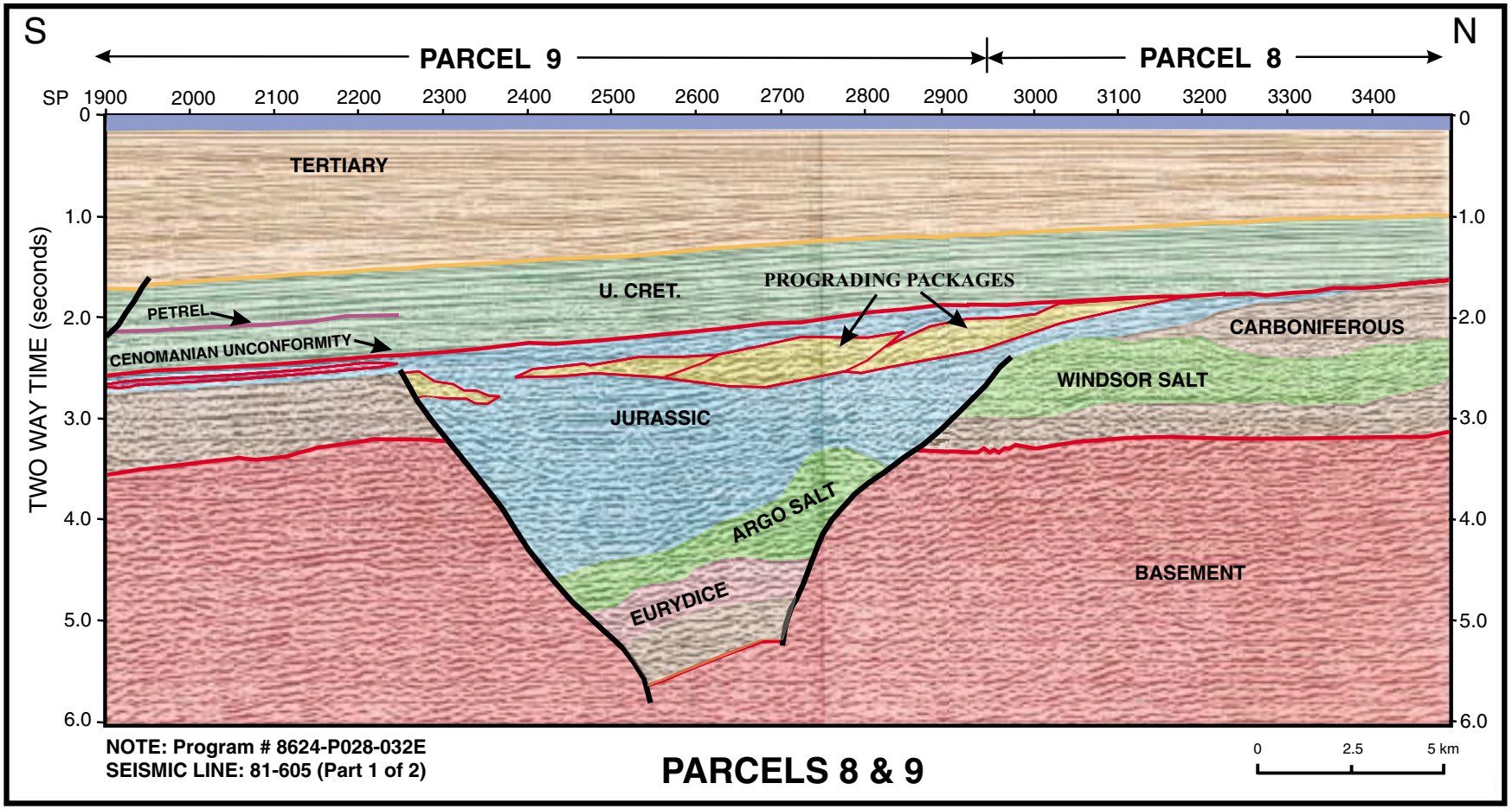


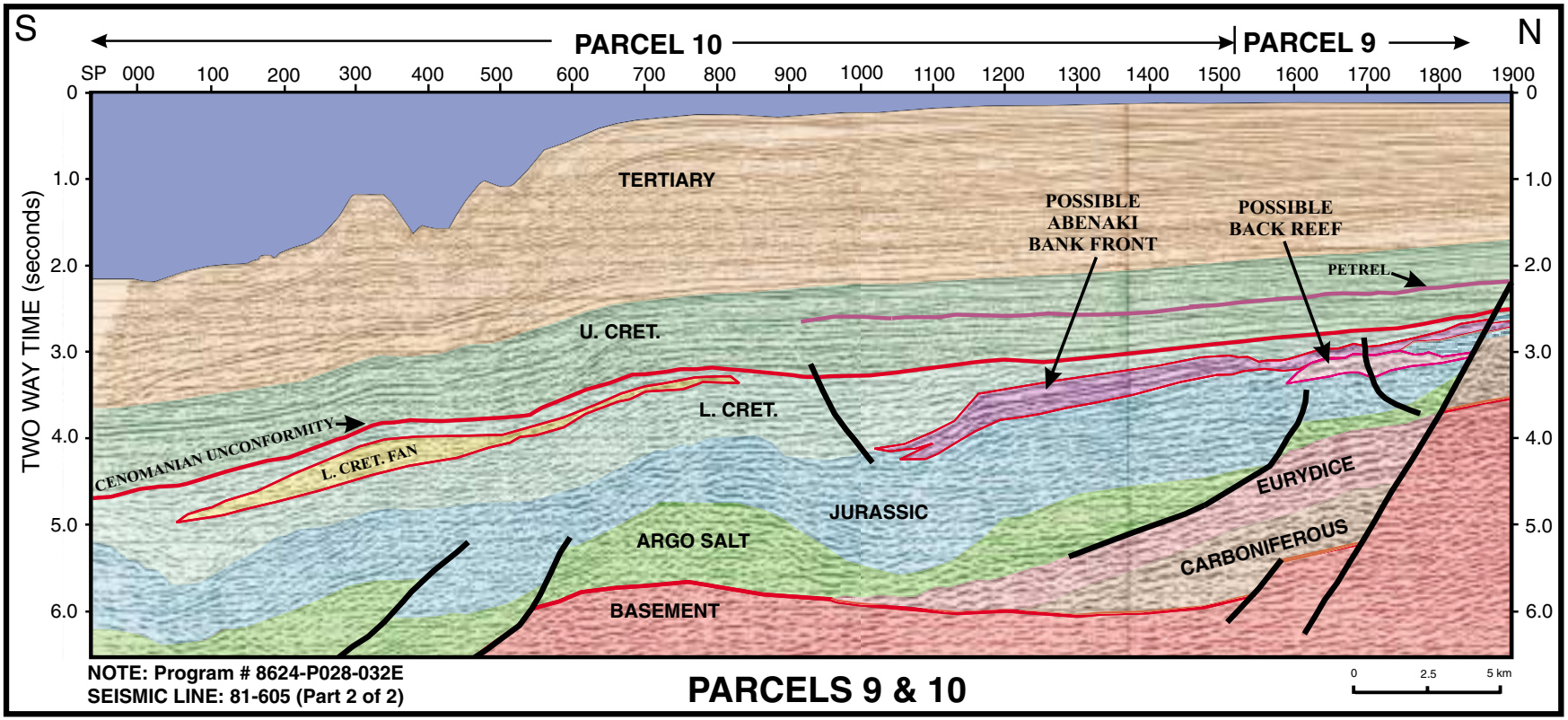
Location: North Central Ridge
Parcel Area: 118,224 hectares
Water depth: ~150 m
Released Seismic Data: 783.48 km
Data Vintages: 1971 –1983

Play Types:
- Base of Tertiary fan sequences
- Cretaceous and Jurassic sands in tilted fault blocks
- Pinchouts of Cretaceous sands against regional unconformities and basement footwall

