Chapter Three

ORGANIZATION OF AN E&P COMPANY

The organizational structure of a petroleum exploration and production company is important to the accountant in many ways. The structure determines how authority is delegated and responsibility is assigned, permitting accountability to be established. Accounting procedures and the flow of paperwork within the company are directly related to the company's organization. The company's accountants should be familiar with the responsibilities and organization of all departments within the company. This knowledge may be secured by experience and inquiry, augmented by the study of organization charts and company operating manuals.

The exact organization of companies in the petroleum industry varies widely, depending on size and diversity of activities. Oil and gas producers may be classified as independents or integrated companies, as described in Chapter One. Usually independents are viewed by the public as being small companies with few employees, and integrated companies are thought of as being giant companies with thousands of employees. However, there are several large oil companies that have no refining or marketing operations, and some integrated companies are small.

Obviously, size and degree of integration have much to do with a company's organization. The geographical dispersion of activities likewise is important. It is only natural that an E&P company operating in one geographical area will have closer managerial control from its top officials. As the company expands its operations geographically, top management must look to its regional and district management groups for direct control over operations and leave the home office staff to overall supervisory activities. Similarly, the integrated company requires a greater degree of delegation of authority and responsibility from top management to those directly involved in the diverse operations.

Small and medium-sized oil and gas companies have a great deal in common, especially at the executive level. There are four distinct activities common to almost all producers, and the independent companies usually build their organizations around these functions. The functions are exploration, production, marketing, and administration; the organization chart in Figure 3-1 reflects this basic structure. Appreciate that in recent years, some companies have reorganized to create small teams of
geologists, petroleum engineers, accountants, and other specialists working together to manage assigned fields or geographic areas of operations.

**Figure 3-1: A Basic Structure of an Independent Oil Company**

The organizational structure will be examined more closely later in this chapter, but at this point a general description of the work done in each area will help in understanding the organization chart.

Typically the president of a small oil and gas company is a petroleum engineer, geologist, or geophysicist who not only serves as CEO but may also engage in closely directing exploration, development, or production activities. The small company CEO may negotiate joint venture agreements, major property acquisitions and divestitures, and financing arrangements.

The exploration department has the job of locating and acquiring oil and gas reserves. This responsibility includes the acquisition of mineral properties and geological and geophysical exploration (either through the use of company-owned equipment and personnel or through contracts with exploration support companies). Many E&P companies, even very small ones, have one or more geologists on staff, even though most companies hire outside professionals or organizations to conduct geological and geophysical (G&G) studies.

The drilling and production department (or petroleum engineering department) is responsible for exploratory drilling, development drilling, enhanced recovery operations, and field production.

The marketing department arranges the sales of the produced oil and gas. U.S. crude oil is usually sold near the well site, but now natural gas is
frequently sold far from the lease to large gas consumers and to gas utilities. Under this arrangement gas pipelines provide transportation services rather than buy the gas from producers.

An administrative department may oversee various administrative functions, such as human resources, finance, accounting, tax compliance, management information systems, public relations, and legal services. The vice president of administration may be the vice president of finance and chief financial officer (CFO). Some companies break these functions into separate departments, such as a finance department headed by the CFO and containing sub-departments for treasury, accounting, and tax functions.

With this brief description of the four basic functions in the independent oil and gas producing company, let us now look at some of the details of the typical organizational structure designed to carry out these functions.

**EXPLORATION DEPARTMENT**

The exploration department has responsibility for locating and acquiring properties that may contain oil and gas, for conducting geological and geophysical studies, and in some companies for supervising the drilling of exploratory wells. The work of the exploration department is delegated to several sections within the department. An illustrative organization chart is shown in Figure 3-2. A brief description of the role of each section contained in that organization chart follows.

**GEOLOGICAL AND GEOPHYSICAL**

The G&G function is responsible for the accumulation and analysis of geological and geophysical information that will help decide (1) whether leases should be obtained in an area of interest and (2) whether and where exploratory wells should be drilled.

