Fundamentals of Oil & Gas Accounting
FUNDAMENTALS OF OIL & GAS ACCOUNTING
6TH EDITION

CHARLOTTE J. WRIGHT
## Contents

1 Upstream Oil and Gas Operations .................................................. 1  
   Brief History of the US Oil and Gas Industry ................................. 3  
   Origin of Petroleum ........................................................................ 6  
   Conventional versus Nonconventional Operations .......................... 9  
   Exploration Methods and Procedures .......................................... 10  
   Acquisition of Mineral Interests in Property ............................... 13  
      Mineral rights ........................................................................... 13  
      Mineral interests ....................................................................... 14  
      Retained ORI ........................................................................... 16  
      Carved-out production payment ............................................. 17  
      Carved-out net profits interest created from working interest .... 17  
      Net profits interest created from mineral rights .................... 18  
   Lease Provisions ........................................................................... 18  
   Drilling Operations ....................................................................... 25  
   Recovery Processes ...................................................................... 30  
   Production and Sales .................................................................... 31  
   Common State and Federal Regulations ...................................... 32  
   What Does the Future Hold? ...................................................... 33  
   Problems ..................................................................................... 35  
   Notes .......................................................................................... 40  

2 Introduction to Oil and Gas Accounting ........................................... 41  
   Financial Accounting .................................................................... 42  
   Income Tax Accounting .................................................................. 43  
   Contract Accounting ..................................................................... 43  
   Managerial Accounting .................................................................. 44  
   Summary of Accounting Requirements ...................................... 45  
   Oil and Gas Cost Categories ....................................................... 45  
   Historical Development of Oil and Gas Financial Accounting Methods 46  
   Joint Interest Accounting ............................................................ 49
### Table of Contents

Successful Efforts versus Full Cost Accounting ............................................. 50
Introduction to Successful Efforts Accounting ............................................. 53
Introduction to Full Cost Accounting ......................................................... 58
Problems ....................................................................................................... 71
Note ........................................................................................................... 76

3 Oil and Gas Reserves .................................................................................... 77
SEC Reserve Definitions .................................................................................. 80
Reasonable certainty ....................................................................................... 80
Resources ....................................................................................................... 81
Reserves ........................................................................................................ 81
Proved reserves ............................................................................................. 82
Proved developed reserves ........................................................................... 84
Proved undeveloped reserves ....................................................................... 84
Unproved reserves ......................................................................................... 86
Probable reserves ......................................................................................... 86
Possible reserves .......................................................................................... 87
Reserve Reporting ......................................................................................... 88
Reserve reports .............................................................................................. 88
Reserves Owned or Entitled .......................................................................... 88
Problems ....................................................................................................... 90

4 Nondrilling Exploration Costs—Successful Efforts ...................................... 93
G&G Costs ..................................................................................................... 94
Carrying and Retaining Costs ....................................................................... 97
Test-Well Contributions ............................................................................... 99
Support Equipment and Facilities ............................................................... 102
Offshore and International Operations ....................................................... 103
Problems ....................................................................................................... 103
Note .............................................................................................................. 108