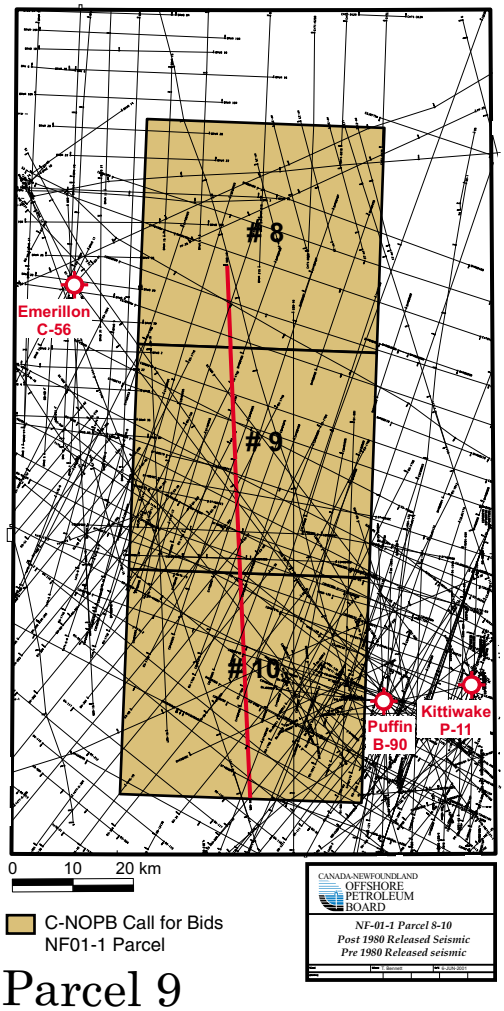

PARCEL 7
S
N
Conquest Structure
SP 4221
4021
3821
3621
3421
3221
3021
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
TWO WAY TIME (seconds)
TERTIARY
POSSIBLE FAN SEQUENCE
U. CRET.
L. CRET.
JURASSIC
ARGO SALT
PRE JURASSIC
NOTE: Program # 8620-S014-008E
SEISMIC LINE: 83-2652
Part 1 of 2
0
2.5
5 km


PARCEL 7 (continued)
S
N
Bonanza M-71
(1 km east of line)
SP
2721
2521
2321
2121
1921
1721
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
TWO WAY TIME (seconds)
TERTIARY
L. CRET.
JURASSIC
PRE JURASSIC
NOTE: Program # 8620-S014-008E
SEISMIC LINE: 83-2652
Part 2 of 2
0
2.5
5 km


S
N
PARCEL 9
PARCEL 8
SP 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400
TWO WAY TIME (seconds)
0
1.0
2.0
3.0
4.0
5.0
6.0
TERTIARY
U. CRET.
PROGRADING PACKAGES
PETREL
CENOMANIAN UNCONFORMITY
CARBONIFEROUS
WINDSOR SALT
JURASSIC
ARGO SALT
EURYDICE
BASEMENT
NOTE: Program # 8624-P028-032E
SEISMIC LINE: 81-605 (Part 1 of 2)
PARCELS 8 & 9
0 2.5 5 km


S
N
PARCEL 10
PARCEL 9
SP 000 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900
TWO WAY TIME (seconds)
0 1.0 2.0 3.0 4.0 5.0 6.0
TERTIARY
U. CRET.
L. CRET.
JURASSIC
ARGO SALT
BASEMENT
CARBONIFEROUS
EURYDICE
PETREL
POSSIBLE ABENAKI BANK FRONT
POSSIBLE BACK REEF
CENOMANIAN UNCONFORMITY
L. CRET. FAN
NOTE: Program # 8624-P028-032E
SEISMIC LINE: 81-605 (Part 2 of 2)
PARCELS 9 & 10
0 2.5 5 km

Request For Bids Parcels



Parcel 8

Location: South Whale Subbasin
Parcel Area: 145,100 hectares
Water depth: ~100 - 150 m
Released Seismic Data: 1812.31 km
Data Vintages: 1964 –1972 (1983?)

Play Types:
- Lower Jurassic prograding sand sequence
- Pinchouts against regional unconformity
- Drape over Windsor Salt swells

This parcel is located in the northern part of the South Whale Subbasin. The seismic data on the parcel are old (late 60's/early 70's vintage) and unavailable at the C-NOPB library. The parcel lies north of a magnetic high interpreted to be caused by a basement horst. A prograding clastics package within the Jurassic appears to subcrop against the Cenomanian Unconformity at the south end of the parcel. The basement highs and horst blocks that segment the basin provide the opportunity for organic rich, restricted sub-basins for good source rock preservation. The *Emerillon C-56* well penetrated a thin (~250 m) section of L. Cret. and ~1200 m of Jurassic section which contains a number of reservoir quality sandstones.

Parcel 9

Location: South Whale Subbasin
Parcel Area: 145,920 hectares
Water depth: ~150 m
Released Seismic Data: 1733.76 km
Data Vintages: 1964 –1985

Play Types:
- Drape of Cretaceous and Jurassic sands over broad basement highs and Argo Salt swells
- Upper Jurassic carbonate bank and reef front
- Updip pinchouts of Jurassic and Cretaceous

This parcel is dominated by a basement ridge evident on seismic and supported by magnetic and gravity data. A deep graben north of the basement high contains a prograding sequence in the Upper Jurassic. Line 81-605 also indicates that reservoir sands may have been shed from the old high and be preserved on the flanks (sp's 2250 - 2400). Additional plays include a possible "back reef" to the Abenaki reef front and the pinching out of Lower Cretaceous sands to the south of the basement high.

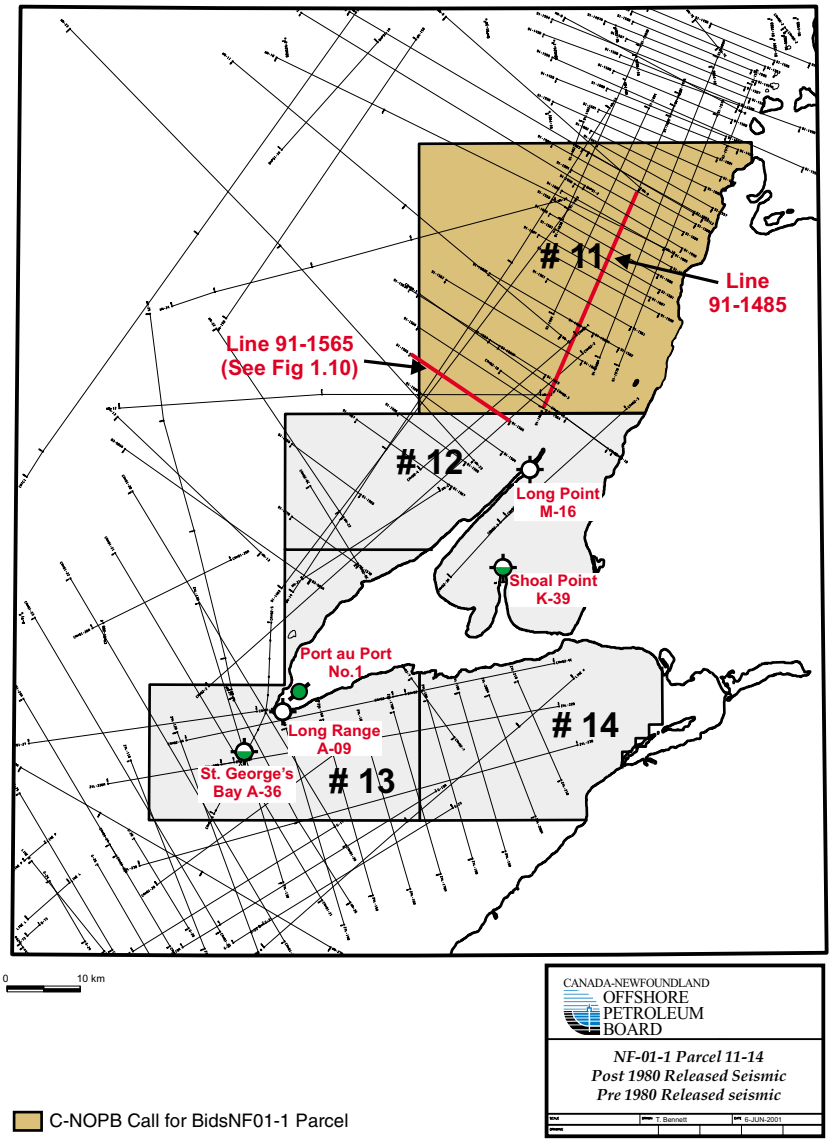
Parcel 10

Location: South Whale Subbasin
Parcel Area: 146,760 hectares
Water depth: 150 - 1100 m
Released Seismic Data: 2008.81 km
Data Vintages: 1964 –1984

Play Types:
- Tertiary fans and turbidites
- Lower Cretaceous submarine fan
- Upper Jurassic carbonate bank and reef front
- Upper Jurassic/Lower Cretaceous sand pinchouts
- Fore-reef detritus

This parcel contains a salt-cored anticline within the Jurassic, as well as possible fan sequence within the Lower Cretaceous. The parcel lies within the fairway where one would expect to see the Abenaki reef front and a broad carbonate front is interpreted to be present between Sp's 1100 and 1500. The south end of the "reef front" appears to have subsided during the Lower Cretaceous. Onlapping Lower Cretaceous sediments against the tilted carbonate bank provide additional play possibilities.

