DOE/EIA-0185(95)
Distribution Category UC-950

Costs and Indices for Domestic Oil and Gas Field Equipment and Production Operations

1992 Through 1995

August 1996

Energy Information Administration
Office of Oil and Gas
U.S. Department of Energy
Washington D.C. 20585

Preface

This is the Energy Information Administration's (EIA's) thirteenth report in the series on domestic costs and indices for oil and gas field equipment and production operations. The purpose of the series is to provide a continuing means of gauging changes in the oil and gas producing industry's costs. The last report in this series, which reported data from 1990 through 1993, had report number DOE/EIA TR-0568. This report returns to the prior report series nomenclature, DOE/EIA 0185 (95). The cost data presented in this report are used by government agencies, the academic community, and the oil and gas industry. EIA gratefully acknowledges the cooperation received from the personnel of oil and gas service, supply, and production companies throughout the United States, without which this study would not have been possible. General information about this publication may be obtained from Joan Heinkel (202/586-6090), Director of the Reserves and Natural Gas Division, or John Wood (214/767-2200), Director of the Dallas Field Office. Specific information regarding the preparation or contents of this publication may be obtained from Ralph Russell (214/767-2906, rrussell@eia.doe.gov) or Velton Funk (214/767-0884, vfunk@eia.doe.gov), both of whom are petroleum engineers in EIA's Dallas Field Office (fax: 214/767-2204).

All of the tables which appear in this report are available in machine-readable formats, i.e., Lotus 123 or Excel 5.0. Call Ralph Russell at 214/767-2906.

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Executive Summary

This report presents estimated costs and cost indices for domestic oil and natural gas field equipment and production operations for 1992, 1993, 1994, and 1995. The costs of all equipment and services are those in effect during June of each year. The sums (aggregates) of the costs for representative leases by region, depth, and production rate were averaged and indexed. This provides a general measure of the increased or decreased costs from year to year for lease equipment and operations. These general measures do not capture changes in industry-wide costs exactly because of annual variations in the ratio of the total number of oil wells to the total number of gas wells. The detail provided in this report is unavailable elsewhere. The body of this report contains summary tables, and the appendices contain detailed tables.

Price changes for oil and gas, changes in taxes on oil and gas revenues, and environmental factors (compliance costs and lease availability) have a significant impact on the number and cost of oil and gas wells drilled. These changes also impact the cost of oil and gas equipment and production operations.

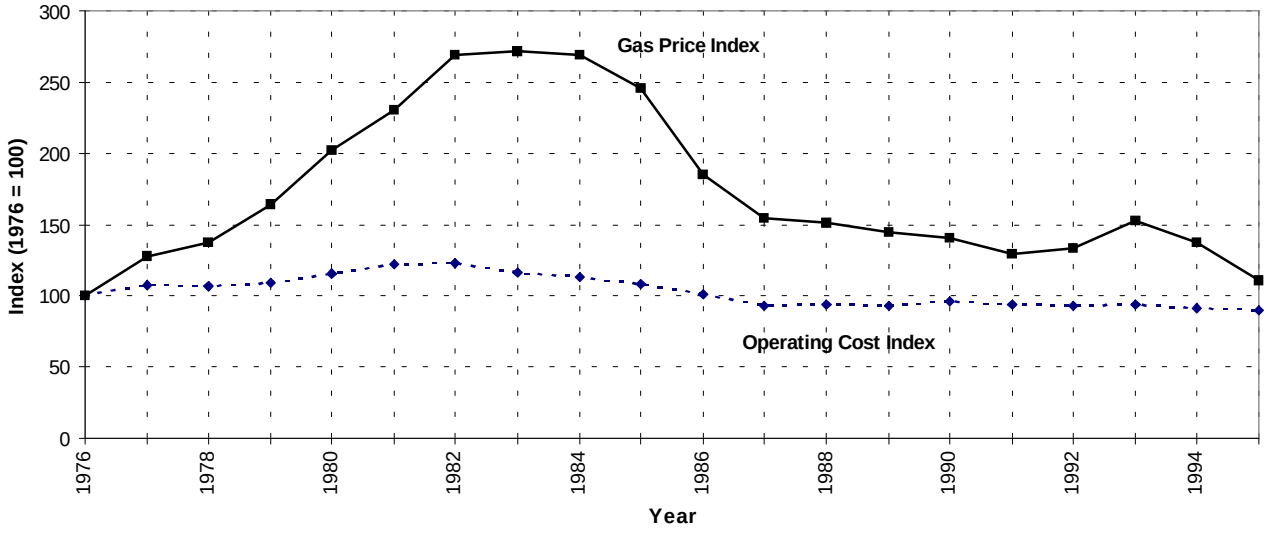
Oil and gas prices rose from 1976 to the early 1980's, when deflated oil prices peaked at an index of nearly 260. In 1976, the average price of oil was $8.19 per barrel and the average price of gas was $0.58 per thousand cubic feet (Mcf). Deflated gas prices, which also rose to an index of about 260, were at a plateau from 1982 through 1984, before following oil prices downward. The 1995 oil price, after an increase from 1994, represents the second-lowest deflated oil price since 1976. By contrast, deflated gas prices have remained above 1976 prices, although they have headed downward in 1994 and 1995. Clearly, the price trends reflect fundamental differences between the markets for oil and gas.

Figure ES1, with gas prices and operating costs indexed to 1976, shows the differences from 1976 values of deflated gas prices and deflated operating costs for gas wells. The greatest difference between the two series was during 1984, and the current downward trend in product prices, coupled with declining operating costs, point to the fact that producer profitability is much more strongly affected by product prices than by increasing operating efficiency.

Gas activity has been spurred in recent years by favorable tax treatment (including tax credits for tight formations gas and coalbed methane). Environment-related costs for natural gas operations, generally less than for oil operations, may equal those for oil where coalbed methane leases are concerned as the main factor affecting operating costs in some coalbed methane regions is disposal of substantial amounts of formation water produced with the gas. No data have been collected on the environmental costs for gas wells.