**LAND**

The land department has two major functions: acquiring mineral properties and maintaining records of properties owned. In the organization chart in Figure 3-2, this work is carried out by two divisions: the land and lease acquisition section and the title and records section.
The land and lease acquisition section is responsible for contacting landowners and others to obtain leases or other mineral rights, for advising the exploration department management on leasing activities, and for securing pooling and unitization agreements with lessees of properties adjoining the company's leases. The title and records section checks all new leases for legal propriety, maintains a complete file for all properties, and ensures the timely payment of all lease rentals as authorized.

The land department manager is called a landman. The term refers to a person, male or female, responsible for identifying and locating mineral-rights owners and for negotiating leases. Landman also refers to an independent lease broker. The land department may use independent lease brokers familiar with a particular state or region to represent the company in negotiating with owners of mineral and surface rights within that region and to check local title records.
DRILLING AND PRODUCTION DEPARTMENT

The overall objective of the drilling and production department is to safely manage the company's wells and production operations to maximize production value yet comply with applicable government regulations. How to best meet this objective requires petroleum-engineering skills. It should be no surprise that the department is often called the petroleum-engineering department, and its management and core personnel are typically petroleum engineers.

Larger companies may subclassify petroleum engineers into categories such as exploitation engineers, reservoir engineers, and production engineers.

Exploitation engineers address how to best exploit a field via drilling and enhanced recovery methods. Exploitation engineers prepare or review justifications for drilling expenditures and advise on technical phases of exploitation, completion, fluid recovery, and remedial work.

Reservoir engineers study oil and gas reservoir performance, calculate recovery and profitability, and devise means of increasing ultimate recovery. They prepare the internal reports of estimated reserves by well, field, region, and company, and they work with independent engineering firms that prepare independent reports of the company’s reserves.

Production engineers are concerned with both drilling and production, i.e., the every day management of producing fields, including drilling, well completion, production handling and treatment, and equipment selection and design.

Figure 3-3 shows the organization of the drilling and production department with three or four sections for a medium-sized independent company. The exploration department’s geologists and geophysicists may work together with the petroleum-engineering department in evaluating drilling opportunities.
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Figure 3-3: Organization of the Drilling and Production Department (aka Petroleum Engineering Department)

**DRILLING OPERATIONS**

In most cases, an E&P company chooses to contract its drilling operations to outside drilling contractors rather than to own and operate its own equipment. It is not unusual, however, for the owners of a producing company to organize and operate a drilling company independent of the producing company. In a company that owns and operates rigs, the drilling superintendent is responsible for all drilling activities, including oversight of rigs, tools, and equipment. The details of drilling operations are discussed in Chapter Eight.

**PRODUCTION OPERATIONS**

In a typical oil and gas producing company, there is a production foreman or manager for each field. In addition, there are pumpers or gaugers who measure and control production (the work of pumpers and gaugers is discussed in Chapter Eleven). Maintenance, infrequent repairs, and mechanical tasks are often carried out by specialist subcontractors.

**ENHANCED RECOVERY**

Some companies’ organizational structures distinguish between the routine operation of fields where normal reservoir pressure suffices to drive oil and gas into the wells and unusual operations that supplement reservoir pressure drives to enhance production. Enhanced recovery includes secondary recovery methods, such as water flooding, or tertiary recovery methods, such as steam flooding. Because of their technical
nature and the extremely high costs involved, secondary and tertiary projects require special attention and supervision.

**PRODUCTIVE PROPERTY PURCHASES AND SALES**

The function of buying and selling property with proved reserves (proved property) may be performed by a separate company department or assigned to the production department in which petroleum engineers are key to evaluating potential acquisitions and sales of proved property.