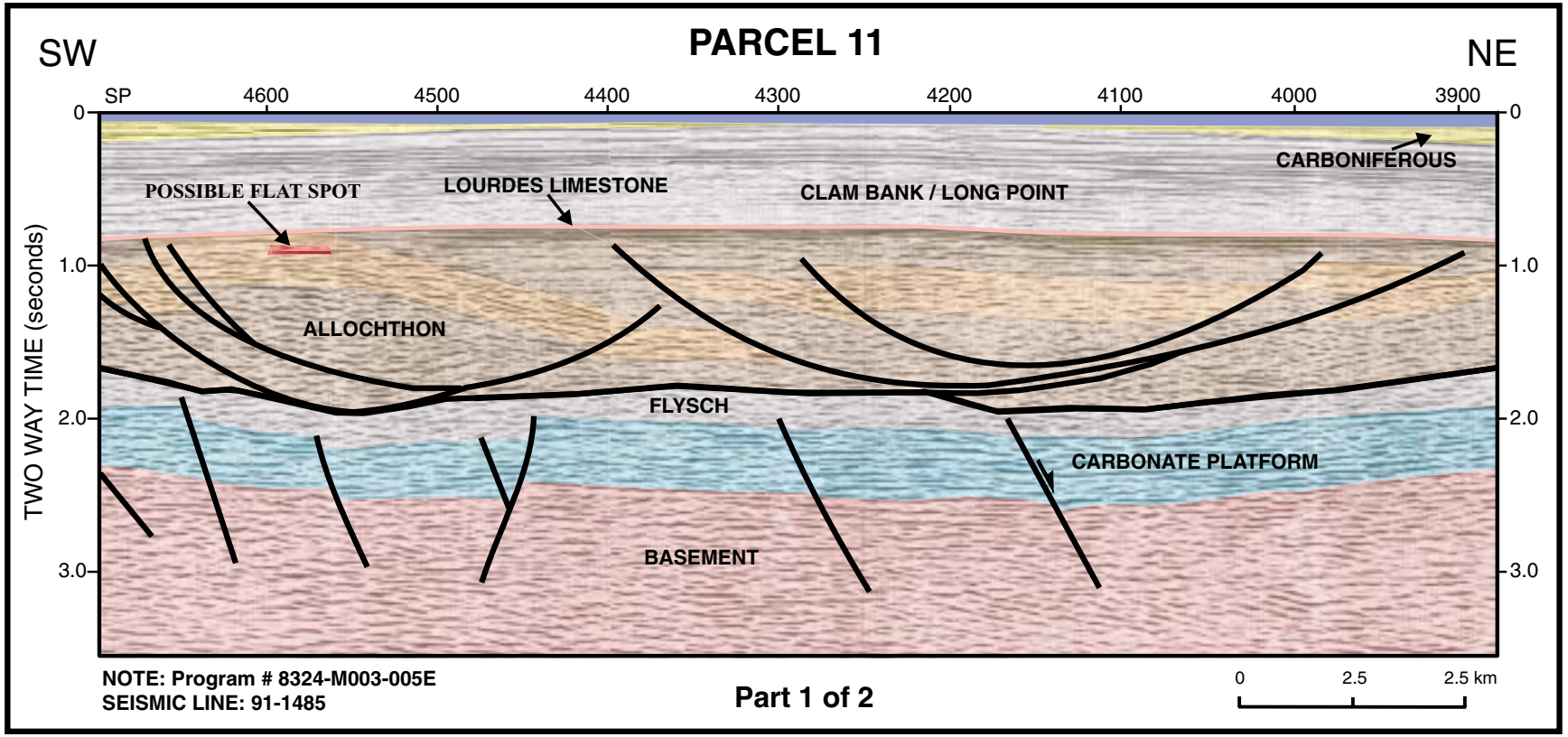
Request For Bids Parcels

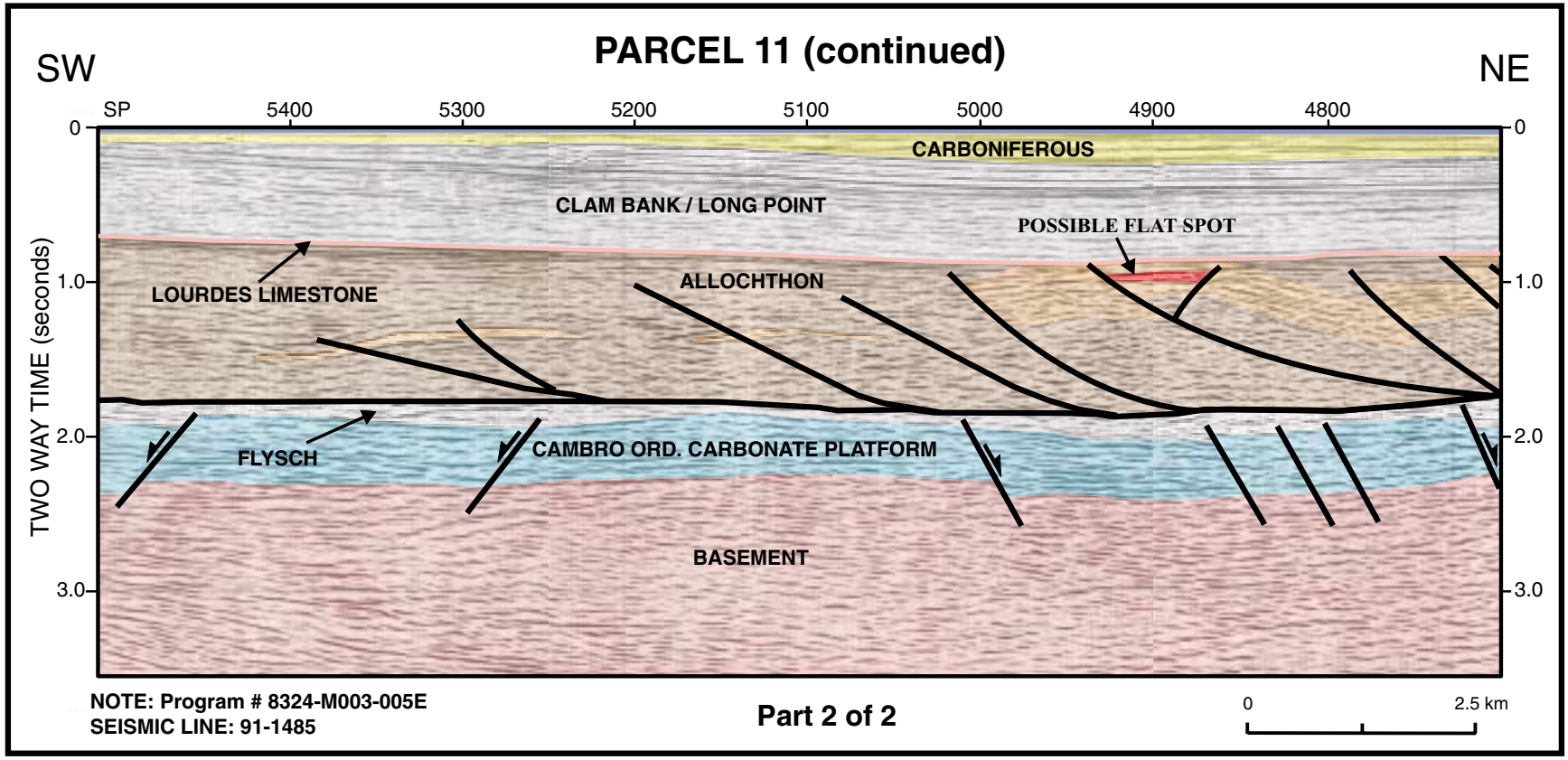


Location: Western Newfoundland Anticosti Basin
Parcel Area: 140,210 hectares
Water depth: ~100 m
Released Seismic Data: 1460.54 km
Data Vintages: 1969 –1992