Figure ES2 similarly depicts deflated oil prices and operating costs indexed to 1976. There are two main differences between Figures ES1 and ES2. First, the gas price index is

Figure ES1. Deflated Natural Gas Price and Operating Cost Indices



Source: Energy Information Administration, Office of Oil and Gas.

almost the reverse of that for oil, for oil operating cost index values have remained above 1976 levels throughout while gas operating index values fell below 1976 values in 1986, and have fluctuated within a relatively narrow range since.

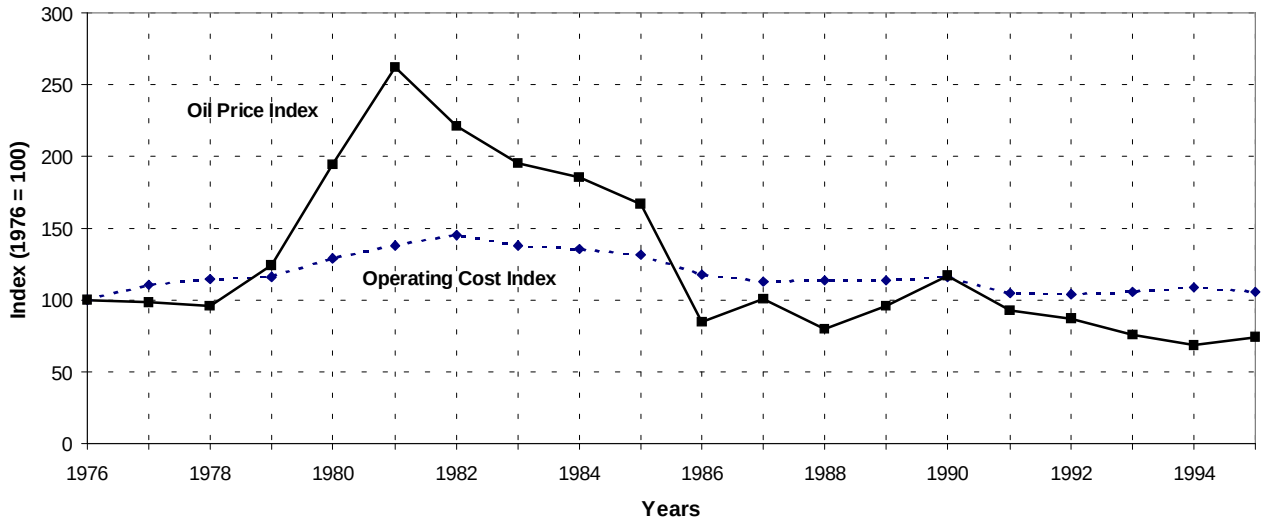
Oil operating costs were studied by obtaining equipment and operating costs for representative oil leases for 6 onshore regions of the lower 48 States (see Figure 1). Each lease consists of 10 wells producing by primary means (natural depletion) from depths of 2,000, 4,000, 8,000, and 12,000 feet. The aggregate average lease equipment costs for the six regions and four depths dropped slightly from 1992 to 1995. Since 1992, non-tubing costs have risen more than tubing prices.

Oil production is an energy intensive operation, and when fuel prices (natural gas prices) increase, so do oil production costs. Gas production is more labor intensive with only minor fuel costs. Therefore, high energy prices are a boon to gas producers and the natural gas producing industry has fared better than the oil producing industry for the past decade. The change in gas prices has surpassed the change in gas well operating costs. Oil prices have fallen faster and farther than oil field operating costs since 1981, narrowing the profit margin and reducing the amount of internally raised capital available for investment in drilling and production operations. Costs and indices for additional waterflood oil recovery equipment and its operation were calculated for leases with well depths of 2,000, 4,000, and 8,000 feet in west Texas. Cost differentials between primary and secondary and primary operations in this region are presumed to be similar to those in other areas.

The aggregate average additional equipment cost for secondary recovery (waterflood) in 1995 was about 3 percent less than in 1992. The large 1994 cost drop in these costs was primarily due to decreases in drilling costs. Waterflood operating costs followed the direction of those of primary oil recovery in west Texas, showing an increase of about 6 percent from 1992 to 1995.

Useful insights from the data in this report lie primarily in the differences that are presented. The costs for equipment and operations are different in each area, differ between primary and secondary operations and differ between gas and oil operations. Cost trends for some items vary widely from time to time, while others remain unchanged for years at a time. The summary tables in Chapter 3, Discussion of Results, indicate the overall trends while the appendix tables provide the detail needed by many readers.

Figure ES2. Deflated Oil Price and Operating Cost Indices



Source: Energy Information Administration, Office of Oil and Gas.

1. Introduction

This report marks the continuation of the EIA series on equipment and operating costs and cost indices for oil and gas leases. In addition to cost comparisons within the petroleum industry, the data reported here are often used to assess the economic effects of specific plans and policies relating to the industry. No other source offers the detail of this report.

Only a few publications contain or have contained data relating to costs in the petroleum industry. For several years, the American Petroleum Institute (API), the Independent Petroleum Association of America, (IPAA), and the Mid-Continent Oil and Gas Association have published cost statistics in their *Joint Association Survey of the U.S. Oil and Gas Producing Industry* [1,2]. Section I of that publication pertains to drilling costs. Section II (discontinued after 1975) presented total U.S. expenditures for exploration, development, and production.

For several years the U.S. Bureau of the Census surveyed a group of companies classified by size and published a report titled *Annual Survey of Oil and Gas*[3] in its Current Industrial Report series. These reports contained oil and gas operating cost data for both direct and indirect expenses but were discontinued after 1982.

Other than EIA's, no series of non-aggregated oil and gas field equipment and operating costs and subsequent indices has been published on a regional basis. Equipment and operating costs vary from region to region because of differences in fuel costs, labor rates, and other variables. (See Figures 1 and 2 for areas of oil and gas production.) Therefore, equipment and operating costs and cost indices are estimated by EIA on a regional basis for both oil and gas fields.

The costs and cost indices provided in this report are for representative lease operations with equipment and operating procedures designed by EIA staff engineers for representative 10-well oil leases producing by artificial lift or 1 flowing well per gas lease. The design criteria took into account the predominant methods of operation in each region. Individual items of equipment were priced by using price lists and by communication with the manufacturer or supplier of the item in each region. Except as mentioned in the Executive Summary and treated in Appendix N, all costs presented in this report are current to their year and not adjusted for inflation.

