

**STRUCTURAL INTERPRETATION BY USING 2D
SEISMIC AND PETROPHYSICAL ANALYSIS OF MISSA
KESWAL WELL-01, UPPER INDUS BASIN, PAKISTAN**



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Thesis submitted to Bahria University, Islamabad in partial fulfillment of
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ABSTRACT

Missa Keswal Oil Field is located at a distance of about 60 Km in the south-east of Islamabad in the eastern part of Potwar basin. The Coordinates of selected well -01 is $33^{\circ} 12' 0''$ North, $73^{\circ} 22' 0''$ East respectively.

The used data obtained for both petrophysical and seismic processes included the seismic lines 905-QZN-4,994-GNA-12,994-GNA-09,994-GNA-19, and well log data of Missa Keswal-01 from Landmark Resources(LMKR) with the approval of Directorate General of Petroleum Concession (DGPC) to complete our study work of selected area. In the present study our strike line is oriented in SW-NE and three dip lines are oriented in SE-NW. Chorgali Formation and Khewra Sandstone are marked as reflector 1&2 respectively to investigate the geological structure in the area. Some major faults were identified, along these reflectors. Depth, velocity and time contour maps were generated which shows the pop-up structure in the subsurface and is acting as trap for hydrocarbons.

Petrophysical analyses was carried out to identify the reservoir and to evaluate the volume of shale which was 37%, effective porosity =13%, average porosity =20.01%, saturation of water =45% and saturation of hydrocarbon was 55%.The petrophysical analyses confirm the presence of strong hydrocarbon zone in the Chorgali formation.

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ABBREVIATIONS

B.H.T	Bottom hole Temperature
Fm	Formation
GRlog	Gamma ray reading of formation
GRmin	Gamma ray minimum
GRmax	Gamma ray maximum (shale)
OGDCL	Oil and Gas Development Company Limited
LMKR	Landmark Resources
LLS	Laterolog Shallow
LLD	Laterolog Deep
MSFL	Microspherically Focused Log
SRPFB	Salt Range Potwar-Foreland Basin
SP	Spontaneous Potential
Vsh	volume of shale
ρ_b	formation bulk density
ρ_f	fluid density
H	Mud Cake Thickness
Sh	Saturation of Hydrocarbons
Sw	Saturation of Water
R _{mfeq}	Resistivity of Mud Filtrate Equivalent
T.D	Total Depth
Temp.	Temperature
S.st	Sand Stone
BSCF	Billion Standard Cubic Feet
MMSCFD	Million Standard Cubic Feet per Day

CONTENTS

ABSTRACT	I
ACKNOWLEDGEMENT	Ii
ABBREVIATIONS	Iii
CONTENTS	Iv
FIGURES	X
TABLES	Xii
GRAPHS	Xiii

CHAPTER 1 INTRODUCTION

1.1	Introduction	01
1.2	Location of the Study Area	02
1.3	Exploration history of Missa Keswal 01 well	03
1.4	Acquired data	04
1.5	Objectives of the research project	04
1.6	Methodology	05

CHAPTER 2 TECTONICS AND GEOLOGY

2.1	Tectonics and geology	06
2.2	Tectonic setting of Potwar plateau	07
2.3	Physiography of the Potwar area	09
2.4	General geology of Potwar plateau	11
2.5	Structural trend of Potwar plateau	13

CHAPTER 3
STRATIGRAPHY

3.1	Depositional Settings of the Kohat-Potwar Basin	15
3.1.1	Salt Range Formation	16
3.1.2	Khewra Formation	17
3.1.3	Kussak Formation	18
3.1.4	Jutana Formation	18
3.1.5	Baghanwala Formation	19
3.1.6	Tobra Formation	20
3.1.7	Dandot Formation	21
3.1.8	Hangu Formation	21
3.1.9	Lockhart Formation	22
3.1.10	Patala Formation	22
3.1.11	Nammal Formation	23
3.1.12	Sakesar Formation	24
3.1.13	Chorgali Formation	24
3.1.14	Murree Formation	25
3.1.15	Kamlial Formation	25

CHAPTER 4
PETROLEUM GEOLOGY

4.1	Petroleum geology	27
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4.2	Production history of Potwar basin	27
4.3	Potwar as the Petroleum zone	32
4.4	Petroleum system	33
4.4.1	Source rocks	33
4.4.2	Reservoir rocks	33
4.4.3	Traps and seals	34
4.4.4	Maturation	34
4.4.5	Generation and migration	35

CHAPTER 5
SEISMIC DATA ACQUISITION

5.1	Introduction	37
5.2	Seismic refraction survey	37
5.3	Seismic reflection survey	38
5.4	Spread geometry	39
5.5	Common depth point (CDP) method	39
5.6	Energy sources	39
5.6.1	Impulsive sources	39
5.6.2	Non Impulsive sources	40
5.6.2.1	Vibrosies sources	41
5.7	Recording of seismic waves	41

5.7.1	Geophones	41
5.8	Seismic data processing	42
5.9	Demultiplexing	42
5.10	Geometry definition	42
5.11	Trace editing	43
5.12	Static correction	43
5.13	Filtering	44
5.14	Deconvolution	44
5.15	Velocity analysis	44
5.16	Mute	44
5.17	Normal move out correction	44
5.18	Automatic gain control	45
5.19	Stacking	45
5.20	Migration	45