**OTHER DEPARTMENT FUNCTIONS**

Many support activities are necessary to efficiently operate an oil or gas field. For example, warehousing of materials needed in the field is necessary. Trucking and other forms of transportation must be made available. Field clerks must be assigned for carrying out routine functions in connection with handling correspondence, originating field payrolls, and completing other routine work in the field. Although field clerks may be under the direct supervision of the production manager, they frequently are under the functional supervision of the administrative department of the company.

**MARKETING DEPARTMENT**

Depending on the organization and size of the company, oil and gas may be sold through one or more marketing departments or marketing subsidiaries. Close coordination is required between the marketing department and the production and administration departments.

**OIL MARKETING**

Oil marketing is currently in a mature stage; especially compared with natural gas marketing, in that there have been no structural changes in the way oil marketing has been done for several years.

Generally, oil is marketed under 30-day contracts and sold at the lease site at wellhead prices posted (publicized) by the oil purchaser or by a major oil company.
NATURAL GAS MARKETING

Many structural changes have taken place in recent years in the way natural gas is marketed. Today, natural gas marketing is still undergoing major changes.

Historically, natural gas and casinghead gas (gas produced along with crude oil) were marketed to pipeline companies, which then sold the gas to others. Now gas is marketed by producers, large and small, to just about any type of gas customer other than residential.

Chapter Twelve goes into greater depth in describing how both oil and gas are marketed and the significant changes that have occurred in these processes.

ADMINISTRATIVE DEPARTMENT

The administrative department in an independent oil and gas company encompasses a variety of activities and functions and may consist of a number of divisions, sections, or offices. A simple organizational structure is shown in Figure 3-4.

**Figure 3-4: Organization of the Administrative Department**
The administrative structure shown in this illustration differs little from those found in other types of businesses and is not examined in detail in this book. However, because of the importance of the organizational structure of the accounting function to the reader of this book, the activities of that function are discussed briefly.

ORGANIZATION OF THE ACCOUNTING FUNCTION

The organization of the accounting function in an independent oil and gas company is shown in Figure 3-5. The major duties of each section of the organization are summarized in the two pages that follow.

**Figure 3-5: Organization of the Accounting Function in an Independent Company**

**FIELD CLERICAL AND SERVICES**
1. Trains and supervises clerical personnel assigned to field operations.
2. Develops systems, forms, and procedures for field accounting and reporting.
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EQUIPMENT AND SUPPLIES INVENTORY
1. Maintains equipment and supply inventory records.
2. Prices and records warehouse receipts, issues, and field transfers.
3. Oversees physical inventory taking.
4. Prepares reports on equipment and supplies inventory.

ACCOUNTS PAYABLE
1. Maintains accounts payable records.
2. Prepares vouchers for disbursements.
3. Distributes royalty payments.
4. Maintains corporate delegated limits of authority and verifies that disbursements are made within those limits.

PROPERTY ACCOUNTING
1. Maintains subsidiary records for
   A. Unproved properties,
   B. Proved properties,
   C. Work in progress,
   D. Lease and well equipment, and
   E. Field service units.
2. Accounts for property and equipment acquisition, reclassification, amortization, impairment, retirement, and sale.
3. Compares actual expenditures of work in progress to authorized amounts.

JOINT INTEREST ACCOUNTING
1. Maintains files related to all joint operations.
2. Prepares billings to joint owners.
3. Reviews all billings from joint owners.
4. Prepares statements for jointly operated properties.
5. Prepares payout status reports pursuant to farm-in and farm-out agreements.
6. Arranges or conducts joint interest audits of billings and revenue distributions from joint venture operations.
7. Responds, for the company as operator, to joint interest audits by other joint interest owners.
REVENUE ACCOUNTING
1. Accounts for volumes sold and establishes or checks prices reflected in revenues received.
2. Maintains oil and gas revenue records for each property.
3. Maintains records related to properties for purposes of regulatory compliance and production taxes.
4. Computes production taxes.
5. Maintains “Division of Interest” master files, with guidance from the land department, as to how revenue is allocated among the company, royalty owners, and others.
6. Computes amounts due to royalty owners and joint interest owners and prepares reports to those parties.
8. Maintains ledgers of undistributed royalty payments for owners with unsigned division orders, owners whose interests are suspended because of estate issues, and other undistributed production payments.
9. Prepares revenue accruals.

