Contents

Preface vii

Chapter 1 General Characteristics of Shale Plays 1
Jeffrey J. Brown

I. Introduction 1
II. Geology of Shale Plays 3
III. Development 7
IV. Drilling Process 8
V. Completion Process 8
VI. Production 11
VII. Reserves and Resources 12
VIII. Major Shale Plays in the United States 13
A. Northeast Region 15
B. Gulf Coast Region 16
C. Mid-Continent Region 19
D. Southwest Region 22
E. Rocky Mountain Region 25
F. West Coast Region 30
G. Alaska 35
IX. Conclusion 36
Chapter 2
Common Litigation Issues, Environmental Impacts, and Regulations Relating to Shale Plays, Horizontal Drilling, and Hydraulic Fracturing 37

Benjamin J. Fosland
Barclay R. Nicholson
Elizabeth M. Varela

I. Common Litigation Issues: Leasing and Title 37
   A. Leasing Issues 38
   B. Title Issues 45

II. Common Litigation Issues: Condemnation 48
    A. Do You Have the Right to Condemn? 49
    B. Where Should You File the Condemnation Action? 51
    C. How Do You Define “Just Compensation”? 53

III. Common Litigation Issues: Subsurface Trespass 57

IV. Common Litigation Issues: Accommodation Doctrine 61

V. Environmental Impacts 64
   A. Environmental Impacts: Water 65
   B. Environmental Impacts: Air 79
   C. Environmental Impacts: Spills 81
   D. Environmental Impacts: Road Use 82

VI. Regulatory Issues 84
    A. Federal versus State versus Municipal Regulations 84
    B. Water, Air, and Wastewater Statutes and Regulations 86
    C. Disclosure of Hydraulic Fracturing Fluids 88

VII. Litigation 90
     A. Overview 90
     B. Selected Lawsuits: Personal Injury and Property Claims 92
     C. Earthquake Cases 95
     D. Lawsuits Involving Municipal Zoning Bans 97
     E. Lawsuits Involving Lease Provisions 98
F. Lawsuits Challenging Disclosure Regulations 99
G. Antitrust Lawsuit 99
H. Miscellaneous Lawsuits 100

VIII. Conclusion 100

Chapter 3
Common Contractual Disputes 103
Basheer Y. Ghorayeb
Robert Lang
Roy A. Powell
Michael A. Magee
Kevin C. Meacham

I. Introduction 103

II. Royalty Litigation Trends 104
A. The Royalty Clause 104
B. Royalty Disputes 106
C. Trends in Royalty Litigation 110

III. Pooling and Unitization Litigation Trends 111
A. History and Purpose of Pooling and Unitization 112
B. Effects of Pooling and Unitization 112
C. Sources of Pooling and Unitization 114
D. Pooling and Unitization Litigation 115
E. Unique Issues Applicable to Horizontal Wells 123
F. Pooling and Unitization Summary 124

IV. Implied Covenants Litigation Trends 125
A. History and Purpose of Implied Covenants 125
B. Standards for Interpreting and Applying Implied Covenants 126
C. The Implied Covenants 128
D. Remedies for Breaches of Implied Covenants 134
E. Interrelation between Pooling and Unitization and Implied Covenants 135

V. Conclusion 137
Chapter 4

Water Rights and Their Impact on Shale Gas Development 139
Brenda L. Clayton
Kenneth M. Klemm
Chad M. Smith
Tyler L. Weidlich

I. Use of Water in Developing Shale Plays 139
II. Effects of Water Use by Oil and Gas Operations 140
III. General Water Law Frameworks 141
   A. Classifications of Water 141
   B. Surface Water 142
   C. Groundwater 152
IV. Withdrawal and Use Requirements in Select Eastern States 156
   A. Pennsylvania 156
   B. West Virginia 159
   C. Louisiana 161
   D. Ohio 163
   E. Watershed-Based Regulated Systems 167
V. Withdrawal and Use Requirements in Select Western and Midwestern States 168
   A. California 168
   B. Colorado 172
   C. New Mexico 176
   D. North Dakota 178
   E. Oklahoma 181
   F. Texas 183
VI. Closing: Water Rights and Litigation 188

About the Editors 191
About the Authors 193
Table of Cases 197
Index 207