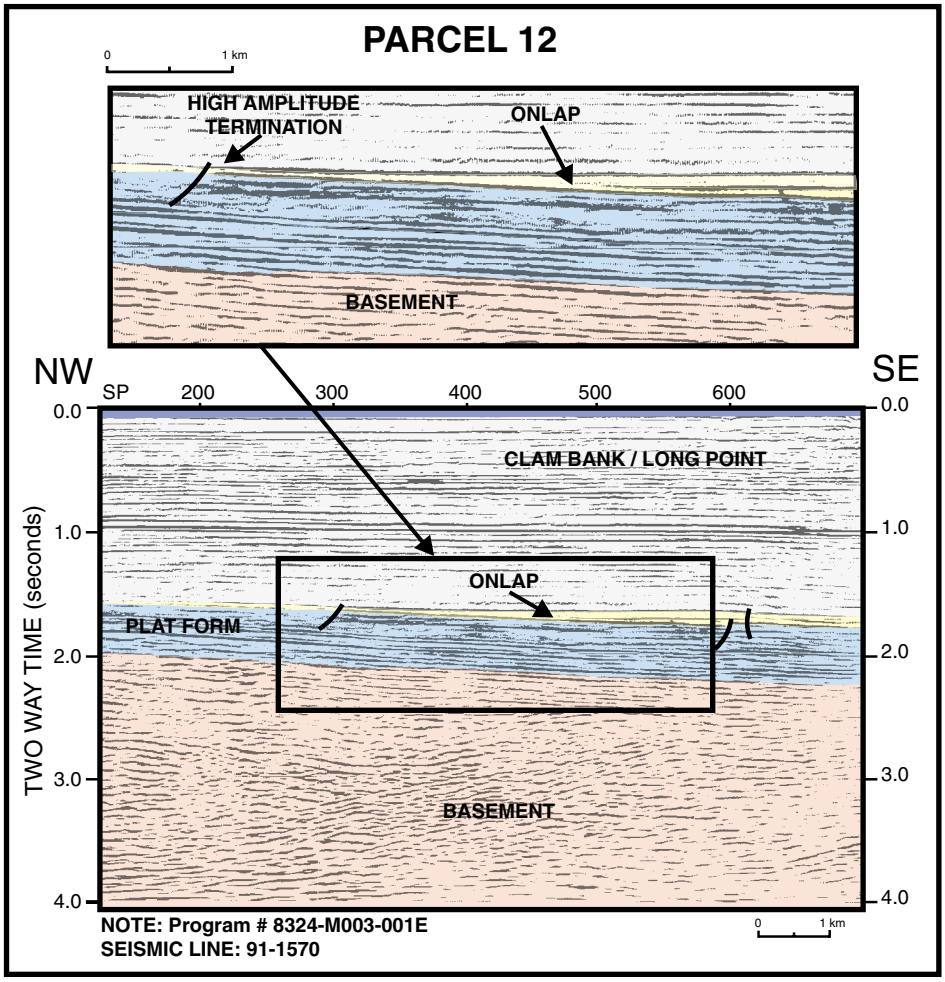
Play Types:
- Fault blocks within the Cambro-Ordovician carbonate platform
- Mainland sandstones in structural and/or stratigraphical traps over the carbonate platform
- Carbonate platform slope facies (sandstones, dolostones, and carbonates) in thrust sheets within the Allochthon)

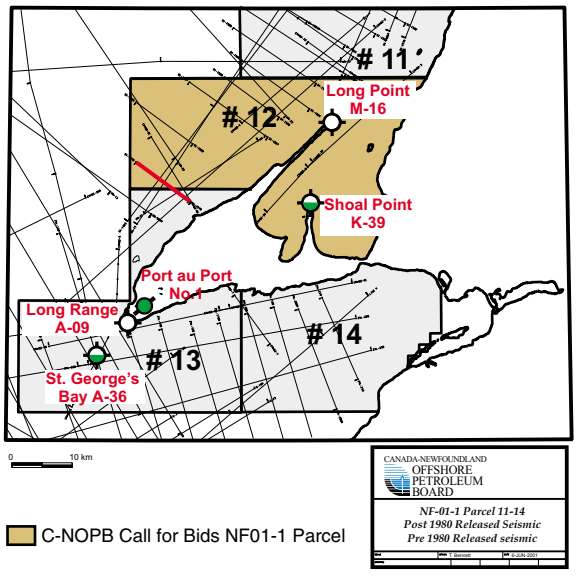
This parcel is located partially within the foreland basin and partially within the triangle zone. Plays within the foreland basin include tilted, normal fault blocks of the Cambro-Ordovician carbonate platform (see Figure 1.11). Line 91-1485 is a strike line through the triangle zone that shows coherent reflections with rollover within the allochthon, with at least two potential flat spots.


PARCEL 11
SW
NE
SP
4600
4500
4400
4300
4200
4100
4000
3900
0
1.0
2.0
3.0
TWO WAY TIME (seconds)
POSSIBLE FLAT SPOT
LOURDES LIMESTONE
CLAM BANK / LONG POINT
CARBONIFEROUS
ALLOCHTHON
FLYSCH
CARBONATE PLATFORM
BASEMENT
NOTE: Program # 8324-M003-005E
SEISMIC LINE: 91-1485
Part 1 of 2
0
2.5
2.5 km


PARCEL 11 (continued)
SW
NE
SP
5400
5300
5200
5100
5000
4900
4800
0
1.0
2.0
3.0
TWO WAY TIME (seconds)
CARBONIFEROUS
CLAM BANK / LONG POINT
POSSIBLE FLAT SPOT
LOURDES LIMESTONE
ALLOCHTHON
FLYSCH
CAMBRO ORD. CARBONATE PLATFORM
BASEMENT
NOTE: Program # 8324-M003-005E
SEISMIC LINE: 91-1485
Part 2 of 2
0
2.5 km