5 Acquisition Costs of Unproved Property—Successful Efforts .................... 109
Purchase in Fee ............................................................................................. 114
Internal Costs ................................................................................................ 115
Options to Lease ........................................................................................... 116
Delinquent Taxes and Mortgage Payments .................................................. 119
Top Leasing ................................................................................................... 121
Disposition of Capitalized Costs—Impairment of Unproved Property .......... 122
Disposition of Capitalized Costs—Surrender or Abandonment of Property.... 128
Post–Balance Sheet Events ........................................................................... 131
Disposition of Capitalized Costs—Reclassification of an Unproved Property . 132
Land Department ......................................................................................... 141
Problems ....................................................................................................... 142
Note .............................................................................................................. 150
### Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Drilling and Development Costs—Successful Efforts</td>
<td></td>
</tr>
<tr>
<td>Income Tax Accounting for Drilling Costs</td>
<td>151</td>
</tr>
<tr>
<td>AFEs and Drilling Contracts</td>
<td>154</td>
</tr>
<tr>
<td>Well Definitions and Classification</td>
<td>156</td>
</tr>
<tr>
<td>Exploratory Wells versus Development Wells</td>
<td>156</td>
</tr>
<tr>
<td>Accounting for Exploratory Drilling Costs</td>
<td>158</td>
</tr>
<tr>
<td>Suspended Wells</td>
<td>164</td>
</tr>
<tr>
<td>Accounting for Development Costs</td>
<td>166</td>
</tr>
<tr>
<td>Additional Development Costs</td>
<td>169</td>
</tr>
<tr>
<td>Support Equipment and Facilities</td>
<td>170</td>
</tr>
<tr>
<td>Drilling and Development Seismic</td>
<td>171</td>
</tr>
<tr>
<td>Other Drilling Operations</td>
<td>171</td>
</tr>
<tr>
<td>Damaged or lost equipment and materials</td>
<td>174</td>
</tr>
<tr>
<td>Abandonment of portions of wells</td>
<td>174</td>
</tr>
<tr>
<td>Post–Balance Sheet Events</td>
<td>176</td>
</tr>
<tr>
<td>Interest Capitalization</td>
<td>177</td>
</tr>
<tr>
<td>Offshore and International Operations</td>
<td>178</td>
</tr>
<tr>
<td>Problems</td>
<td>179</td>
</tr>
<tr>
<td>Note</td>
<td>190</td>
</tr>
<tr>
<td>7 Proved Property Cost Disposition—Successful Efforts</td>
<td></td>
</tr>
<tr>
<td>Cost Disposition through Amortization</td>
<td>192</td>
</tr>
<tr>
<td>Reserves owned or economic entitlement</td>
<td>193</td>
</tr>
<tr>
<td>DD&amp;A calculation</td>
<td>195</td>
</tr>
<tr>
<td>DD&amp;A on a field-wide basis</td>
<td>200</td>
</tr>
<tr>
<td>Joint production of oil and gas</td>
<td>202</td>
</tr>
<tr>
<td>Estimated future dismantlement, site restoration, and abandonment costs</td>
<td>205</td>
</tr>
<tr>
<td>Exclusion of costs or reserves</td>
<td>205</td>
</tr>
<tr>
<td>Depreciation of support equipment and facilities</td>
<td>207</td>
</tr>
<tr>
<td>Cost disposition—nonworking interests</td>
<td>210</td>
</tr>
<tr>
<td>Revision of DD&amp;A rates</td>
<td>212</td>
</tr>
<tr>
<td>Cost Disposition through Abandonment, Retirement, or Sale of Proved Property</td>
<td>216</td>
</tr>
<tr>
<td>Successful Efforts Impairment</td>
<td>224</td>
</tr>
<tr>
<td>Problems</td>
<td>224</td>
</tr>
<tr>
<td>Notes</td>
<td>236</td>
</tr>
<tr>
<td>8 Full Cost Accounting</td>
<td></td>
</tr>
<tr>
<td>Disposition of Capitalized Costs</td>
<td>237</td>
</tr>
<tr>
<td>Inclusion of estimated future development expenditures</td>
<td>244</td>
</tr>
<tr>
<td>Exclusion of costs</td>
<td>246</td>
</tr>
<tr>
<td>Impairment of unproved properties costs</td>
<td>248</td>
</tr>
<tr>
<td>Sales and abandonment of properties</td>
<td>251</td>
</tr>
<tr>
<td>Reclassification of properties</td>
<td>253</td>
</tr>
<tr>
<td>Support equipment and facilities</td>
<td>254</td>
</tr>
<tr>
<td></td>
<td>262</td>
</tr>
</tbody>
</table>
Market risk premiums .................................................. 327
Offsetting cash inflows ............................................... 329
Subsequent Recognition and Measurement ............................ 329
Changes due to the passage of time .................................... 329
Gain or loss recognition upon settlement ............................... 331
Changes due to the revisions in estimates ............................... 332
Reassessment .......................................................... 335
Funding and Assurance Provisions .................................... 335
Conditional AROs ..................................................... 335
Reporting and Disclosures .............................................. 337
Environmental Obligations—Normal Operations ........................ 337
Timing of recognition .................................................. 338
Measurement .......................................................... 339
Environmental Obligations—Improper Operations ........................ 341
AROs and impairment .................................................. 341
Problems ............................................................ 342

