PETROLEUM GEOLOGY OF WESTERN SIBERIA

CONTENTS

PART 1:

INTRODUCTION TO THE WEST SIBERIAN BASIN, ITS STRUCTURE, STRATIGRAPHY AND PALAEOGEOGRAPHIC DEVELOPMENT.

- Chapter 1. Brief Overview of the West Siberian Basin, its Geography, and the Development of its Hydrocarbon Industry.
 - I.1.1 Description of the Report
 - I.1.2 Brief Description of the West Siberian Basin; Geography and Climate
 - I.1.3 Brief Historical Review of the Hydrocarbon Industry of Western Siberia, and a Short Introduction to the Petroleum Geology of the West Siberian Basin
- Chapter 2. The Palaeozoic Development of Western Siberia.
 - I.2.1 Tectonic Development of the Western Siberian during the Palaeozoic
 - I.2.2 Descriptions of the main regions of Palaeozoic Development.
 - I.2.2.1 Urals Fold Belt
 - I.2.2.2 Central West Siberian Fold System
 - I.2.2.3 Kazakhstan Fold Belt (including the Salym and Irtysh zones)
 - I.2.2.4 Altai-Sayan Fold Belt
 - I.2.2.5 Yenisei Fold Belt
- Chapter 3. Development of the West Siberian Basin during the Mesozoic and Tertiary: Palaeogeography and Stratigraphy.
 - I.3.1 Triassic
 - I.3.2 Jurassic
 - I.3.2.1 Early and Middle Jurassic
 - I.3.2.2 Late Jurassic
 - I.3.3 Cretaceous
 - I.3.3.1 Neocomian
 - I.3.3.2 Aptian, Albian and Cenomanian
 - I.3.3.3 Late Cretaceous (post-Cenomanian)

- I.3.4 Cenozoic
 - 1.3.4.1 Palaeocene and Eocene
 - I.3.4.2 Oligocene
 - I.3.4.3 Neogene
 - I.3.4.4 Quaternary

PART II:

PETROLEUM GEOLOGY OF THE WEST SIBERIAN BASIN

Chapter 1. Introduction and Brief Overview of the Petroleum Geology

- II.1.1 Regional sub-division of the West Siberian Basin
 - II.1.1.1 The Middle Ob Region
 - II.1.1.2 The Pre-Ural Region
 - II.1.1.3 The Southern WSB
 - II.1.1.4 The Northern WSB
- II.1.2 Main features of the petroleum geology of the West Siberian Basin.

Chapter 2. Petroleum Geology of the Pre-Jurassic Succession

- II.2.1 Palaeozoic
 - II.2.1.1 The Nyurol' Basin
- II.2.2 (Permo-) Triassic rifting
- II.2.3 Triassic (to earliest Jurassic) platformal succession

Chapter 3. Petroleum Geology of the Jurassic

- II.3.1 Main elements of the Jurassic hydrocarbon system
 - II.3.1.1 Reservoirs
 - II.3.1.2 Source Rocks
 - II.3.1.3 Seals
- II.3.2 Kaimysov, Vasyugan and Paidugin regions
- II.3.3 Middle Ob, and southern parts of the Nadym-Pur and Pur-Taz regions
- II.3.4 Pre-Ural and Frolov regions
- II.3.5 The Northern WSB (Yamal, Gyda, Nadym-Pur, Pur-Taz, Ust-Yenisei and Taimyr regions)

Chapter 4. Petroleum Geology of the Cretaceous

- II.4.1 Neocomian
 - II.4.1.1 Reservoirs
 - II.4.1.2 Seals
 - II.4.1.3 Traps
 - II.4.1.4 Source rocks; and hydrocarbon generation and accumulation
 - Berriasian to Valanginian
 - Hauterivian to Barremian
- II.4.2 Aptian to Cenomanian
- II.4.3 Summary of the distribution of Cretaceous Oil and Gas Fields by Region
 - II.4.3.1 Middle Ob Region
 - II.4.3.2 Northern WSN

REFERENCES

ENCLOSURES

VOLUMES II-IV: FIELD DATABASE OF THE WEST SIBERIAN BASIN (Extract from Blackbourn Geoconsulting's FSU Oil and Gas Field Database)

