## LIST OF FIGURES

	Page
Figure 1 Location of some oil and gas fields producing from NFRs	4
Figure 2 Potential fractures developed in laboratory experiment	9
Figure 3 Schematic of most common fractures associated with folds	10
Figure 4 Columnar jointing in basalt in Utah	12
Figure 5 Desiccation crack in mud	13
Figure 6 NFR classification system	14
Figure 7 Model of fractures as they usually occur in earth as visualized by	
Dickey (1986)	18
Figure 8 Fluid flow according to dilatancy model (after Kanamori, 1974)	19
Figure 9 Possible geologic evolution of petroleum accumulation in fractures	
formed before time of petroleum migration (after McNauhton and Garb, 1975)	20
Figure 10 Schematic sketches of porosity distribution in fractured reservoir	
rocks (after McNauhton and Garb, 1975)	22
Figure 11Open fractures in outcrop, Triassic Wingate sandstone, LakePowell,	
Southeastern Utah	27
Figure 12 Tectonic gouge- filled fractures or deformations band in Silurian	
Oil Creek Sandstone of the Simpson Group in Southern Oklahoma	27
Figure 13 Graph of Equation 4-1, which depicts total formation permeability	
as a function of fracture width, fracture spacing, and matrix permeability	58
Figure 14 Comparison of drilling induced fracture, natural joint,	
and open gash fracture (after Sangree 1969)	60

Figure 15 Map illustrating the location of the Hassi Messaoud and	
other oil and gas fields in Algeria	61
Figure 16 Location map showing Zones 1A and 1C	63
Figure 17 Sketches of core from OMM 33	66
Figure 18 UBI data from OMNZ572	67
Figure 19 Idealization of fractured reservoirs (Warren and Root, 1963)	70
Figure 20 Reservoir Quality in Zones1Aand1C in Hassi Messaoud oil field	72
Figure 21 Permeability reductions due to production in Hassi Messaoud oil field	74