Freight costs and installation costs were determined based on regional rates. These costs were summed for each category of equipment. For example, the category listed as "pumping equipment" for a rod pump system includes:

- A pumping unit
- Additional counter-weights
- Crank guards
- Belt guards, V-belts and sheaves
- Freight costs
- Installation costs.

Conversion of primary oil producing leases to secondary recovery (waterflood or water injection) involves:

- the drilling and equipping of 11 water injection wells
- the installation of water supply, storage, treatment, high pressure injection equipment and related piping
- replacement of production facilities with larger equipment.

Costs for gas activities were investigated by determining equipping and operating costs for representative gas leases producing from depths of 2,000, 4,000, 8,000, 12,000 and 16,000 feet in 6 onshore regions of the lower 48 States. The summary tables contain composite costs and indices for flow rates of 50, 250, 500, 1,000, 5,000, and 10,000 thousand cubic feet (Mcf) of gas per day by depth and region.

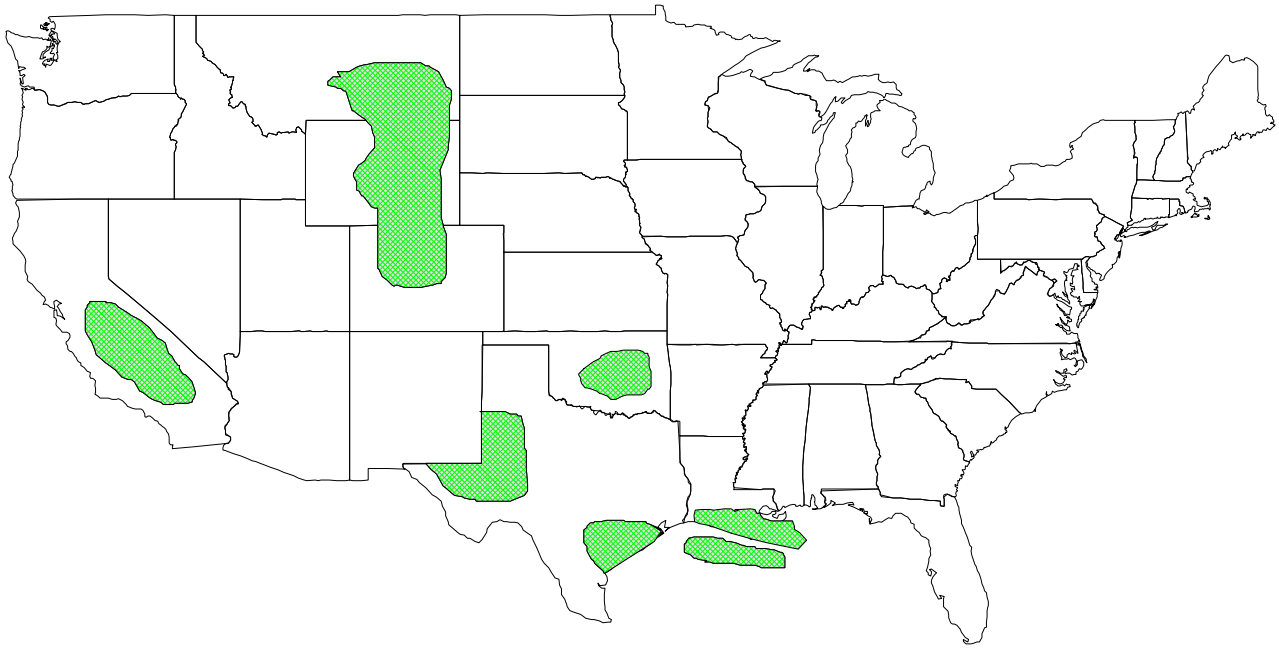
Equipment for gas wells does not cover hydrogen sulfide removal, compression, or special equipment for water removal. Tubing is also not included in the equipment list for gas wells.

[1]American Petroleum Institute, Independent Petroleum Association of America, Mid-Continent Oil and Gas Association, *1994 Joint Association Survey on Drilling Costs*. (Washington, DC, November 1995), American Petroleum Institute.

[2]American Petroleum Institute, Independent Petroleum Association of America, Mid-Continent Oil and Gas Association, *Joint Association Survey of the U.S. Oil and Gas Producing Industry, 1974, Section II: Expenditures for Exploration, Development and Production*, (Washington, DC, May 1976), American Petroleum Institute.

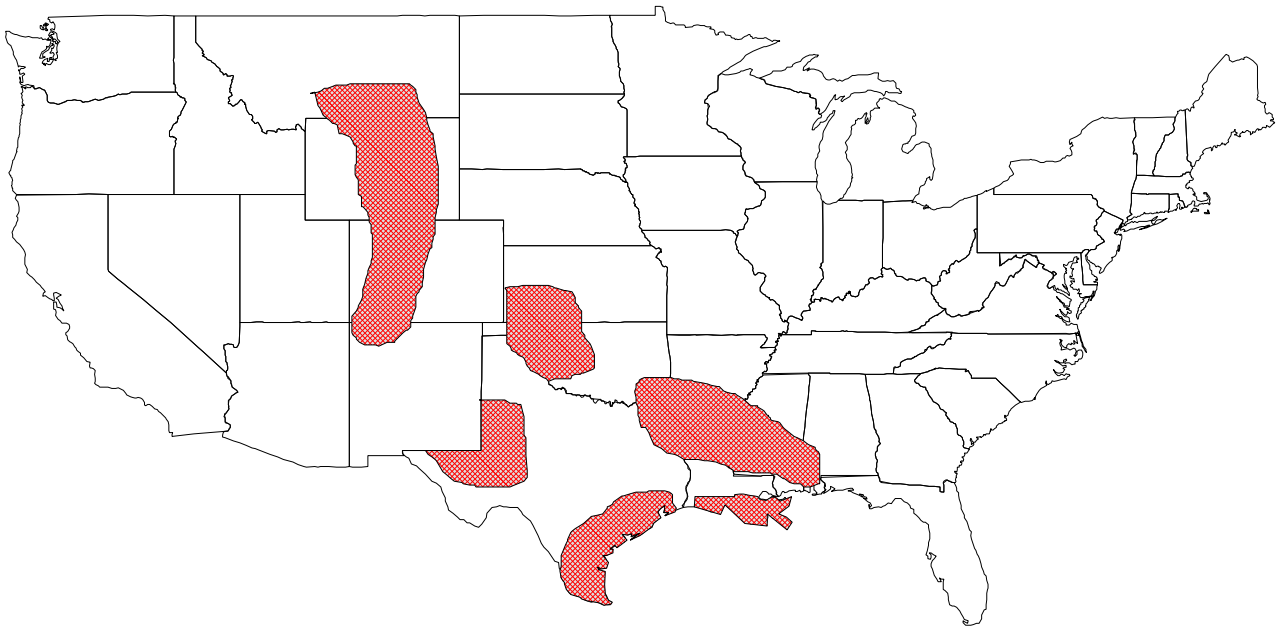
[3]U.S. Bureau of the Census, *Annual Survey of Oil and Gas, 1981*, Current Industrial Reports pub. MA-13K (81)-1, (Washington, DC, March 1983).