CHAPTER 6
SEISMIC INTERPRETATIONS

6.1	Introduction	46
6.2	Structural analysis	46
6.3	Stratigraphic analysis	46
6.4	Interpreter's objectives	47

6.5	Interpretation of given seismic sections	47
6.6	Interpretation steps	47
6.6.1	Identification of reflectors	48
6.6.2	Picking and correlation of reflectors	49
6.6.3	Identification of faults	49
6.6.4	Construction of seismic structural cross-sections	49
6.6.5	Closing loops	49
6.6.6	Construction of isochronous map	49
6.6.7	Velocity analysis	50
6.7	Conversion of reflection time to depth	50
6.8	Base map	50
6.9	Faults and horizon marking	51
6.10	Average velocity graph	57
6.11	Time contour maps	59
6.12	Velocity contour maps	62
6.13	Depth contour map	63

CHAPTER 7

PETROPHYSICAL ANALYSIS

7.1	Petrophysical analysis	66
7.2	Work flow of petrophysical analysis	66

7.3	Processes log curves	68
7.4	Marking of zone of interests	68
7.5	Identification of lithology	68
7.6	Calculation of volume of shale (V_{sh})	68
7.7	Porosity	70
7.8	Density porosity	70
7.9	Neutron porosity	71
7.10	Average porosity	72
7.11	Effective porosity (ϕ_e)	72
7.12	Resistivity of water (R_w)	74
7.13	Saturation of water (S_w)	76
7.14	Saturation of hydrocarbons	77
7.15	Average depth graph	78
	CONCLUSIONS	80
	RECOMMENDATIONS	81
	REFERENCES	82

LIST OF FIGURES

Figure 1.1 Tectonic Map of Pakistan showing Potowar sub-basin	02
Fig.1.2 Location map of Missa Kaswal (Google Earth)	03
Figure 2.1 Regional tectonic setting of Pakistan (after Khan and Others, 1986; Gee, 1989)	07
Figure 2.2. Tectonic map of Northern Pakistan (after Kazmi and Raza 1982)	09
Figure 2.3 Generalized map showing the various physiographic features of the Potwar (after Schweinfurth and Hussain, 1988)	11
Figure 2.4 Generalized geology of the Potwar geologic province and Surrounding area (modified from OGDC, 1997; Wandrey and Law, 1999; Wandrey and others, 2000)	13
Figure 2.5 Geological and Structural Map of Potwar Plateau (after Khan and others, 1986; Gee, 1989)	14
Figure 3.1 Showing the Stratigraphy of Missa Keswal well-01 borehole formation	16
Figure 4.1 Petroleum zones of Pakistan, including the Missa Keswal Oil Field (after: Raza et al., 1989)	32
Figure 4.2. Showing the petroleum system.	33
Fig 5.1 showing Seismic refraction survey	38
Fig 5.2 showing Seismic reflection survey	38
Figure 6.1 Base Map of the study area	51

Figure 6.2 Interpreted seismic line 994-GNA-09 of Missa Keswal well 01	53
Figure 6.3 Interpreted seismic line 994-GNA-019 of Missa Keswal well 01	54
Figure 6.4 Interpreted seismic line 905-QZN-04 of Missa Keswal well 01	55
Figure 6.5 Interpreted seismic line 994-GNA-12 of Missa Keswal well 01	56
Figure 6.6 Time contour map of Chorgali Formation	60
Figure 6.7 Time contour map of Khewra Formation	61
Figure 6.8 Velocity contour map of Chorgali Formation	62
Figure 6.9 Velocity contour map of Khewra Formation	63
Figure 6.10 Depth contour map of Chorgali Formation	64
Figure 6.11 Depth contour map of Khewra Formation	65

LIST OF TABLES

Table 4.1 East and South East Potwar Producing Zones	29
Table 4.2 North Potwar Producing Zones	30
Table 4.3 West Potwar Producing Zones	31
Table 4.4. Showing the total petroleum system in Missa Keswal well-01.	36
Table 5.1 Source parameters used for the acquisition of seismic data	40
Table 5.2 Description of Receiver parameters	42
Table 7.1 Flow chart representing the work flow of Petrophysical analysis	67
Table 7.2 Showing zones of interest.	68
Table 7.3 Shows GR minimum and GR maximum value of the well	69
Table 7.4 Values of the V_{sh} for the prospective zone.	69
Table 7.5 Values for density porosity for the prospective zone.	70
Table 7.6 Shows values of matrix density and fluid density of sandstone	71
Table 7.7 Shows values of average porosity of ND	72
Table 7.8 Values of effective porosity (ϕ_e) for the prospective zone.	73
Table 7.9 Shows values of average water saturation in zone 01	76
Table 7.10. Shows values of average hydrocarbon saturation in zone 01	77

LIST OF GRAPHS

Graph 6.1 in this Average velocity graph, CDP 240(trend line)	57
Graph 6.2 In this Average velocity graph, CDP 222(trend line)	58
Graph 6.3 In this Average velocity graph, CDP 175(trend line)	58
Graph 6.4 In this Average velocity graph, CDP 211(trend line)	59
Graph 7.1 Represents volume of shale in reservoir of Khewra Sand	69
Graph 7.2.Represents Density porosity in reservoir of Khewra sand	71
Graph 7.3.Represents Average porosity in the reservoir of Khewra s.st	72
Graph 7.4. Represents Effective porosity in the reservoir of Khewra s.st	73
Graph 7.5.Represents Water Saturation in the reservoir of Khewra s.st	77
Graph 7.6. Represents Hydrocarbon Saturation in the reservoir of Khewra s.st	78
Graph 7.7.Represents Average Depth in the reservoir of Khewra s.st	79