### Geologic and Engineering Approaches in Evaluation of San Andres/Grayburg Hydrocarbon Reservoirs - Permian Basin\*

## **D.G. Bebout**<sup>1</sup> and **P.M.** (Mitch) Harris<sup>2</sup> Editors

Search and Discovery Article #60016 (2009) Posted March 23, 2009

\*Preface and Table of Contents from D.G. Bebout, and P. M. Harris (eds.), 1990, Geologic and Engineering Approaches in Evaluation of San Andres/Grayburg Hydrocarbon Reservoirs - Permian Basin: University of Texas Bureau of Economic Geology, 297 p.

<sup>1</sup>Bureau of Economic Geology, University of Texas, Austin, Texas <sup>2</sup>ETC, Chevron, San Ramon, CA, USA. (<u>MitchHarris@chevron.com</u>)

**Preface** 

**Table of Contents** 

# Geologic and Engineering Approaches in Evaluation of San Andres/Grayburg Hydrocarbon Reservoirs—Permian Basin

D. G. Bebout and P. M. Harris

Editors

Bureau of Economic Geology • W. L. Fisher, Director The University of Texas at Austin • Austin, Texas 78713



1990



#### **Preface**

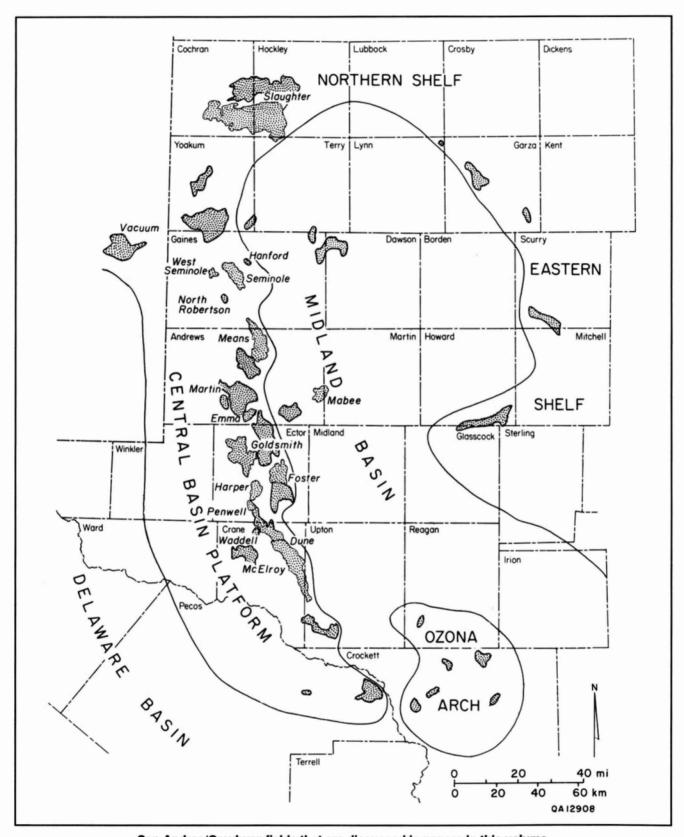
Reservoirs of the San Andres and Grayburg Formations of the Permian Basin have a combined cumulative production of 7.7 billion barrels (Bbbl) of oil. These reservoirs have produced 46 percent of the oil from the Permian Basin and 17 percent of that from the entire State of Texas. Because of their high cumulative production but low recovery efficiency (30 percent), these reservoirs are prime candidates for improved field development through strategic infill drilling, selective completion, and enhanced recovery. To achieve this improved field development, a thorough understanding of the reservoir is required; this understanding is obtained only through complete integration of geological and engineering data.

The 13 papers in this volume were presented at the 1986 San Andres/Grayburg Research Conference and Field Trip titled *Hydrocarbon Reservoir Studies—San Andres/Grayburg Formations, Permian Basin,* sponsored by the Permian Basin Section of the Society of Economic Paleontologists and Mineralogists and the Bureau of Economic Geology, The University of Texas at Austin. Extended abstracts, with illustrations, of these and additional papers presented at the conference are included in much shorter form in the conference Proceedings (Bebout and Harris, 1986).\*

The first three papers in this volume are intended to introduce the San Andres and Grayburg Formations by presenting an overview of the regional facies framework, diagenesis, and correlation of these rocks on the Central Basin Platform and Northern Shelf. The remaining 10 papers present detailed case studies of specific reservoirs and offer varied approaches to better understanding and developing these complex reservoirs.

D. G. Bebout and P. M. Harris Editors

<sup>\*</sup>Bebout, D. G., and Harris, P. M., eds., 1986, Hydrocarbon reservoir studies—San Andres/Grayburg Formations, Permian Basin: Permian Basin Section, Society of Economic Paleontologists and Mineralogists, Publication No. 86-26, 143 p.



San Andres/Grayburg fields that are discussed in papers in this volume.

### **Contents**

| Prefacei  |
|---|
| D. G. Bebout and P. M. Harris   |
| Depositional Facies of Grayburg/San Andres Dolostone Reservoirs, Central Basin Platform, Permian Basin  |
| R. A. Garber and P. M. Harris   |
| Diagenesis of the San Andres Formation (Guadalupian), Central Basin Platform, Permian Basin2.  D. A. Leary and J. N. Vogt   |
| Correlation of San Andres and Grayburg (Guadalupian) Reservoirs, University Lands, Central Basin Platform49   |
| Plate: North-south regional cross section, Guadalupian Series,  Central Basin Platform to Southern Shelfpocke  C. M. Garrett, Jr., and Charles Kerans             |
| Geologic Reservoir Description of Mobil-Operated Units in Slaughter (San Andres) Field, Cochran and Hockley Counties, Texas                                       |
| Geology of the San Andres Reservoir, Mallet Lease, Slaughter Field, Hockley County, Texas: Implications for Reservoir Engineering Projects                        |
| Reservoir Description of the Mobil Oil Bridges State Leases (Upper San Andres Reservoir),  Vacuum Field, Lea County, New Mexico                                   |
| Identification of Carbonate Depositional Texture from Well-Log Response, West Seminole Field, Gaines County, Texas  |
| Petrophysical Characteristics Related to Depositional Environments and Diagenetic Overprint:  A Case Study of the San Andres Formation, Mabee Field, West Texas   |
| Facies Control of Porosity and Permeability: Emma San Andres Reservoir,  Andrews County, Texas  |
| Geological and Engineering Assessment of Remaining Mobile Oil, East Penwell San Andres Unit, Ector County, Texas  |
| Reservoir Characterization through Integration of Geological and Engineering Methods and Techniques: Dune (Grayburg) Field, University Lands, Crane County, Texas |
| The Grayburg Reservoir, North McEiroy Unit, Crane County, Texas   |
| McElroy Field: Development Geology of a Dolostone Reservoir, Permian Basin, West Texas275 P. M. Harris and S. D. Walker   |
| Acknowledgments 207   |