Figure 1. Geographical Regions for Oil Producing Leases



Source: Energy Information Administration, Office of Oil and Gas.

Figure 2. Geographical Regions for Gas Producing Leases



Source: Energy Information Administration, Office of Oil and Gas.

2. Indexing Procedure

The leading supply, service, and contracting companies (active in one or more of the regions) were contacted every year (1976 through 1995) for local June prices for their component of equipment or operating function. The objective of this process was to acquire prices that were representative for each region. Total component costs were determined from these prices and summed to permit indexing.

The indices in this report reflect changes in the costs of items, and their related transportation charges and associated installation costs on representative leases. The index numbers in this report are "pure" cost indices. A pure cost index measures the change in cost of a fixed quantity of goods and/or services. Pure cost indices are applied to the individual line items presented in the appendix tables.

The subtotal and total indices are composite indices. A composite index measures the change in cost of an aggregate of goods and/or services. Any equipment changes that may be made due to technological advances will be reflected in the composite indices.

The annual operating cost indices measure the change in direct costs incident to the production of oil and gas and exclude changes in indirect costs such as depreciation, and *ad valorem* and severance taxes.

The indices are calculated with 1976 as the base year as follows:

1995 index = (1995 costs/1976 costs) x 100.

Annual percentage changes can be determined by dividing the last year's index by the prior year's index, subtracting one (1.0), and multiplying by 100. For example, to find the percent change from 1994 to 1995, divide the 1995 index by the 1994 index, subtract one (1.0), and multiply by 100.

The estimated region equipment costs for the representative oil leases were summed, averaged, and indexed by depth, providing a general measure of equipment expenditures relative to depth. The estimated region equipment costs for the representative gas leases were also summed, averaged, and indexed by depth and by production rate. The aggregate average cost for all regions and depths were indexed to allow general trend analyses by year. This same procedure was applied to the annual operating costs for the formulated oil leases and for the formulated gas leases.

3. Discussion of Results

The summary of composite data and the detailed appendix tables permit analysis of equipment and operating costs for each region, depth, method, and type of production. The data in this report should be considered as revised, except for the 1995 data, which are preliminary. Some of the revisions which appear in this report affected equipment costs for the entire series, beginning in 1976. Though these were small, in some cases, the equipment cost revisions reflected a minor change in operating costs. There were no major revisions. The following is a discussion of the composite costs and indices.

Overview

This report continues a data series begun in 1976, providing a history of equipment and operating costs for oil and gas leases from 1976 through 1995. (See Appendix N for more detailed information).

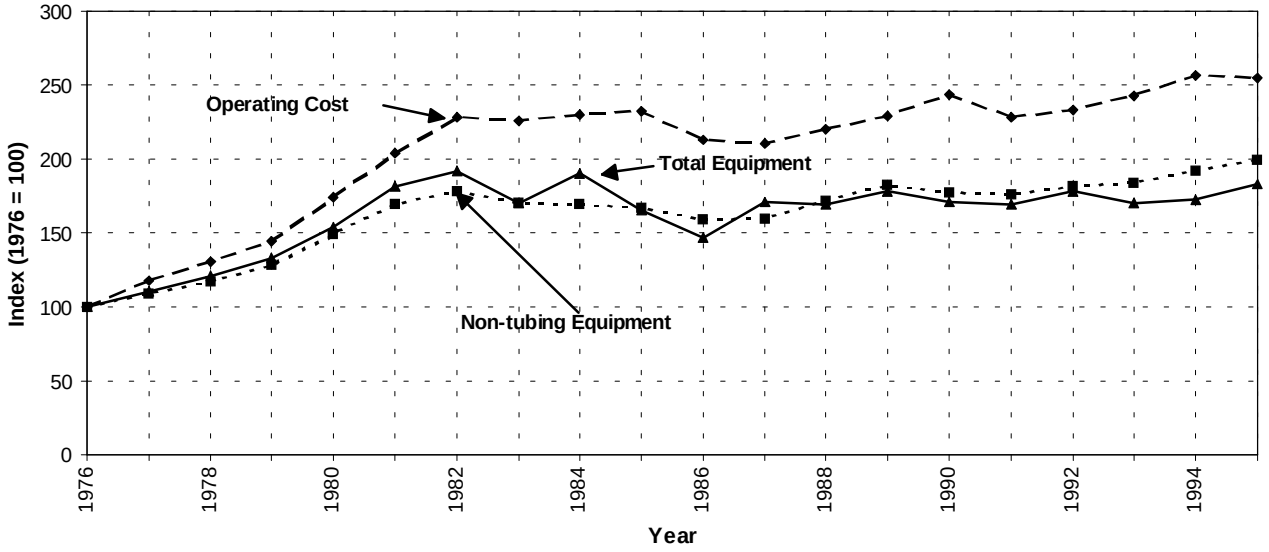
Figure 3 shows indices of the aggregate average costs for oil well equipment and operations, indicating general upward pressure on costs. The period of rapid cost increase which began before 1976 changed in 1982, the peak year for total equipment costs, which was followed by prices rising and falling within a range somewhat near the 1982 level. Operating costs followed a different path. The post-1982 drop was minimal, and the 1982 level has been exceeded eight times. Operating costs for 1995, very near the all-time peak set in 1994, have been largely influenced by energy costs (natural gas and electric power) and the costs of oil field services such as well servicing units and chemicals.