11 Impairment and Disposal of Long-Lived Assets ...................... 349
Scope .................................................................. 349
Asset groups .......................................................... 349
Estimating and Computing Impairment .................................. 350
Indications of impairment (trigger events) ............................ 350
Testing for recoverability .............................................. 351
Measuring impairment ............................................... 353
Estimating Future Cash Flows ......................................... 356
Risk adjusting reserves ............................................... 356
Prices and costs to be used ............................................ 357
Interaction between impairment and AROs ............................ 360
Long-Lived Assets to Be Disposed Of ................................ 360
Long-lived assets to be disposed of by sale ............................ 360
Disposal groups ....................................................... 361
Long-lived assets to be disposed of other than by sale ................ 361
Problems ............................................................ 362
Note ............................................................... 366

12 Accounting for Revenue from Oil and Gas Sales .................. 367
Measurement and Sale of Oil and Natural Gas ............................ 369
Crude oil measurement ............................................... 369
Run ticket calculation ............................................... 372
Crude oil sales .......................................................... 378
Natural gas measurement .............................................. 379
Natural gas sales ....................................................... 380
Standard Division Order .............................................. 380
Determination of Revenue ............................................ 382
# Joint Interest Accounting

14 Joint Interest Accounting ...................................................... 475
   Joint Operations ............................................................... 475
   Joint venture contracts .................................................... 476
   The Joint Operating Agreement ........................................... 477
   The Accounting Procedure .................................................. 502
   General provisions ........................................................... 526
   Direct charges ............................................................... 527
   Overhead ................................................................. 532
   Pricing of joint account material purchases, transfers, and dispositions 533
   Inventories ............................................................... 534
   Joint Interest Accounting ................................................... 535
      Booking charges to the joint account: Accumulation of joint costs in
          operator’s regular accounts ........................................ 535
      Booking charges to the joint account: Distribution of joint costs as
          incurred ............................................................... 537
      Nonconsent or sole risk operations .................................... 537
      Accounting for materials .............................................. 541
   Offshore Operations .......................................................... 546
   Joint Interest Audits .......................................................... 546
   Problems ..................................................................... 548
   Notes ..................................................................... 555

# Conveyances

15 Conveyances ................................................................. 557
   Mineral Interests ............................................................... 557
      Types of interests ......................................................... 558
   Conveyances: General Rules .................................................. 561
   Conveyances: Exchanges and Poolings .................................... 562
      Farm-ins/farm-outs ....................................................... 564
      Farm-ins/farm-outs with a reversionary working interest .......... 566
      Free wells .................................................................. 571
      Carried interests or sole risk ............................................ 573
      Joint venture operations ............................................... 578
      Poolings .................................................................. 579
      Unitizations ................................................................ 580
   Sales of Property Interests .................................................... 583
      Unproved property sales ............................................... 583
      Proved property sales .................................................... 589
   Production Payments ........................................................... 596
      Retained production payments ........................................ 597
      Carved-out production payments ..................................... 602
   Conveyances—Full Cost ......................................................... 609
      Sales and abandonments ................................................ 609
      Volumetric production payments ..................................... 612
      Purchases of reserves ..................................................... 612
Unproved properties acquired for resale ................................................................. 612
Problems .................................................................................................................. 613

16 Oil and Gas Disclosures .................................................................................... 629
All Entities with Oil and Gas Producing Activities .................................................. 629
Publicly Traded Companies with Significant Oil and Gas Producing Activities ........ 632
Supplemental Disclosures ....................................................................................... 633
Illustrative Example ............................................................................................... 633
Proved Oil and Gas Reserve Quantity Information .................................................. 636
Capitalized Costs Relating to Oil and Gas Producing Activities .............................. 640
Costs Incurred for Property Acquisition, Exploration, and Development Activities ................................................................. 643
Results of Operations for Oil and Gas Producing Activities .................................. 644
Standardized Measure of Discounted Future Net Cash Flows ................................. 648
Changes in the Standardized Measure of Discounted Future Net Cash Flows Relating to Proved Oil and Gas Reserve Quantities ................................................................. 658
Analysis of reasons for changes in value of standardized measure 12/31/XB ............. 661
Conclusion .............................................................................................................. 673
Problems .............................................................................................................. 674
Notes ...................................................................................................................... 686