Contents - 4

LIST OF FIGURES

Figure I 1 1	West Siberia – General location map.
Figure I.1.2:	Distribution and depth of permafrost in Western Siberia
Figure I.1.3	
C	Plot of average size of new discoveries in Western Siberian and Russia
Figure I.2.1:	Conjectural plate tectonic setting; Early Devonian
Figure I.2.2:	Conjectural plate tectonic setting; Early Carboniferous
Figure I.3.1:	Cross section through the Urengoi rift, and the Triassic to Early Jurassic
	stratigraphy of the Tyumen SG-6 well
Figure I.3.2:	Approximate distribution of Late Triassic deposition (Tampei Series) in
	relation to rifting and trap volcanism
Figure I.3.3:	Jurassic and Cretaceous (Pliensbachian to Turonian) lithostratigraphy
	along a NW-SE line through the central West Siberian Plain (line of
	section B-B' shown on Figure I.3.4)
Figure I.3.4:	Jurassic (Aalenian to Tithonian) lithostratigraphy along a SW-NE line
	(A-A') through the northern West Siberian Basin
Figure I.3.5:	West Siberian Basin Palaeogeography – Pliensbachian
Figure I.3.6:	West Siberian Basin Palaeogeography – Toarcian
Figure I.3.7:	West Siberian Basin Palaeogeography – Late Aalenian
Figure I.3.8:	West Siberian Basin Palaeogeography – Late Bathonian
Figure I.3.9:	West Siberian Basin Palaeogeography – Late Callovian
Figure I.3.10:	West Siberian Basin Palaeogeography – Oxfordian
Figure I.3.11:	West Siberian Basin Palaeogeography – Kimmeridgian
Figure I.3.12:	West Siberian Basin Palaeogeography – Tithonian
Figure I.3.13:	West Siberian Basin Palaeogeography – Berriasian-Valanginian
Figure I.3.14:	West Siberian Basin Palaeogeography – Hauterivian
Figure I.3.15:	West Siberian Basin Palaeogeography – Barremian
Figure I.3.16:	West Siberian Basin Palaeogeography – Early Aptian
Figure I.3.17:	West Siberian Basin Palaeogeography – Early Albian
Figure I.3.18:	West Siberian Basin Palaeogeography – Late Albian
Figure I.3.19:	West Siberian Basin Palaeogeography – Cenomanian
Figure I.3.20:	West Siberian Basin Palaeogeography – Turonian
Figure I.3.21:	West Siberian Basin Palaeogeography – Coniacian
Figure I.3.22:	West Siberian Basin Palaeogeography – Maastrichtian

Contents - 5

- Figure I.3.23: West Siberian Basin Palaeogeography Danian
- Figure I.3.24: West Siberian Basin Palaeogeography Palaeocene
- Figure I.3.25: West Siberian Basin Palaeogeography Middle Eocene
- Figure I.3.26: West Siberian Basin Palaeogeography End-Eocene
- Figure I.3.27: West Siberian Basin Palaeogeography Middle Oligocene
- Figure I.3.28: West Siberian Basin Palaeogeography Late Oligocene
- Figure I.3.29: West Siberian Basin Palaeogeography Early Miocene
- Figure II.2.1: Areas regarded as prospective for hydrocarbons beneath the base-Jurassic unconformity.
- Figure II.2.2: Nyurol' Basin: sections through representative oil fields
- Figure II.3.1: Schematic cross section through the Jurassic of the western WSB showing stratigraphic traps against basement high
- Figure II.3.2 Conceptual block diagram of marine shoreface and associated deposits on slopes of basement highs in Late Jurassic of the Pre-Urals and Frolov areas.
- Figure II.3.3: Sources of oils and condensates based on C₅-C₈ geochemistry; accumulations in Early and Middle Jurassic reservoirs
- Figure II.3.4: Sources of oils and condensates based on C₅-C₈ geochemistry; accumulations in Late Jurassic reservoirs
- Figure II.3.5: Sources of oils and condensates based on C₅-C₈ geochemistry; accumulations in Cretaceous reservoirs
- Figure II.4.1: Simple examples of seismic sections showing Neocomian clinoforms
- Figure II.4.2: Generalised reservoir stratigraphy for the Neocomian of the Surgut and Nizhnevartovsk arches of the Central Pre-Ob region
- Figure II.4.3: Representative cross sections of Neocomian clinoformal successions on the north flank of the Surgut Arch, constructed from wells and seismic data.

ENCLOSURE 1: STRUCTURAL MAP OF THE WEST SIBERIAN BASIN –
Depth to top-Jurassic

ENCLOSURE 2: PRE-JURASSIC BASEMENT OF THE WEST SIBERIAN BASIN AND SURROUNDING AREAS

ENCLOSURE 3: INTERPRETED GEOLOGICAL TRAVERSE THROUGH THE NORTHEASTERN MARGIN OF THE WEST SIBERIAN BASIN

ENCLOSURE 4: INTERPRETED NW-SE GEOLOGICAL TRAVERSE THROUGH THE WEST SIBERIAN BASIN

ENCLOSURE 5: CROSS SECTION OF THE JURASSIC, TRIASSIC AND PALAEOZOIC FROM THE CENTRAL WSB (SURGUT ARCH)
TO ITS EASTERN MARGINS

ENCLOSURE 6: STRUCTURAL MAP OF THE WEST SIBERIAN BASIN –

Depth to base of sedimentary cover

ENCLOSURE 7: DISTRIBUTION OF NEOCOMIAN CLINOFORMS IN WESTERN SIBERIA

ENCLOSURE II.1: WEST SIBERIA FIELDS AND HYDROCARBON PROVINCES (within Volumes II-IV)