Figure 4 is a plot of tubing costs for 10-well oil leases. The type of tubing used for deeper wells not only costs more than that used for shallower wells, but price variations have been more extreme. Prices for 12,000-foot wells dropped in 1994 and rose in 1995. Costs for shallower wells followed the same trend.

Figure 5 is a plot of oil lease equipment costs excluding tubing. Contrasting Figures 4 and 5, the non-tubing equipment costs vary much less than those for tubing. However, the 1982 non-tubing equipment costs were nearly double the 1976 costs. Non-tubing equipment costs declined from 1982 through 1986 and have generally increased since.

The 1995 index of non-tubing equipment cost for all depths is about 190, which is 90 percent higher than the 1976 cost. Since 1976, the non-tubing cost for 8,000-foot wells was exceeded by that for 12,000-foot wells about half of the time,

Figure 3. Aggregate Average Cost Indices for Primary Oil Recovery, 1976-1995 (Operation and Equipment, With and Without Tubing Costs)



Source: Energy Information Administration, Office of Oil and Gas.

an anomaly related to the mixture of pumping equipment types used for 8,000-foot wells.

The availability of well service units (WSUs) is widely used as an indicator of price pressures on operating costs. When WSU utilization is high, prices of other operating cost items are usually firm. The active WSU count rose from about 2,600 in 1976 to 4,850 in 1981, when activity levels peaked (see Figure 6). Although the 1992 active WSU count dropped to near 1976 levels, later counts show a modest increase. Pressure on the well service industry was the result of overbuilding in the early 1980's. With a peak of about 8,000 WSU's available in 1985, the portion of WSUs at work was less than 60 percent. In 1986, working WSUs were only 40 percent of those available, and 1995 surveys reflect that 62 percent of the WSUs were working. Industry reports show that there are labor constraints that may limit the level to which active WSU's might rise without substantial increases in cost for the operators.

Figure 7 contains the equipping and operating cost indices for gas wells (note that gas well equipment costs do not include tubing costs). The index for gas equipment costs increased steadily from 1976 to a peak of about 183 in 1982. Lower levels of activity forced the index to a low of 153 in 1986, from which time costs increased to set new highs between 1990 and 1993, with a slight drop to 1995. The 1992-1995 drop in equipment costs was 4 percent. Operating costs have set new highs beginning with 1990, although there was a slight drop in 1995. Recent downward movement in equipment prices from a high in 1993 seems to be based on higher levels of competition, nationally and internationally. Operating costs rose at a steadier pace than equipment costs because of recent changes in labor prices, which are a major influence on the overall costs of gas well operation. The use of gas for fuel on gas leases is relatively insignificant, so changing gas prices had little effect.

Equipment Costs for Oil Leases

Primary Recovery

Table 1 is a summary of the composite lease equipment costs and indices for primary oil recovery operations in 6 onshore producing regions by depth. The trends in costs varied by depth and region. The aggregate (or sum) of the 10-well oil lease equipment costs for the six regions and 4 depths decreased by less than 1 percent in the period from 1992 to 1995, although there were noticeable drops in both 1993 and 1994. Table 1 also presents the average costs and indices of the 6 regions by depth. As shown in Figure 8, the average equipment costs increase with depth.

In this figure, the variations by depth by year present slightly dissimilar patterns, as, for example, aggregate costs for 8,000- and 12,000-foot wells in 1993 and 1994 did not follow expected trends of increasing costs with time and depth, due primarily to lower costs for tubular goods (see Figure 4). Although there are regional differences in equipment costs for each depth of wells, the range of indexed values is larger foroperating costs. The significant fact is that small negative annual price changes from 1992 through 1994 changed to a 6 percent increase in the aggregate average index for 1995.

Secondary Recovery

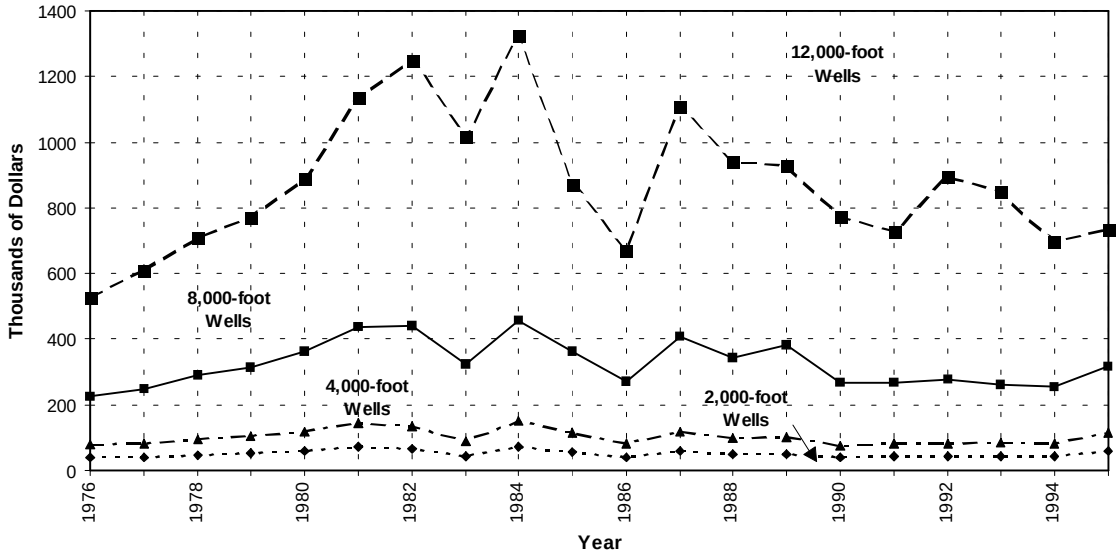
Table 2 summarizes the additional lease equipment costs and indices associated with secondary oil recovery (waterflood) from depths of 2,000, 4,000, and 8,000 feet in west Texas. This region was the focus of a substantial part of the early secondary recovery work in the country, and the differences between primary and secondary costs are presumed to be similar to those in other regions. The method used in this report is waterflooding. The additional lease equipment is the equipment needed to convert from a primary recovery operation to a secondary recovery operation. The aggregate decrease in additional equipment costs was almost 1 percent for the 1992-1995 period. As noted before, drilling cost estimates are subject to major annual revisions and, as drilling costs can account for more than one-half of the additional equipment costs, revisions to drilling costs may obscure the changes in other costs. During the 1992-1995 period, however, changes in drilling costs did not follow those of non-drilling costs, for they dropped about 9 percent while other prices remained essentially static. Figure 9 shows the additional costs of waterflood equipment for depths of 2,000, 4,000, and 8,000 feet for 1992 through 1995. Insurance costs for platform and production equipment