17 Analysis of Oil and Gas Companies’ Financial Statements ................................. 687
Sources of Data ...................................................................................................... 687
Comparing Financial Reports .................................................................................. 689
Reserve Ratios ...................................................................................................... 690
  Reserve replacement ratio .................................................................................... 690
  Reserve life ratio ................................................................................................. 692
  Net wells to gross wells ratio ............................................................................. 693
  Average reserves per well ratio ....................................................................... 694
  Average daily production per well .................................................................. 695
Reserve Cost Ratios ............................................................................................... 696
  Finding costs ratios ............................................................................................ 696
  Lifting costs per BOE ...................................................................................... 700
  DD&A per BOE ............................................................................................... 702
Reserve Value Ratios ............................................................................................. 703
  Value of proved reserve additions per BOE .................................................... 704
  Value added ratio ............................................................................................ 706
Financial Ratios .................................................................................................... 708
Problems .............................................................................................................. 709
Note ..................................................................................................................... 714
18 Accounting for International Petroleum Operations ............................................. 715
   Petroleum Fiscal Systems ............................................................................. 715
   Concessionary Systems ............................................................................. 717
   Government Participation ........................................................................... 718
   Contractual Systems .................................................................................. 719
      Government involvement in operations ................................................. 719
   Production Sharing Model ........................................................................ 720
      Signature and production bonuses ....................................................... 720
      Royalties ............................................................................................... 720
      Government participation ...................................................................... 721
      Cost recovery ......................................................................................... 722
      Profit oil ................................................................................................ 723
   Other terms and fiscal incentives ................................................................. 726
   Service Agreements ................................................................................... 727
   Joint Operating Agreements ....................................................................... 729
      Recoverable versus nonrecoverable costs ............................................. 729
   Financial Accounting versus Contract Accounting ..................................... 730
      Disclosures of proved reserves—ASC 932-235-50 ................................ 731
   International Accounting Standards .......................................................... 732
   Problems .................................................................................................... 733

Appendix A: Authorization for Expenditure ....................................................... 739

Appendix B: Regulation S-X Rule 4-10 ............................................................. 743

Index ............................................................................................................... 759
Upstream Oil and Gas Operations

Oil and gas industry operations are generally classified as being either upstream or downstream. **Upstream** oil and gas operations include exploration, acquisition, drilling, developing, and production activities and are frequently referred to as exploration and production activities or E&P activities. Traditionally, downstream operations were defined to include transportation, refining, marketing, and distribution activities. However, recently it has become commonplace to further delineate downstream operations as being either midstream or downstream. Under this classification, **midstream** activities generally include shipping and storage of oil and gas away from the point of production, while **downstream** refers to refining, marketing, and distribution of processed products. **Integrated oil and gas companies** are involved in upstream activities as well as midstream and/or downstream activities, whereas **independent oil and gas companies** are involved primarily in only upstream activities.

The US Securities and Exchange Commission (SEC) Reg. S-X details the requirements relating to content and format of financial statements and reports filed by publicly traded companies in the United States. It specifically requires that financial statements be prepared in accordance with US Generally Accepted Accounting Principles (GAAP), with few exceptions. **Reg. S-X Rule 4-10**, “Financial Accounting and Reporting for Oil and Gas Producing Activities,” details the specific accounting rules and regulations that apply to companies engaged in “oil and gas producing activities.” **Reg. S-X Rule 4-10** first appeared in Reg. S-X in 1978 and is continuously updated as needed.

The starting point for any discussion of upstream accounting and reporting is to understand specifically which activities are classified as oil and gas producing activities (as opposed to midstream or downstream activities). The SEC defines oil and gas producing activities in **Reg. S-X Rule 4-10**. Since **Reg. S-X Rule 4-10** governs upstream oil and gas financial accounting and reporting for public companies in the United States, understanding the SEC definition of oil and gas producing activities is critical. According to the SEC definition, oil and gas producing activities include the following:

- The search for crude oil, including condensate and natural gas liquids in their natural states and original locations.
ring liquid and gaseous hydrocarbons. In some instances, heat and pressure are actually applied in situ (i.e., heating the oil shale while it is still underground and then pumping any resulting liquid to the surface). In other operations, the heat and pressure are applied to the oil shale or tar sand after it has been removed from the ground.

Production from coal beds involves extraction of natural gas (primarily methane) from coal beds. It has been known for centuries that natural gas exists in underground coal mines. As a matter of fact, the first production of gas from coal beds resulted from the need to vent methane gas from coal mines for safety purposes. Coal beds have very low permeability, and the methane exists in a near-liquid state. When the coal bed is fractured, the channels that are created allow the methane to flow and be captured in steel-lined holes. These holes are typically quite shallow, ranging from around 300 feet to 5,000 feet in depth. In recent years, the extraction of natural gas from coal beds has become commonplace, especially in the United States, Canada, and Australia.