GENERAL ACCOUNTING
1. Keeps the general ledger.
2. Maintains voucher register and cash receipts and disbursements records.
3. Prepares financial statements.
4. Prepares special statements and reports.
5. Assembles and compiles budgets and budget reports.

TAXES AND REGULATORY COMPLIANCE
1. Prepares required federal, state, county, and local tax returns for income taxes, production taxes, property taxes, and employment taxes.
2. May prepare other regulatory reports.
3. Addresses allowable options for minimizing taxes.
INFORMATION SYSTEMS

E&P information and accounting systems vary in that the system platforms may be mainframe, mid-size, or desktop computers and that several third-party software packages are available.

An E&P information system typically employs a master file of divisions of interest (DOI file) reflecting how revenues and costs are to be shared for any one well or other accounting unit and for a designated time period of usually several months or years. The land department is typically responsible for maintaining the accuracy and completeness of the DOI file. Property, payables, revenue, and joint operations accounting will use the DOI files.

Joint ventures and divisions of interest require that a revenue information system also encompass a means of distributing the incoming sales proceeds to appropriate owners, such as the company, joint venture partners, royalty owners, and production taxing authorities. The purchasing segment of the information system must include functions for distributing the costs to appropriate parties, such as the company and joint venture partners. In other words, the revenue system must account for incoming cash as well as outgoing distribution of such revenue, and the purchasing system must account for the outgoing cash for purchases and the billing of incoming cash for others’ rightful share of such costs.

The E&P information system and its chart of accounts are complicated by the need to account for (1) revenue and cost divisions of interest at a well or smaller level, (2) tax accounting that varies from financial reporting, and (3) each well and field’s gross revenues and cost activity for management review and their net revenues and cost to the company for external reporting. The E&P chart of accounts is extensive and addressed in the next chapter.

GENERAL ACCOUNTING STRUCTURE OF AN INTEGRATED COMPANY

The typical accounting organizational structure for an integrated oil company includes several corporate accounting sections as well as functional accounting sections. For example, an organization chart for an integrated company's accounting function might be similar to that shown in Figure 3-6.
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Figure 3-6: Organization of Accounting Functions in an Integrated Company

In turn, the organization of the accounting activities in the production division is similar to that for an independent producing company. A modified organization chart of the accounting department in the production division of an integrated company is shown in Figure 3-7.

Figure 3-7: Organization Chart of the Accounting Function in the Production Division of a Large Integrated Company
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OUTSIDE ORGANIZATIONS

U.S. E&P companies are assisted by many outside entities, such as drilling rig companies and various industry associations. The remainder of this chapter lists some of the larger drilling and supply companies and introduces several industry trade associations and key government agencies that E&P management and personnel may encounter.

DRILLING AND SUPPLY COMPANIES

The lists are not intended to be exhaustive or preferential. Large drilling rig companies include the newly formed Transocean Sedco Forex (largest offshore drilling company); Nabors Industries, Inc. (largest onshore drilling company); Parker Drilling Company; and Global Marine, Inc. Large oilfield service companies include the French company Schlumberger Ltd. (pronounced SCHLUM-ber-zhay), Halliburton Company, and Baker Hughes, Inc. Privately held Koch Industries Inc. (pronounced coke) transports oil and water.