Operating Costs for Oil Leases

Primary Recovery

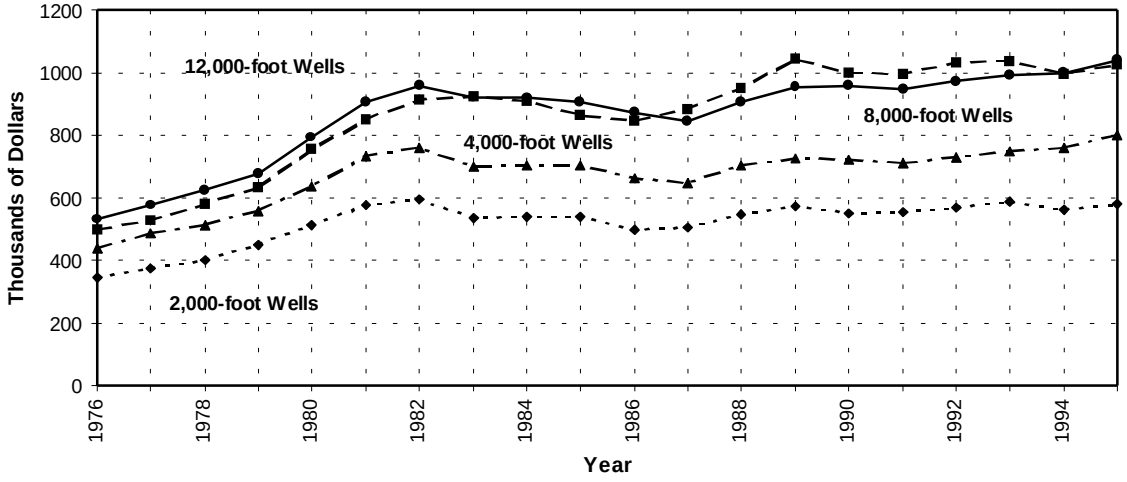
Table 3 is a summary of the annual operating costs and indices for primary oil recovery operations which are shown in Figure 10 while those for secondary operations are shown in Figure 11. The average for the aggregate of the operating costs for the 6 regions and 4 depths was $209,400 for the 10-well lease in 1995. This represents about a 5 percent increase over the 1992-1995 period.

Figure 4. Tubing Costs for Oil Leases, 1976-1995 (10 Producing Wells)



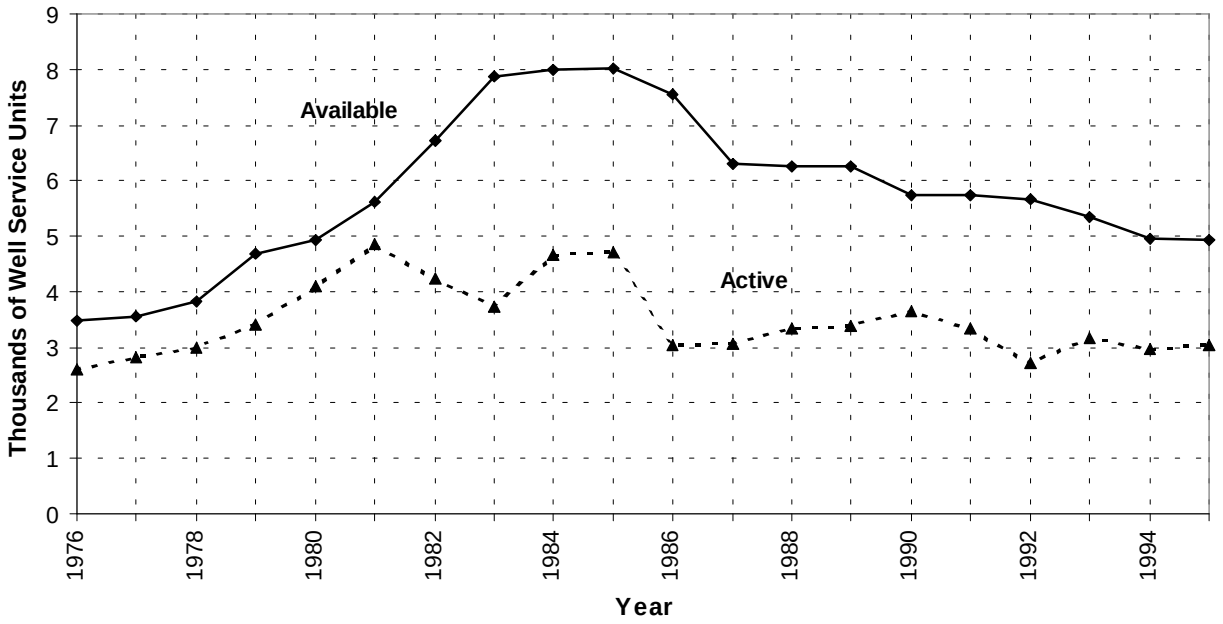
Source: Energy Information Administration, Office of Oil and Gas.