Request For Bids Parcels

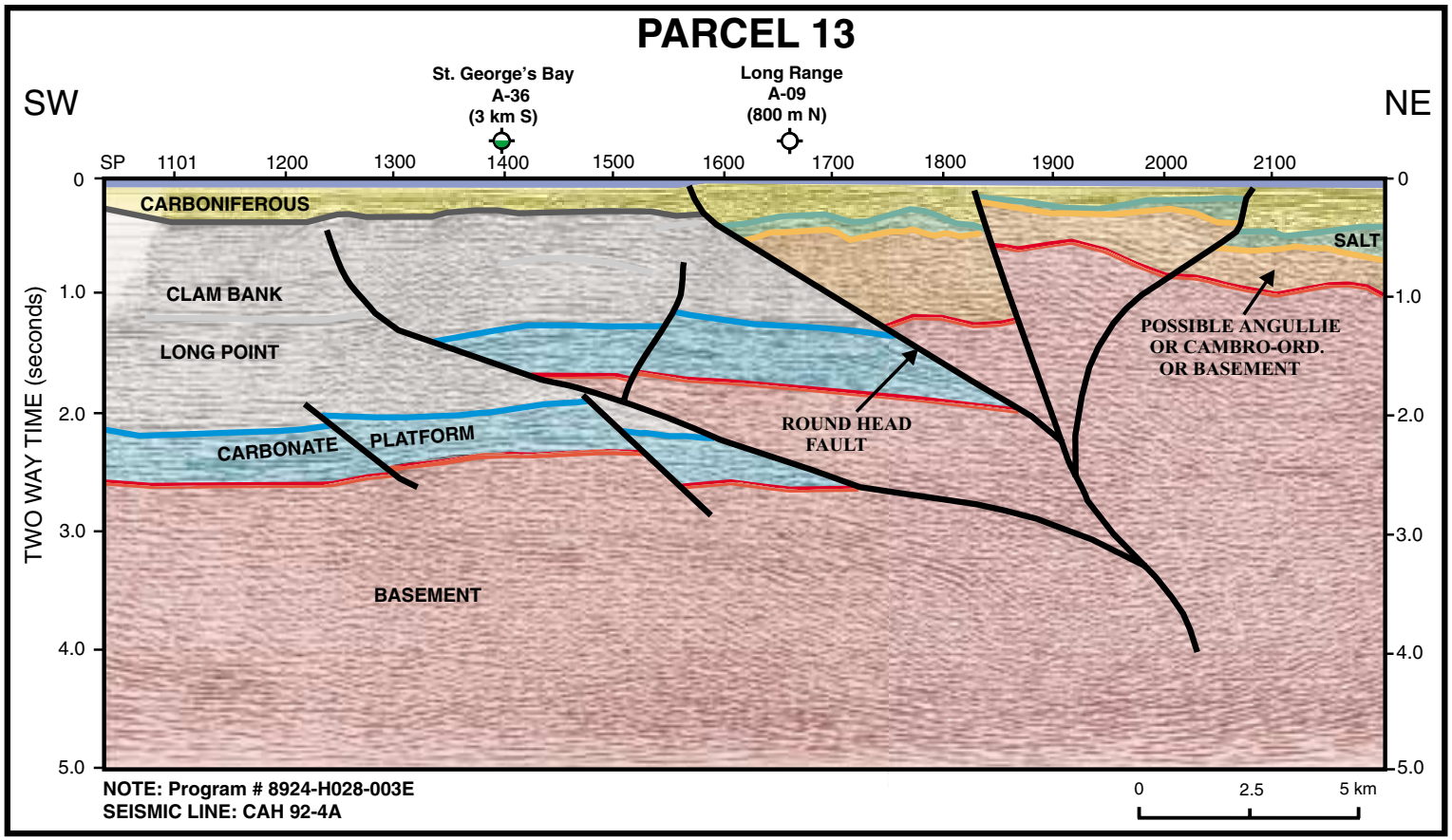


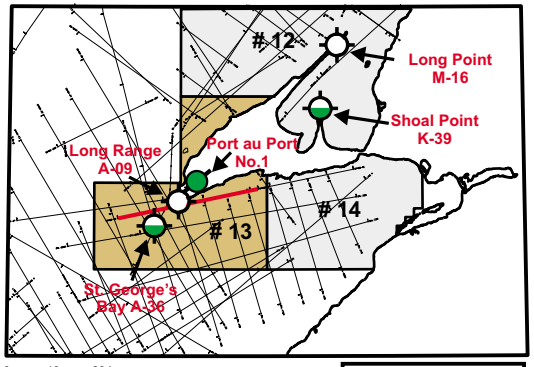


Location: West Coast Near Shore (Triangle Zone and Foreland Basin)
Parcel Area: 103,040 hectares
Water depth: ~ 100 m
Released Seismic Data: 140.09 km
Data Vintages: 1971 - 1992

Play Types:
- Cambro-Ordovician carbonate platform in thrust faulted and high angle reverse faulted structures
- Cambro-Ordovician carbonate platform within normal faulted structures
- Ordovician Mainland sandstones in structural and/or stratigraphic traps over the carbonate platform
- Devonian/Silurian reefs

This parcel includes sediments within the thrust front, triangle zone and foreland basin. Due to sparse seismic coverage it is unclear if the Shoal Point K-39 well properly tested a large carbonate bank closure within Port au Port Bay. Seismic line 91-1570 shows onlap at the Goose Tickle/Mainland Sandstone level with abrupt termination of a high amplitude event at what appears to be a small fault. Terminations are also evident within the upper zones of the carbonate platform. Additional plays include normal faulting of the platform and possible Devonian/Silurian reef-like anomalies observed on seismic line ZXL-130 (not included here) to the west of Cape St. George (located at the southwest corner of the Port au Port Peninsula).

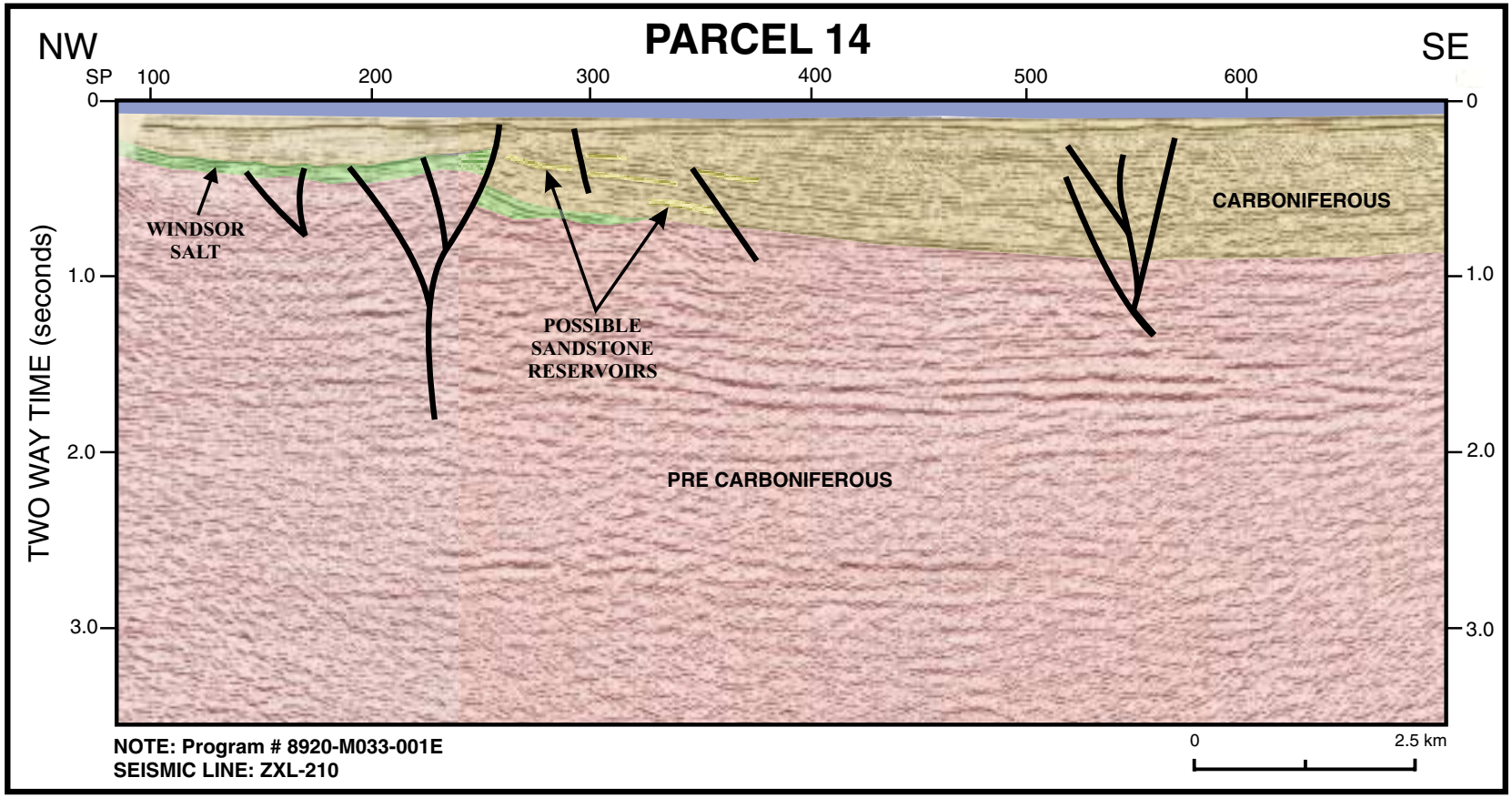


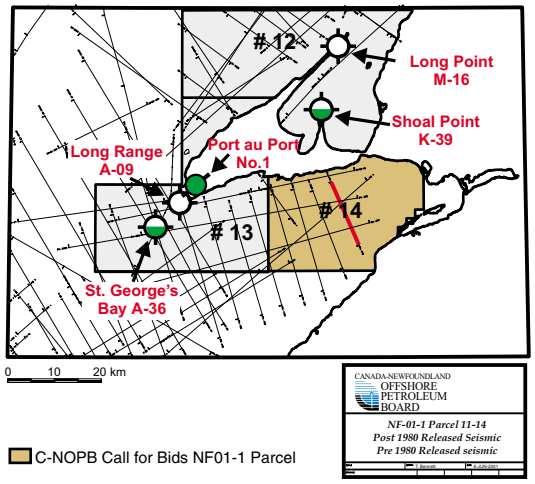


Location: West Coast Triangle Zone
Parcel Area: 83,060 hectares
Water depth: ~ 100 m
Released Seismic Data: 605.14 km
Data Vintages: 1971 –1992

Play Types:
- Cambro-Ordovician carbonate platform in thrust faulted and high angle reverse faulted structures
- Cambro-Ordovician carbonate platform in normal faulted structures
- Ordovician Mainland sandstones in structural and/or stratigraphical traps over the carbonate platform

This parcel surrounds the southwest corner of the Port au Port Peninsula where one oil discovery has occurred thus far. It includes the transition zone between the wrench faulted Carboniferous Bay St. George Subbasin and the older sediments of the Antocosti Basin. Line CAH 92-4A shows the flower structure that appears to have been tested by *St. George's Bay A-36* and *Long Range A-09*. Closer examination of the seismic data indicates that this structure is both large and broken by several faults. The structure is poorly imaged by the existing 2D seismic. Better imaging by 3D seismic, with a few transition lines to the onshore, could potentially show that large independently closed fault blocks remain untested. The carbonate platform fault block between shot points 1550 and 1800 lies updip of the platform sediments tested in the A-09 well and appears to be separated from the A-36 block by a normal fault.





Location: Bay St. George Carboniferous Basin
Parcel Area: 65,060 hectares
Water depth: ~ 100 m
Released Seismic Data: 143.17 km
Data Vintages: 1970 –1992

Play Types:
- Carboniferous sands in wrench fault and salt related structures
- Cambro-Ordovician Carbonate platform or Labrador Group traps present below the Carboniferous

This parcel lies within the Bay St. George, Carboniferous subbasin. A large closure, related to the wrench fault shown in seismic line ZXL-210 between SP's 200 and 300 has been mapped on the parcel. Additional closures related to Windsor Salt movements are also possible. Line ZXL-210 also shows amplitude anomalies (highlighted in yellow) terminating against faults.