Nonconventional operations have resulted in the ability to extract petroleum resources that previously were not technologically producible. However, nonconventional operations, including production shale oil and gas and production from oil shale, tar sands, and coal beds, are expensive. For example, oil from shale formations costs $50 to $100 per barrel to produce, while conventionally produced oil from the Middle East costs $10 to $25 per barrel.6

**Exploration Methods and Procedures**

Traditional oil and gas exploration involves the work of geoscientists using a variety of geological and geophysical (G&G) techniques to identify areas far beneath the earth’s surface that may contain petroleum reserves. Geological methods rely on the identification of rocks and minerals on or near the surface and the understanding of the environments in which they were formed. Geological studies, which involve surface studies, involve any number of methods, depending on the size of the area being examined. These methods may include the use of aerial photography, satellite imaging, imaging radar, and topographical and geological mapping. Such methods are aimed at gathering data about surface features that can be used to make inferences regarding the potential existence of petroleum-bearing subsurface formations.

Geophysical methods, which involve subsurface studies, are aimed at locating and detecting the presence of subsurface structures and determining their size, shape, depth, and physical properties. These methods may be used to identify the presence of certain physical characteristics that are indicative of oil and gas reservoirs. Geophysical methods include gravitational studies, magnetic and electromagnetic evaluation, and seismic studies.

Seismology is one of the most important tools in oil and gas exploration today. These studies provide detailed information about subsurface structures by recording the reflection of sound waves on subsurface formations. Innovations in seismology, such as 3-D seismic studies, have significantly increased drilling success rates. The use of seismic studies has extended beyond exploration for oil and gas, with seismic studies now being used extensively in field development and production planning. Time-lapse, or 4-D seismic, involves repeating a series of 3-D seismic surveys over time in order to monitor how certain reser-
well maintenance facilities. These fixed platforms, which are very expensive, are usually made from steel or concrete, depending on their location.

The drilling operations of an offshore rig are similar to those of onshore rigs, with the exception of specialized technical adaptations that have been made to deal with the hostile marine environment. In addition, directional drilling is commonly used offshore, since that technique can reach thousands of feet away from the platform. This allows the drilling of multiple wells (as many as 40 or more) from the same platform.

In addition to production from fixed platforms, offshore production may also be achieved via subsea completions. Subsea completions are subsea satellite wells that are situated on the ocean floor (as opposed to being located on a production platform). The production from these wells is moved directly to platforms, floating production/storage/offloading vessels (FPSOs), or to the shore, where it is processed and stored pending sale. Subsea completions are commonly used in areas where it is not feasible to access the production location from a production platform and in situations where the economics do not support the cost of a platform.

Many industry experts predict that the future of the offshore industry is in deepwater and ultra deepwater areas. Deepwater areas are defined as outer continental areas where water depths are 450–1,499 meters (about 1,476 to 4,918 feet) and ultra deepwater areas are defined as having water depths of 1,500 meters (about 4,921 feet) or greater. Note that deepwater wells extend several thousand feet further into the rock below the ocean floor. Royal Dutch Shell discovered the Stones field in 2005. The Stones field is located 200 miles southwest of New Orleans. The Stones field production facilities are the deepest in the world. Production water depths are approximately 9,500 feet, and the reservoir is located approximately 26,500 feet below sea level. The cost of drilling in deepwater and ultra deepwater is extremely high and the risks are extremely great.

Recovery Processes

Several types of production processes may be employed in order to move the oil or gas from the reservoir to the well. These production processes are commonly divided into three types of recovery methods: primary, secondary, and tertiary. These recovery techniques are used in conventional production as well as production from shale formations.

The initial or primary recovery of oil and gas is either by natural reservoir drive or by pumping. Natural drive occurs when sufficient water or gas exists in a reservoir under high pressure to provide the energy needed to drive the oil to the wellbore. If insufficient natural drive exists, the oil may be pumped to the surface using a beam pumping unit.

When the maximum amount of oil and gas has been recovered by primary recovery methods and the reservoir pressure has been largely depleted, secondary recovery methods may be instituted. Secondary recovery consists of inducing an artificial drive into the formation to replace the natural drive. The most common method is waterflooding, which involves injecting water under pressure into the formation to drive the oil to the wellbore.
12310-302 Offdevdrl—Wellhead Equipment
12310-303 Offdevdrl—Subsurface Equipment
12310-330 Offdevdrl—Miscellaneous Nonoperating Equipment
12310-399 Offdevdrl—Tangible JO Share
12310-902 Offdevdrl—Account Transfers

**12311-000–12311-999 OFFSHORE FACILITIES (WELLS-IN-PROGRESS)**
(Many of the individual accounts are similar to accounts for offshore development drilling.)