Figure 5. Non-tubing Equipment Costs for Oil Leases, 1976-1995 (10 Producing Wells)



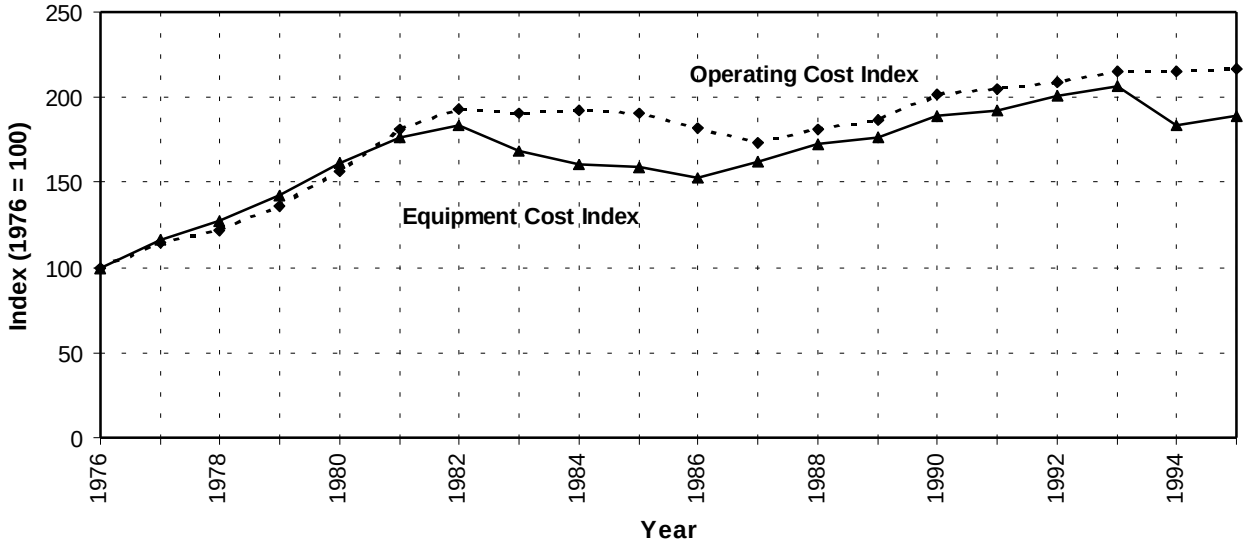
Source: Energy Information Administration, Office of Oil and Gas.

Figure 6. Well Service Units, 1976-1995



Source: Energy Information Administration, Office of Oil and Gas.

Figure 7. Aggregate Average Cost Indices for Gas Recovery, 1976-1995 (Operation and Non-tubing Equipment Costs)



Source: Energy Information Administration, Office of Oil and Gas.

Table 1. Summary of Lease Equipment Costs and Composite Indices for Primary Oil Recovery Operations (10 Producing Wells)

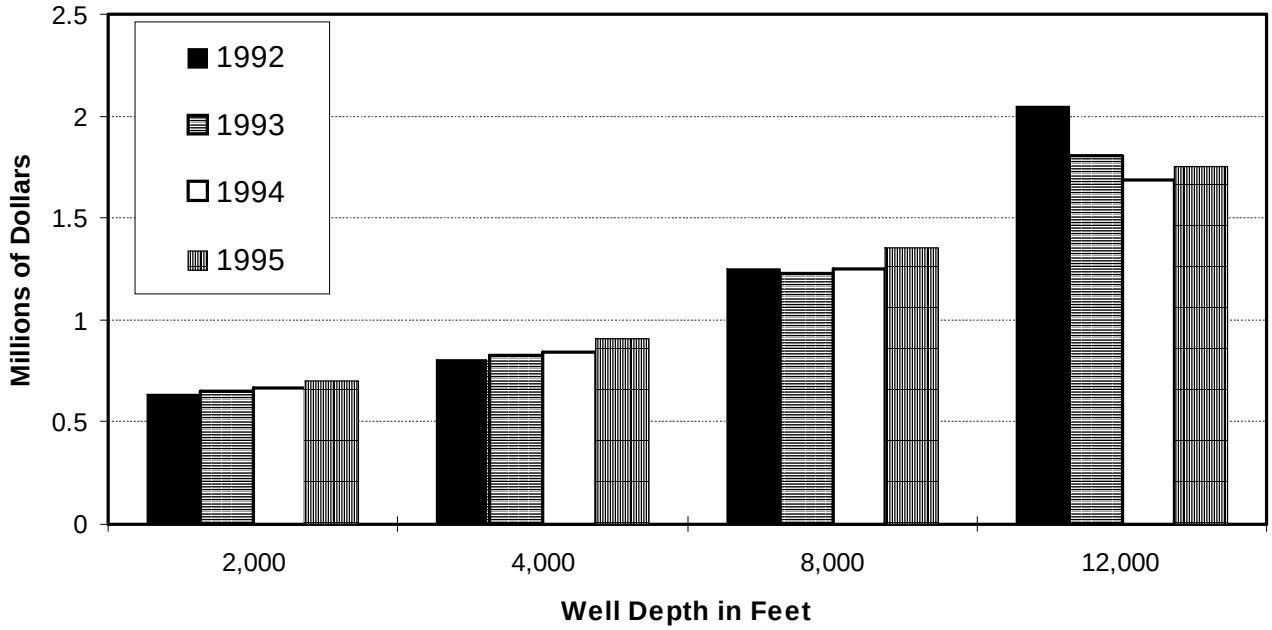
Area	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
			2,000-Foot Wells		
California	161.7	164.7	166.7	177.6	891,600
Oklahoma	263.5	272.1	276.3	293.9	647,700
South Louisiana	266.0	273.0	280.7	297.8	711,400
South Texas	269.6	281.0	285.8	303.5	676,700
West Texas	168.2	172.9	175.5	186.4	657,900
Rocky Mountains	169.3	173.3	174.5	184.8	641,200
Average or Index	**202.3**	**207.9**	**211.2**	**224.3**	**704,400**
			4,000-Foot Wells		
California	141.9	144.5	146.7	158.0	1,109,700
Oklahoma	207.4	215.2	217.9	240.3	896,600
South Louisiana	183.3	185.5	192.0	204.2	869,800
South Texas	171.7	176.5	182.0	192.7	839,600
West Texas	153.1	158.2	160.2	176.5	897,600
Rocky Mountains	151.7	155.2	156.2	172.4	866,000
Average or Index	**164.2**	**168.3**	**171.4**	**185.9**	**913,200**
			8,000-Foot Wells		
California	170.3	165.6	165.9	171.8	1,568,200
Oklahoma	202.8	172.0	175.1	190.5	1,395,900
South Louisiana	178.6	180.5	188.0	204.2	1,125,000
South Texas	164.1	168.6	175.0	189.3	1,068,800
West Texas	146.0	151.6	156.9	173.7	1,540,700
Rocky Mountains	141.2	144.1	145.7	159.9	1,427,100
Average or Index	**165.3**	**161.9**	**165.5**	**179.0**	**1,354,300**
			12,000-Foot Wells		
California	196.1	174.4	163.3	169.6	1,909,800
Oklahoma	201.0	175.6	163.7	170.4	1,655,000
South Louisiana	202.5	178.5	169.1	176.3	1,820,100
South Texas	200.8	178.4	168.1	174.4	1,747,000
West Texas	202.0	176.3	164.7	171.1	1,700,900
Rocky Mountains	206.1	180.8	168.6	175.4	1,703,900
Average or Index	**201.3**	**177.3**	**166.2**	**172.8**	**1,756,100**
Aggregate Average	**183.8**	**174.7**	**172.4**	**183.4**	**1,182,000**