HOW TO MAKE A BID

Administration

The Canada-Newfoundland Offshore Petroleum Board (C-NOPB) administers offshore petroleum exploration and development on behalf of the Government of Canada and the Government of Newfoundland and Labrador

How to Make a Bid

The 2001 C-NOPB Call for Bids closes at 4:00 p.m. on November 20, 2001. There is only one basis for selecting successful bids: the total amount of money the bidder commits to spend on exploration of the respective parcel during the first five years of the licence. The minimum amount that can be bid on any parcel in the Jeanne d'Arc Basin, Flemish Pass Basin and South Whale Basin is CAN $1 million *. The minimum amount that can be bid on Western Newfoundland parcels is CAN $250 thousand. If a bid is successful, an exploration licence will be issued for a term of nine years. A well must be drilled during the first five years of a licence to qualify for extension into the final four years.

For further information, please contact:

H.H. Stanley
Chairman and CEO
Tel: (709) 778-1456

John Andrews
Manager, Legal and Land
Tel: (709) 778-1458

Or visit the C-NOPB website
www.cnopb.nfnet.com

* $1 CAN ~ $.65 US

FISCAL REGIMES AND TAXATION

Royalty Structure

An independent consultant has advised that the regime is competitive on a worldwide basis, ranking in the top half when compared with other national and international regimes.

Generic Offshore Royalty Regime	
Basic Royalty	
Until earliest of: (i) 20% of reserves (ii) 50 million barrels (mmbbls) (iii) Simple Payout	1%
(i) 100 mmbbls cumulative (ii) Simple Payout	2.5%
next 100 mmbbls	5%
thereafter	7.5%
Net Royalty	
Tier 1	
Rate	20%
Return Allowance	5% plus LTGBR*
Tier 2	
Rate	10%
Return Allowance	15% plus LTGBR*

* LTGBR - Long Term Government of Canada Bond Rate

The royalty is comprised of a basic royalty component and a net royalty component. The basic royalty component is an ad valorem type royalty applied to the value of petroleum production. The net royalty is profit-based and, consequently, is a progressive royalty. An independent consultant has advised that the regime is competitive on a worldwide basis, ranking in the top half when compared with other national and international regimes.

The Basic Royalty is payable from the very first barrel of oil produced from a petroleum project and is payable on each and every barrel produced thereafter. The Basic Royalty rate applicable is phased in as certain levels of production are achieved (see table). If the project achieves Simple Payout prior to 100 million barrels of production the Basic Royalty rate automatically increases to five percent.

Net Royalty commences to be payable upon the occurrence of Net Royalty Payout. When costs are recovered and the Tier 1 Return Allowance is achieved, the Tier 1 Net Royalty rate becomes applicable. The Basic Royalty paid is applied as a credit against any Tier 1 Net Royalty payable and, as a result, royalties payable for any particular period would be the greater of the Basic Royalty or the Tier 1 Net Royalty.

When the Tier 2 Return Allowance is achieved, the Tier 2 Net Royalty rate becomes applicable. The Tier 2 Royalty is in addition to any other royalties payable.

FISCAL REGIMES AND TAXATION

Taxation

Competitive Tax Environment

The federal and the provincial government tax companies operating in Newfoundland and Labrador on the basis of net income. Municipalities tax business property and/or asset value. Provincial tax relief is available to qualifying companies under the Economic Diversification and Growth Enterprises Program (EDGE). There are other business assistance programs and generous training partnerships.

The EDGE program offers attractive tax concessions that are among the most generous in North America.

The EDGE Program

Your new or expanding company may qualify for EDGE status should you choose to locate in Newfoundland and Labrador. EDGE is a program that includes attractive tax concessions (and other incentives) that are among some of the most generous being offered in North America. If a company is making a minimum capital investment of $300,000 or has incremental sales of $500,000 and can create ten new local jobs, it may qualify for a ten year tax holiday from provincial corporate income tax, health and post-secondary education tax, and municipal tax (in participating municipalities). For a further 5-year period these taxes will be phased in at a rate of 20% of the basic rate annually.

Provincial Taxes and Premiums

In Canada, businesses pay corporate income tax at both the Federal and Provincial level, health and post-secondary education tax, and workers compensation premiums.

The Federal Corporate income tax rates are:

- 28% (large corporations)
- 21% (manufacturing corporations)
- 12 % (small business rate)

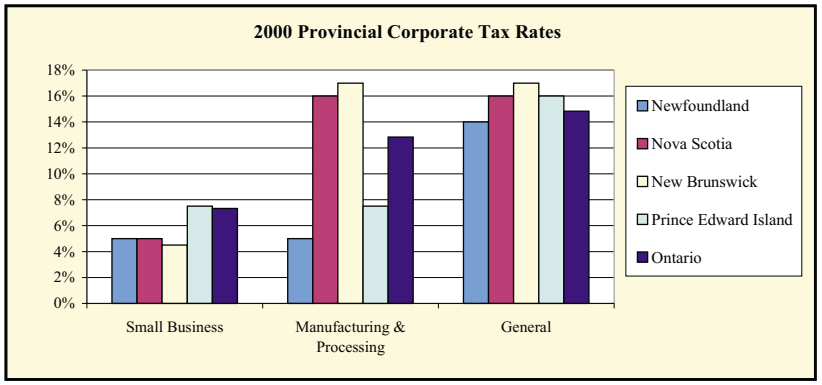


Figure 4.1
A comparison of Newfoundland's provincial corporate tax rates with other eastern Canadian provinces.

Provincial corporate tax rates can be found in the accompanying table. Companies must also contribute to two employee benefit programs: Employment Insurance and the Canada Pension Plan.

Harmonized Sales Tax (HST)

Newfoundland and Labrador's Provincial Sales Tax (PST) and Canada's national Goods and Services tax (GST) have been combined to form the 15% Harmonized Sales Tax (HST). It is applied to the same goods and services as the GST. By allowing full input tax credits to businesses, goods and services will be more competitive in both local and global markets. Harmonization of these taxes reduces the administrative burden of tax on business.

Municipal Taxes

Local governments provide a wide range of municipal services and form a tax base from one or both of property tax and business occupancy tax. While property tax rates vary across municipalities, rates are still well below national averages. In addition, the EDGE program allows municipal governments to grant qualifying companies a ten-year tax holiday from property tax followed by a 5-year phase-in.

RELATED WEB LINKS

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR

Department of Mines and Energy

For further information, please contact;

Tara Laing
Director of Communications

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Email: tlaing@mail.gov.nf.ca

We're on the web! www.gov.nf.ca/mines&en

The document is also accessible at the Department of Mines and Energy website

http://www.gov.nf.ca/mines&en/

Industrial Infrastructure

City of St. John's	www.city.st-johns.nf.ca
City of Corner Brook	www.cornerbrook.com
City of Mt. Pearl	www.mtpearl.nf.ca
Bull Arm Construction Site	www.bullarm.com/
Friede Goldman Facility at Marystown	www.fgn.nf.ca

Fiscal Regimes and Taxation

Economic Diversification and Growth Enterprises Program (EDGE)	
www.success.nfld.net/business/programs.html	
Harmonized Sales Tax (HST)	www.gov.nf.ca/fin/taxcreditsprogs-hst.html
Worker's Compensation Commission	www.whscc.nf.ca
Employment Insurance	www.hrdc-drhc.gc.ca/cgi-bin/AT-
nationalsearch.cgi	
Human Resources Development Canada	www.hrdc-drhc.gc.ca

Education and Training

Memorial University	www.mun.ca
Marine Institute	www.mi.mun.ca
College of the North Atlantic	www.northatlantic.nf.ca
Centre for Cold Ocean Resources Engineering	www.c-core.ca
Institute for Marine Dynamics	www.nrc.ca/imd

Boards, Organizations and Companies

Canada Newfoundland Offshore Petroleum Board	www.cnopb.nfnet.com
Newfoundland Offshore Industries Association	www.noianet.com
Terra Nova Project	www.terranovaproject.com
Hibernia Management Development Corp.	www.hibernia.ca
White Rose Project	www.huskywhiterose.com