**12312-000–12312-999 OFFSHORE WORKOVER (WELLS-IN-PROGRESS)**
(Individual accounts are similar to accounts for offshore development drilling.)

**12313-000–12313-999 OFFSHORE RECOMPLETION (WELLS-IN-PROGRESS)**
(Individual accounts are similar to accounts for offshore development drilling.)

**12314-000–12314-999 OFFSHORE DEVELOPMENT WELL PLUG AND ABANDONMENT (OFFDEVPA) (WELLS-IN-PROGRESS)**
12314-043 Offdevpa—Survey, Road, Location, Damage
12314-046 Offdevpa—Mobile and Demobile
12314-055 Offdevpa—Completion Rig
12314-061 Offdevpa—Water
12314-063 Offdevpa—Lost/Dam Rental Equipment
12314-064 Offdevpa—Equipment Rental & Service
12314-067 Offdevpa—Mud & Chemicals
12314-068 Offdevpa—Completion without Fluids
12314-070 Offdevpa—Drilling Bits
12314-071 Offdevpa—Perforation
12314-074 Offdevpa—Cement & Cement Service
12314-078 Offdevpa—Well Log/Cased Hole
12314-082 Offdevpa—Fishing Tools & Service
12314-083 Offdevpa—Wireline Services
12314-088 Offdevpa—Tubular & Equipment Repair
12314-089 Offdevpa—Tubular Inspection Services
12314-091 Offdevpa—Stimulation
12314-095 Offdevpa—Trucking, Land Transportation
12314-096 Offdevpa—Boat, Water Transportation
12314-097 Offdevpa—Helicopter, Air Transportation
12314-101 Offdevpa—Company Labor
12314-103 Offdevpa—Payroll Burden
12314-105 Offdevpa—Contract Labor
12314-107 Offdevpa—Consultants
12314-108 Offdevpa—Meals/Entertainment
12314-109 Offdevpa—Other Employee Expense
but where significant expenditures are necessary in order to actually produce them. The definition of undeveloped reserves appears in Reg. S-X Rule 4-10(a)(31).

Undeveloped oil and gas reserves are reserves of any category that are expected to be recovered from new wells on undrilled acreage, or from existing wells where a relatively major expenditure is required for recompletion.

i. Reserves on undrilled acreage shall be limited to those directly offsetting development spacing areas that are reasonably certain of production when drilled, unless evidence using reliable technology exists that establishes reasonable certainty of economic producibility at greater distances.

ii. Undrilled locations can be classified as having undeveloped reserves only if a development plan has been adopted indicating that they are scheduled to be drilled within five years, unless the specific circumstances justify a longer time.

iii. Under no circumstances shall estimates for undeveloped reserves be attributable to any acreage for which an application of fluid injection or other improved recovery technique is contemplated, unless such techniques have been proved effective by actual projects in the same reservoir or an analogous reservoir, as defined in paragraph (a)(2) of this section, or by other evidence using reliable technology establishing reasonable certainty.

Recall the definition of proved reserves provided that adjacent undrilled portions of a reservoir could be included in the proved area of the reservoir if it was determined with reasonable certainty that the area was a continuous portion of the reservoir. By definition, such an undrilled area is undeveloped, and any proved reserves estimated to be present in that area are classified as PUD reserves. The definition of PUD reserves requires that, in order to be classified as PUD, there must be a plan to develop those reserves within a five-year period. Reserves that will take longer than five years to develop can be included, but the specific circumstances that result in the delayed development (beyond five years) must be explained and justified. It is very important to note that if undeveloped reserves cannot be classified as PUD, then they cannot be classified as proved; they are unproved.

Given the significance of proved reserves in both disclosures and in financial accounting, the classification of undeveloped reserves as being PUD reserves is of critical importance. This is why the SEC requires that companies provide detailed information explaining the progress in moving PUD reserves to the PD reserve classification. SEC issued a Compliance and Disclosure Interpretation of this definition aimed at clarifying and aiding in evaluating whether reserves whose development may extend past five years should be included as PUD. According to the Interpretation, consideration should be given to the following:

1. The company’s level of ongoing significant development activities in the area
2. The history of completing developments for comparable long-term projects
3. The amount of time the underlying leases have been maintained without development activities
4. The history of the company in following previously adopted development plans
c. Are there any firm plans for drilling?

d. Is the passage of time an indication that the company has reassessed its interest in the property?

