

TABLE OF CONTENTS

Executive Summary	i.
Table of Contents.....	ii.
List of Figures	iii.
List of Maps	iv.
Introduction	1.
Definitions	1.
Tight Gas Regions in British Columbia.....	2.
Geological Review of Tight Gas Reservoir Units	5.
Cardium Formation (Turonian – Upper Cretaceous)	5.
Stratigraphy and Distribution	5.
Reservoir Description	5.
Hydrocarbon Occurrences.....	6.
Dunvegan Formation (Cenomanian – Upper Cretaceous)	6.
Stratigraphy and Distribution	6.
Reservoir Description	8.
Hydrocarbon Occurrences.....	8.
Sikanni / Goodrich Sandstones (Uppermost Albian – Lower Cretaceous).....	9.
Stratigraphy and Distribution	9.
Reservoir Description	9.
Hydrocarbon Occurrences.....	12.
Scatter Formation (Albian – Lower Cretaceous).....	12.
Stratigraphy and Distribution	12.
Reservoir Description	12.
Hydrocarbon Occurrences.....	17.
Cadotte Member (Albian – Lower Cretaceous)	17.
Stratigraphy and Distribution	17.
Reservoir Description	18.
Hydrocarbon Occurrences.....	18.
Spirit River Formation (Albian – Lower Cretaceous)	19.
Stratigraphy and Distribution	19.
Reservoir Description	19.
Hydrocarbon Occurrences.....	20.
Bluesky Formation (Albian – Lower Cretaceous)	20.
Stratigraphy and Distribution	20.
Reservoir Description	21.
Hydrocarbon Occurrences.....	22.
Cadomin – Gething Formations (Aptian & older – Lower Cretaceous).....	23.
Stratigraphy and Distribution	23.
Reservoir Description	24.
Hydrocarbon Occurrences.....	24.
Minnes Group (Nikanassin – Buick Creek) (Upper Jurassic – Lwr. Cret.).....	25.

Stratigraphy and Distribution	25.
Reservoir Description	25.
Hydrocarbon Occurrences.....	26.
Pardonet / Baldonnel (Upper Triassic)	26.
Stratigraphy and Distribution	26.
Reservoir Description	27.
Hydrocarbon Occurrences.....	27.
Halfway / Doig Formations (Middle Triassic)	29.
Stratigraphy and Distribution	29.
Reservoir Description	29.
Hydrocarbon Occurrences.....	31.
Belloy Formation / Stoddart Group (Permian – Upper Mississippian)	31.
Mattson Formation (Upper Mississippian)	32.
Stratigraphy and Distribution	32.
Reservoir Description	32.
Hydrocarbon Occurrences.....	33.
Jean Marie Member (Upper Devonian)	33.
Stratigraphy and Distribution	33.
Reservoir Description	35.
Hydrocarbon Occurrences.....	35.
Middle Devonian and Older Strata	35.
Exploration Analysis.....	37.
Cardium Formation	37.
Current Situation.....	37.
Tight Gas Potential.....	37.
Dunvegan Formation.....	39.
Current Situation.....	39.
Tight Gas Potential.....	39.
Sikanni / Goodrich Sandstones	39.
Current Situation.....	39.
Tight Gas Potential.....	39.
Scatter Formation.....	40.
Current Situation.....	40.
Tight Gas Potential.....	40.
Cadotte Member	40.
Current Situation.....	40.
Tight Gas Potential.....	41.
Spirit River Formation.....	41.
Current Situation.....	41.
Tight Gas Potential.....	41.
Bluesky Formation	42.
Current Situation.....	42.
Tight Gas Potential.....	42.
Cadomin / Gething Formations	43.
Current Situation.....	43.
Tight Gas Potential.....	43.

Minnes Group (Nikanassin / Buick Creek).....	44.
Current Situation.....	44.
Tight Gas Potential.....	44.
Pardonet / Baldonnel.....	45.
Current Situation.....	45.
Tight Gas Potential.....	45.
Halfway / Doig Formations	46.
Current Situation.....	46.
Tight Gas Potential.....	46.
Belloy Formation / Stoddart Group.....	47.
Mattson Formation	48.
Current Situation.....	48.
Tight Gas Potential.....	48.
Jean Marie Member	48.
Current Situation.....	48.
Tight Gas Potential.....	49.
Middle Devonian and Older Strata	49.
Analogue Basins and Plays	50.
Deep Basin.....	50.
Foothills.....	50.
Northern Plains	51.
Exploitation Strategies for Tight Gas Reservoirs.....	52.
Exploration / Exploitation Strategies.....	52.
Modern Drilling and Completion Technology.....	53.
References.....	55.

Appendix 1: Outcrop Photographs

Appendix 2: Core Photographs

Appendix 3: Photomicrographs

Appendix 4: Petrography Table

Appendix 5: Applecore™ Core Descriptions

Maps and Cross-Sections enclosed.



LIST OF FIGURES

- Figure 1: Schematic N-S cross-section, Dunvegan Formation.
- Figure 2: Cross-section SIK1-SIK1', showing west-to-east pinchout of Sikanni Formations sandstones within Fort St. John shales.
- Figure 3: Cross-section SIK2-SIK2', showing continuity of Sikanni and Goodrich sandstones along strike (SSE-NNW).
- Figure 4: Schematic stratigraphic cross-section, Fort St. John Group, northeastern B.C.
- Figure 5: Cross-section A-A', highlighting distribution of Scatter Formation in the Liard Basin.
- Figure 6: Cross-section B-B', highlighting distribution of Scatter Formation in the Liard Basin.
- Figure 7: Cross-section C-C', highlighting distribution of Scatter Formation in the Liard Basin.
- Figure 8: Illustration of fracture-dominant Foothills structural play trend, Pardonet/Baldonnel.
- Figure 9: Schematic cross-section illustrating Triassic formations, stratigraphic relationships and depositional environments.
- Figure 10: Stratigraphic cross-section JM-JM', illustrating the Jean Marie Member in the subsurface.

LIST OF MAPS & CROSS-SECTIONS

- Map 1: Tight gas regions of northeastern British Columbia (page 3 in text)
- Map 2: Situation map, Cardium Formation
- Map 3: Situation map, Dunvegan Formation
- Map 4: Situation map, Sikanni and Goodrich formations
- Map 5: Situation map, Scatter Formation
- Map 6: Situation map, Cadotte Member
- Map 7: Situation map, Spirit River Formation
- Map 8: Situation map, Bluesky Formation
- Map 9: Situation map, Cadomin and Gething formations
- Map 10: Situation map, Minnes Group (Nikanassin / Buick Creek)
- Map 11: Situation map, Pardonet / Baldonnel formations
- Map 12: Situation map, Halfway / Doig Formations
- Map 13: Situation map, Mattson Formation
- Map 14: Situation map, Jean Marie Member

Stratigraphic Cross-Section BLU-BLU'

Stratigraphic Cross-Section CDM-CDM'

Stratigraphic Cross-Section CDT-CDT'

Stratigraphic Cross-Section CRD-CRD'

Stratigraphic Cross-Section DUN-DUN'

Stratigraphic Cross-Section HFY-HFY'

Stratigraphic Cross-Section MAT-MAT'

Stratigraphic Cross-Section NIK-NIK'

Stratigraphic Cross-Section SR-SR'