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APPENDIX A - RELEASED GEOLOGICAL AND GEOPHYSICAL REPORTS

Parcel 1

Program Number	*Completion Date*	*Line Segment*
8620-C015-001P	24-Sep-71	2.16 km
8620-G005-001P	05-Nov-71	69.81 km
8620-G005-011P	15-May-80	99.23 km
8620-G005-012P	17-Apr-81	50.23 km
8620-H006-005E	09-Jun-82	316.66 km
8620-J001-009E	08-Nov-79	22.72 km
8620-J001-010E	13-Oct-80	150.51 km
8620-J008-003E	02-Sep-82	102.10 km
8620-J008-006E	23-Sep-82	52.51 km
8620-M003-004E	15-Sep-66	11.67 km
8620-M003-005E	25-Sep-67	80.92 km
8620-M003-007E	24-Sep-68	167.20 km
8620-M003-017E	28-Jul-73	126.26 km
8620-M003-021E	25-Jul-74	368.09 km
8620-S014-008E	03-Jul-83	1006.93 km
8624-C004-004E	26-Dec-79	141.88 km
8624-C004-005E	12-Sep-80	205.00 km
8624-C055-001E	17-Sep-82	177.44 km
8624-G001-002E	08-Jun-81	79.50 km
8624-G005-001P	19-May-82	51.55 km
8624-G005-002P	08-May-82	42.78 km
8624-H006-002E	18-Dec-81	358.92 km
8624-H006-006E	23-Oct-84	237.06 km
8624-M003-005E	22-Sep-71	429.02 km
8624-M003-013E	30-Aug-72	134.74 km
8624-M003-037E	15-Dec-80	61.55 km
8624-M003-039E	14-Oct-81	8.09 km
8624-P003-001E	15-Dec-81	135.54 km
8624-S006-014E	01-Oct-73	40.34 km

Approximate Total for Parcel #1 **4730.39 km**

Parcel 2

Program Number	*Completion Date*	*Line Segment*
8620-C020-003E	28-Oct-71	2.16 km
8620-G005-001P	05-Nov-71	54.80 km
8620-G005-011P	15-May-80	35.76 km
8620-G005-012P	17-Apr-81	3.54 km
8620-H006-005E	09-Jun-82	145.63 km
8620-J001-009E	08-Nov-79	3.95 km
8620-J001-010E	13-Oct-80	50.21 km
8620-J008-003E	02-Sep-82	19.63 km
8620-J008-006E	23-Sep-82	45.37 km
8620-M003-004E	15-Sep-66	24.02 km
8620-M003-005E	25-Sep-67	42.68 km
8620-M003-007E	24-Sep-68	87.98 km
8620-S014-008E	03-Jul-83	1084.22 km
8624-C004-004E	26-Dec-79	185.84 km
8624-C004-005E	12-Sep-80	188.58 km
8624-C004-008E	14-Jul-81	5.97 km
8624-C055-001E	17-Sep-82	144.55 km
8624-G005-001E	19-May-82	38.18 km
8624-G005-002P	08-May-82	118.58 km
8624-H006-002E	18-Dec-81	197.44 km
8624-H006-006E	23-Oct-84	438.93 km
8624-M003-005E	22-Sep-71	375.43 km
8624-M003-013E	30-Aug-72	144.12 km
8624-M003-038E	06-Aug-81	157.47 km
8624-M003-046E	06-Sep-82	67.69 km
8624-P003-001E	15-Dec-81	59.17 km
8624-P003-002E	06-Jun-85	28.40 km
8624-P028-020E	22-Aug-81	.05 km
8624-P028-064E	13-Oct-83	66.27 km
8624-S006-010E	09-Aug-72	16.34 km

Approximate Total for Parcel #2 **3832.93 km**

Parcel 3

Program Number	*Completion Date*	*Line Segment*
8620-G005-001P	05-Nov-71	7.14 km
8620-G005-011P	15-May-80	140.497 km
8620-G005-012P	17-Apr-81	50.07 km
8620-H006-005E	09-Jun-82	428.23 km
8620-J001-010E	13-Oct-80	144.35 km
8620-J008-003E	02-Sep-82	126.26 km
8620-J008-006E	23-Sep-82	5.50 km
8620-M003-004E	15-Sep-66	40.78 km
8620-M003-005E	25-Sep-67	210.71 km
8620-M003-007E	24-Sep-68	256.96 km
8620-M003-020E	20-Oct-73	15.07 km
8620-M003-021E	25-Jul-74	20.46 km
8620-S014-008E	03-Jul-83	1033.53 km
8620-S024-001P	30-Oct-72	54.58 km
8624-C004-004E	26-Dec-79	226.63 km
8624-C004-005E	12-Sep-80	151.45 km
8624-C004-008E	14-Jul-81	56.43 km
8624-C055-001E	17-Sep-82	228.61 km
8624-G001-001E	21-Nov-80	65.28 km
8624-G005-001P	19-May-82	38.85 km
8624-G005-002P	08-May-82	126.40 km
8624-H006-002E	18-Dec-81	518.41 km
8624-H006-006E	23-Oct-84	356.75 km
8624-M003-003E	09-Oct-70	44.16 km
8624-M003-005E	22-Sep-71	123.55 km
8624-M003-013E	30-Aug-72	13.54 km
8624-M003-037E	15-Dec-80	145.38 km
8624-M003-046E	06-Sep-82	40.15 km
8624-P003-001E	15-Dec-81	166.84 km
8624-P028-083E	24-Nov-85	48.50 km

Approximate Total for Parcel #3 **4885.05 km**

Parcel 4

Program Number	*Completion Date*	*Line Segmet*
8620-G005-001P	05-Nov-71	44.99 km
8620-G005-004P	02-Dec-72	36.87 km
8620-G005-011P	15-May-80	110.07 km
8620-G005-012P	17-Apr-81	35.24 km
8620-H006-005E	09-Jun-82	150.67 km
8620-J001-002E	09-Nov-73	39.00 km
8620-J001-009E	08-Nov-79	41.75 km
8620-J001-010E	13-Oct-80	23.32 km
8620-J008-003E	02-Sep-82	90.55 km
8620-M003-004E	15-Sep-66	83.98 km
8620-M003-005E	25-Sep-67	262.18 km
8620-M003-007E	24-Sep-68	538.61 km
8620-M003-017E	28-Jul-73	112.01 km
8620-M003-018E	13-Dec-73	420.64 km
8620-M003-021E	25-Jul-74	168.50 km
8620-S014-008E	03-Jul-83	892.44 km
8620-S024-001P	30-Oct-72	35.18 km
8624-C004-004E	26-Dec-79	49.41 km
8624-C004-008E	14-Jul-81	78.19 km
8624-C055-001E	17-Sep-82	192.79 km
8624-G005-001P	19-May-82	47.53 km
8624-G005-002P	08-May-82	61.33 km
8624-H006-002E	18-Dec-81	123.60 km
8624-H006-006E	23-Oct-84	966.06 km
8624-H006-009E	23-Oct-84	56.36 km
8624-M003-003E	09-Oct-70	49.39 km
8624-M003-005E	22-Sep-71	381.29 km
8624-M003-013E	30-Aug-72	233.56 km
8624-M003-026E	22-Jul-75	13.71 km
8624-M003-031E	10-Oct-78	35.68 km
8624-M003-037E	15-Dec-80	3.78 km
8624-M003-038E	06-Aug-81	123.66 km
8624-M003-046E	06-Sep-82	163.69 km

Parcel 4 continued...

Program Number	*Completion Date*	*Line Segment*
8624-M003-048E	26-Aug-83	153.23 km
8624-P003-001E	15-Dec-81	227.91 km
8624-P003-002E	06-Jun-85	27.07 km
8624-P028-083E	24-Nov-85	25.00 km
8624-S006-014E	01-Oct-73	36.01 km
8624-S006-017E	11-Aug-75	19.65 km

Approximate Total for Parcel #4 **6154.90 km**

Parcel 5

Program Number	*Completion Date*	*Line Segment*
8620-C006-001E	27-Oct-71	49.93 km
8620-G005-012P	17-Apr-81	10.10 km
8620-J001-001E	14-Oct-72	2.86 km
8620-J001-002E	09-Nov-73	30.72 km
8620-J001-004E	08-Nov-74	29.54 km
8620-J001-005E	29-Oct-75	158.56 km
8620-J001-006E	04-Nov-76	8.86 km
8620-J001-008E	18-Oct-78	37.11 km
8620-J001-009E	08-Nov-79	35.19 km
8620-J001-010E	13-Oct-80	179.60 km
8620-J008-006E	23-Sep-82	86.45 km
8620-S014-008E	03-Jul-83	22.86 km
8624-C006-001E	17-May-75	340.23 km
8624-G005-002P	08-May-82	126.18 km
8624-J001-004E	23-Sep-84	138.48 km
8624-M003-026E	22-Jul-75	59.89 km
8624-P028-020E	22-Aug-81	82.65 km