COUNCIL OF PETROLEUM ACCOUNTANTS SOCIETIES

One organization of special interest to accountants is the Council of Petroleum Accountants Societies (COPAS). The main function of COPAS is to develop educational materials as well as standardized forms that facilitate petroleum accounting, particularly for E&P joint ventures. These guidelines and forms are issued as COPAS model form accounting procedure exhibits. Virtually every U.S. E&P joint venture operating agreement includes a completed COPAS Exhibit, i.e., one of various COPAS model form accounting procedure exhibits that set forth certain billing, accounting, and auditing procedures and rights for the joint venture partners. COPAS also issues interpretations of the bulletins and publishes a newsletter, COPAS Accounts. Twenty-three chapters of COPAS are located in major oil and gas producing areas of the United States. COPAS' national office is located in Denison, Texas.
AMERICAN ASSOCIATION OF PROFESSIONAL LANDMEN

Petroleum accountants should appreciate that the AAPL develops various model industry forms, such as the AAPL Form 610 for operating agreements shown in Appendix 9. The AAPL changed its name from the American Association of Petroleum Landmen.

THE AMERICAN PETROLEUM INSTITUTE

API is perhaps the largest and single most important organization of its kind. Its purpose is to foster cooperation between industry and government; it is also involved in many research projects that collect data for the industry. Producing training films, slides, and written publications concerning the industry is part of the work performed by the API.

THE INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA

As indicated by the title, the IPAA (pronounced I-P-Double A or I-P-A-A) is the national trade association for independent producers. It takes an active part, on behalf of its members, in lobbying efforts aimed at legislative and regulatory bodies. The IPAA publishes a bimonthly magazine entitled The Petroleum Independent along with an annual statistical publication entitled The Oil and Gas Producing Industry in Your State.

SOCIETY OF PETROLEUM ENGINEERS

The SPE, headquartered in Richardson, Texas, is an international technical and professional association of more than 50,000 members worldwide. It publishes the monthly Journal of Petroleum Technology (JPT) and produced the 1979 SPE Standards for Estimation and Auditing of Reserves. In March 1997 the SPE and World Petroleum Congresses approved standard petroleum reserve definitions that replaced the 1987 SPE definitions mentioned below. As discussed in Chapter Sixteen, these standard definitions did not supersede SEC definitions used for financial reporting.
SOCIETY OF PETROLEUM EVALUATION ENGINEERS

The SPEE (S-P-Double E), based in Houston, consists of a few hundred experienced reservoir evaluation petroleum engineers. Each spring the SPEE conducts a survey of fair market value parameters for oil and gas producing properties. The SPEE and the SPE developed the 1987 Definitions for Oil and Gas Reserves. The SPEE developed the 1988 Guidelines for Application of the Definitions for Oil and Gas Reserves.

REGIONAL TRADE ASSOCIATIONS

Some of the better known regional associations are:

♦ California Independent Producers Association (CIPA);
♦ Independent Petroleum Association of Mountain States (IPAMS), based in Denver;
♦ Mid-Continent Oil & Gas Association, based in Washington D.C.;
♦ Texas Independent Producers and Royalty Owners Association (TIPRO); and
♦ Western States Petroleum Association (WSPA), based in California.

ENERGY INFORMATION ADMINISTRATION AND U.S. DEPARTMENT OF ENERGY

The EIA, a part of the DOE, monitors the petroleum industry and provides statistical histories, forecasts, and analyses of various domestic and international petroleum industry activities.

NATIONAL PETROLEUM COUNCIL

The NPC is a group of experienced industry executives, many currently employed by petroleum companies, that advises and provides studies for the U.S. Department of Energy on petroleum issues.
U.S. DEPARTMENT OF INTERIOR’S MINERALS MANAGEMENT SERVICE

The MMS oversees the receipt of royalties for oil and gas produced on federal lands and in federal offshore areas and conducts audits of the reports and royalties from E&P companies.

TEXAS RAILROAD COMMISSION

The Commission oversees state regulations of Texas oil and gas drilling and production.

VARIOUS STATE OIL AND GAS CONSERVATION COMMISSIONS

Each state with production typically has an agency that issues permits for proposed oil and gas wells and monitors drilling and production. The well operator may be required to file monthly reports with the state commission regarding the well's production of oil, gas, and water.