Dry holes and negative G&G information would normally indicate that the property has become impaired. If neither drilling nor production is in progress at the end of the primary term, the lease terminates, and the leasehold costs must be written off. Therefore, a property may also be impaired if the end of the primary term is near and no firm plans for drilling have been established.

At any given time, it is possible that a company may have hundreds of unproved properties. This is especially true for operations in the United States, where individual leases typically cover a relatively small area. Assessing each and every lease for impairment annually would require a substantial commitment of time and resources. Accordingly, the FASB permits companies to classify their unproved properties into one of two categories:

1. Those properties whose cost is individually significant
2. Those properties whose cost is not individually significant

According to ASC 932-360-35-11:

Impairment of individual unproved properties whose acquisition costs are relatively significant shall be assessed on a property-by-property basis, and an indicated loss shall be recognized by providing a valuation allowance. When an entity has a relatively large number of unproved properties whose acquisition costs are not individually significant, it may not be practical to assess impairment on a property-by-property basis, in which case the amount of loss to be recognized and the amount of the valuation allowance needed to provide for impairment of those properties shall be determined by amortizing those properties, either in the aggregate or by groups, on the basis of the experience of the entity in similar situations and other information about such factors as the primary lease terms of those properties, the average holding period of unproved properties, and the relative proportion of such properties on which proved reserves have been found in the past.

In international operations, contract areas tend to be quite large and are frequently expensive to obtain, while domestic operations are characterized by a large number of relatively less expensive leases. Companies may treat each international contract area as individually significant, since the costs are large and there are fewer properties. Domestically, the sheer number of properties may make the cost of each property in itself insignificant.

ASC 932-360-35 does not provide any guidance for companies in identifying individually significant properties. According to the 2011 PricewaterhouseCoopers Survey of U.S. Petroleum Accounting Practices, a common approach is to base the classification on the actual cost of the property. For example, properties with an individual cost of $1,000,000 or more might be classified as individually significant, and all properties with a cost below $1,000,000 might be treated as not being individually significant. The SEC has issued
Chapter 5  Acquisition Cost of Unproved Property—Successful Efforts  ◆  141

LEASE C
Lease impairment expense ($44,080 × 30%) ........... 13,224
  Allowance for impairment .......................... 13,224

LEASE D
Lease impairment expense ($71,550 × 20%) ........... 14,310
  Allowance for impairment .......................... 14,310

g. Early in the third year, Tawhoe Oil Company abandoned Lease C and Lease D.

Entries

LEASE C
Surrendered lease expense ......................... 30,856
  Allowance for impairment ...................... 13,224
  Unproved property ............................. 44,080

LEASE D
Surrendered lease expense ......................... 57,240
  Allowance for impairment ...................... 14,310
  Unproved property ............................. 71,550

h. Also in the third year, Tawhoe Oil Company discovered proved reserves on Lease A and Lease B.

Entries

LEASE A
Proved property .................................. 15,405
  Allowance for impairment ...................... 5,135
  Unproved property ............................. 20,540

LEASE B
Proved property .................................. 36,980
  Unproved property ............................. 36,980

Land Department

The land department of an oil company usually is responsible for property acquisition and property administration. The exploration and legal departments are also concerned with these functions. The exploration department is responsible for recommending property acquisition, retention, and development or abandonment. The legal department conducts title examinations and title litigation and approves or prepares any legal documents involved.

The land department acts on information obtained from the exploration department’s activities and from land department scouts in acquiring properties. Subscription services
portion of the well did not add to the value of the sidetracked hole that was completed. Some companies, on the other hand, choose to capitalize the entire cost of the drilling, since the entire drilling effort was necessary in order to find new proved reserves.

Situation D depicts a situation in which the exploratory well was dry at the target depth but was plugged back and completed at a shallower depth. In practice, many argue that the incremental costs of drilling beyond the depth at which the well was completed should be charged to dry-hole expense. The costs of drilling to the completed depth along with completion costs are capitalized. Similarly, in situation E, it can be argued that the incremental costs of drilling beyond the successful target depth to a dry, unproved horizon should be expensed.

**Fig. 6–4. Special drilling situations**