Approximate Total for Parcel #5 **1399.19 km**

Parcel 6

Program Number	*Completion Date*	*Line Segment*
8620-A004-007E	18-Jul-73	5.57 km
8620-A004-008E	18-Jul-73	.20 km
8620-C020-003E	28-Oct-71	55.06 km
8620-G005-004P	02-Dec-72	49.97 km
8620-G005-012P	17-Apr-81	49.82 km
8620-J001-002E	09-Nov-73	22.89 km
8620-J001-004E	08-Nov-74	11.86 km
8620-J001-005E	29-Oct-75	434.77 km
8620-J001-006E	04-Nov-76	385.86 km
8620-J001-007E	15-Oct-77	272.93 km
8620-J001-008E	18-Oct-78	654.45 km
8620-J001-009E	08-Nov-79	358.73 km
8620-J001-010E	13-Oct-80	356.29 km
8620-J008-003E	02-Sep-82	85.43 km
8620-J008-006E	23-Sep-82	8.62 km
8620-S014-008E	03-Jul-83	559.76 km
8620-S024-001P	30-Oct-72	50.37 km
8620-V001-001E	24-Aug-71	45.56 km
8624-C006-001E	17-May-75	8.64 km
8624-D003-001E	02-Jul-70	150.88 km
8624-G005-001P	19-May-82	15.32 km
8624-G005-002P	08-May-82	19.48 km
8624-J001-002E	02-Oct-81	156.97 km
8624-J001-004E	23-Sep-84	455.28 km
8624-M003-026E	22-Jul-75	132.96 km
8624-P003-002E	06-Jun-85	34.63 km
8624-P028-020E	22-Aug-81	20.27 km
8624-P028-038E	27-Jun-82	45.59 km
8624-P028-059E	09-Oct-83	34.73 km
8624-P028-075E	14-Jun-85	23.35 km

Approximate Total for Parcel #6 **4506.23 km**

Parcel 7

Program Number	*Completion Date*	*Line Segment*
8620-A004-007E	18-Jul-73	38.50 km
8620-A004-008E	18-Jul-73	43.98 km
8620-C020-003E	28-Oct-71	39.89 km
8620-G001-002E	30-Nov-73	228.10 km
8620-G005-001P	05-Nov-71	5.65 km
8620-J001-006E	04-Nov-76	42.20 km
8620-J001-007E	15-Oct-77	2.44 km
8620-J001-008E	18-Oct-78	7.75 km
8620-J001-010E	13-Oct-80	91.80 km
8620-J008-003E	02-Sep-82	17.78 km
8620-J008-006E	23-Sep-82	2.13 km
8620-S014-008E	03-Jul-83	26.22 km
8620-V001-001E	24-Aug-71	37.08 km
8624-A004-008E	09-Jun-71	9.33 km
8624-C004-005E	12-Sep-80	46.33 km
8624-D003-001E	02-Jul-70	68.06 km
8624-G005-002P	08-May-82	6.42 km
8624-J001-002E	02-Oct-81	69.82 km

Approximate Total for Parcel #7 **783.48 km**

Parcel 8

Program Number	*Completion Date*	*Line Segment*
8620-A004-001E	20-Nov-64	89.28 km
8620-A004-003E	27-Aug-65	28.77 km
8620-A004-004E	01-Nov-67	24.04 km
8620-A004-006E	01-Aug-73	104.48 km
8620-C004-003E	18-Sep-71	30.58 km
8620-E004-001E	12-Jun-70	25.78 km
8620-G005-001P	05-Nov-71	71.33 km
8620-G005-004P	02-Dec-72	63.94 km
8620-S014-010E	10-Jun-83	.43 km
8624-A004-003E	12-Oct-68	95.85 km
8624-D001-003P	20-Dec-71	41.41 km
8624-E004-001E	16-Aug-67	19.82 km
8624-E004-003E	03-Aug-69	91.72 km
8624-P011-001E	13-Jun-71	124.89 km

Approximate Total for Parcel #8 **812.31 km**

Parcel 9

Program Number	*Completion Date*	*Line Segment*
8620-A004-001E	20-Nov-64	115.66 km
8620-A004-003E	27-Aug-65	168.59 km
8620-A004-004E	01-Nov-67	35.79 km
8620-A004-006E	01-Aug-73	9.89 km
8620-G005-001P	05-Nov-71	50.35 km
8620-G005-004P	02-Dec-72	17.34 km
8620-S014-010E	10-Jun-83	337.34 km
8624-A004-003E	12-Oct-68	233.72 km
8624-A004-006E	02-Oct-70	218.55 km
8624-A004-017E	09-Nov-74	157.34 km
8624-D001-003P	20-Dec-71	47.10 km
8624-E004-003E	03-Aug-69	1.73 km
8624-E004-005E	18-Jul-73	13.54 km
8624-N010-001E	26-Nov-83	66.61 km
8624-N010-002E	26-Jun-84	36.83 km
8624-P028-032E	19-Jul-82	199.93 km
8624-P028-078E	25-Sep-85	12.73 km
8624-T007-009E	26-Oct-74	10.73 km

Approximate Total for Parcel #9 **1733.76 km**

Parcel 10

Program Number	*Completion Date*	*Line Segment*
8620-A004-001E	20-Nov-64	50.38 km
8620-A004-003E	27-Aug-65	193.90 km
8620-A004-004E	01-Nov-67	42.67 km
8620-A004-006E	01-Aug-73	29.44 km
8620-G005-001P	05-Nov-71	71.42 km
8620-G005-004P	02-Dec-72	45.54 km
8620-H006-004E	23-May-82	8.05 km
8620-J001-001E	14-Oct-72	24.84 km
8620-S014-010E	10-Jun-83	213.99 km
8624-A004-003E	12-Oct-68	83.12 km
8624-A004-006E	02-Oct-70	221.31 km
8624-A004-011E	01-Oct-72	117.18 km
8624-A004-017E	09-Nov-74	153.36 km
8624-A025-001E	24-Sep-81	14.40 km
8624-D001-002P	01-Dec-70	15.66 km
8624-D001-003P	20-Dec-71	24.95 km
8624-H006-003E	14-Nov-81	3.32 km
8624-H007-013E	04-Aug-81	1.47 km
8624-N010-001E	26-Nov-83	262.68 km
8624-N010-002E	26-Jun-84	152.57 km
8624-P028-007E	25-Feb-81	41.01 km
8624-P028-023E	28-Oct-81	.03 km
8624-P028-032E	19-Jul-82	230.43 km
8624-T007-009E	26-Oct-74	1.89 km
8624-T007-014E	30-Sep-76	5.22 km

Approximate Total for Parcel #10 **2008.81 km**

Parcel 11

Program Number	*Completion Date*	*Line Segment*
8620-G001-001E	23-Nov-73	401.42 km
8624-C012-001E	06-Oct-71	407.67 km
8624-C015-001P	14-Oct-69	65.82 km
8624-C022-001E	25-Nov-71	76.53 km
8624-G022-001E	24-Oct-83	404.42 km
8624-S006-015E	22-Oct-73	20.32 km
8924-B058-001E	15-Sep-91	60 km
8924-H028-001E	03-Sep-90	42.83 km
8924-H028-003E	09-Aug-92	40.94 km

Approximate Total for Parcel #11 **1460.54 km**

Parcel 12

Program Number	*Completion Date*	*Line Segment*
8620-G001-001E	23-Nov-73	54.84 km
8624-M003-007E	22-Nov-71	.96 *km*
8924-H028-001E	03-Sep-90	8.27 *km*
8924-H028-003E	09-Aug-92	76.02 *km*

Approximate Total for Parcel **140.09 km**

Parcel 13

Program Number	*Completion Date*	*Line Segment*
8620-G001-001E	23-Nov-73	57.35 km
8624-G022-001E	24-Oct-83	.13 km
8624-M003-007E	22-Nov-71	122.79 km
8624-M003-017E	02-Jul-73	4.89 km
8624-T007-006E	14-Oct-70	3.98 km
8920-M033-001E	13-Aug-92	187.39 km
8924-H028-002E	21-Sep-91	121.46 km
8924-H028-003E	09-Aug-92	107.15 km

Approximate Total for Parcel #13 **605.14 km**

Parcel 14

Program Number	*Completion Date*	*Line Segment*
8624-M003-017E	02-Jul-73	5.85 km
8624-T007-006E	14-Oct-70	26.17 km
8920-M033-001E	13-Aug-92	111.14 km

Approximate Total for Parcel #14 **143.17 km**