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

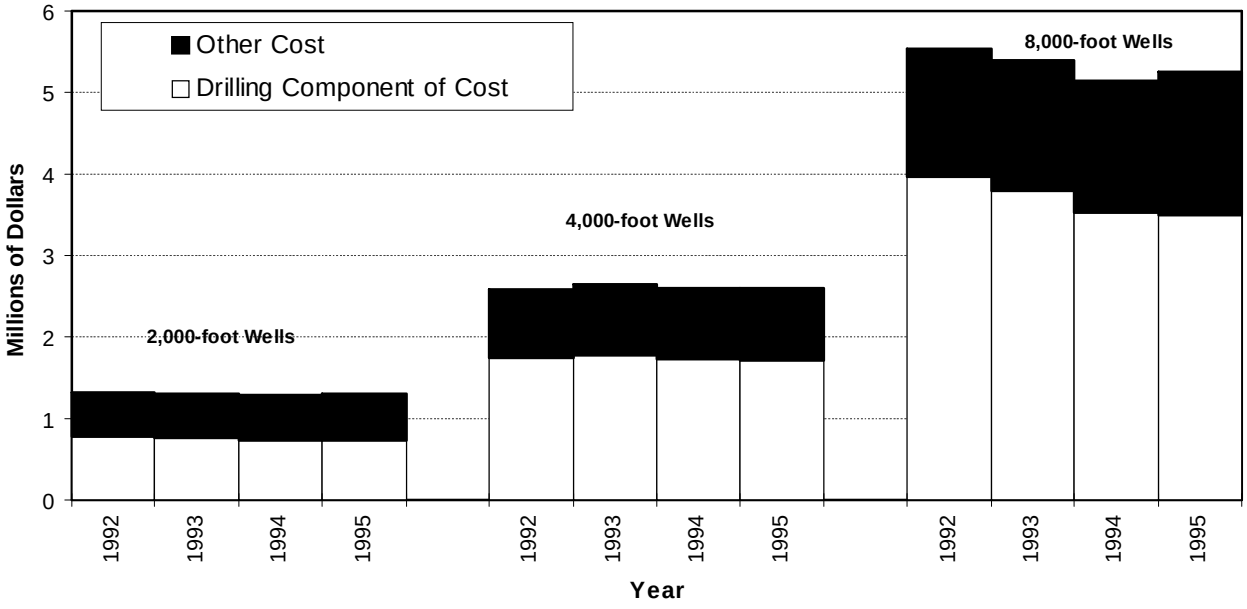
Source: Energy Information Administration, Office of Oil and Gas

Figure 8. Aggregate Average Lease Equipment Costs for Primary Oil Recovery, 1992-1995 (10 Producing Wells)



Source: Table 1

Figure 9. Additional Cost of Lease Equipment for Secondary Oil Recovery in West Texas, 1992-1995 (10 Producing and 11 Injection Wells)



Source: Table 2

Table 2. Summary of Additional Costs and Composite Indices for Lease Equipment and Injection Wells in West Texas for Secondary Oil Recovery

Component	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
			2,000-Foot Wells		
Injection Equipment	221.2	222.6	225.3	229.2	449,700
Producing Equipment	132.9	135.8	139.7	157.8	127,500
Injection Wells**	147.1	143.3	138.3	137.0	725,600
Total or Index	**163.7**	**161.9**	**159.7**	**161.5**	**1,302,800**
			4,000-Foot Wells		
Injection Equipment	209.4	210.8	213.3	217.0	448,300
Producing Equipment	125.9	129.6	131.1	153.8	507,100
Injection Wells**	153.3	157.1	152.8	151.3	1,717,600
Total or Index	**154.8**	**158.3**	**156.0**	**156.0**	**2,608,100**
			8,000-Foot Wells		
Injection Equipment	213.8	214.4	217.6	221.3	751,200
Producing Equipment	122.7	126.3	128.5	148.3	1,019,700
Injection Wells**	133.3	127.4	118.3	117.1	3,490,400
Total or Index	**138.3**	**134.6**	**128.5**	**131.3**	**5,261,300**
Aggregate Average	**145.7**	**144.1**	**139.4**	**141.4**	**3,057,400**

* Preliminary

**Costs from Joint Association Survey data.

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

Source: Energy Information Administration, Office of Oil and Gas

Examination of Table 3 shows that cost trends for oil operations varied widely from 1992 to 1995. Indexed costs for 1994 were generally flat compared to those for 1993 for 2,000- and 4,000-foot wells, 8 percent more for 8,000-foot wells, and 14 percent more for 12,000-foot wells. The 1976 to 1995 history of aggregate operating costs is shown in Figure 3. The index for 1994 replaced the index of 1990 as the peak year since 1976. There was negligible change in 1995.

Changes in individual components of operating costs show large variations. Fuel, power and water costs comprise one of the most volatile components for oil leases, primarily due to changes in the average price of natural gas in the different regions. Overall costs for fuel, power and water ranged from an increase of about 12 percent for the 1992-1995 period for south Louisiana to an 18 percent decrease for Oklahoma. Contrasted with the rest of the nation, the primary energy source for the California and Rocky Mountain regions is electricity. In the Rocky Mountains, electricity is generated by coal-fired plants and hydroelectric plants that have adequate water supplies. In California, hydroelectric plants operate at full generating capacity as long as there is an ample water supply. However, their water supply is weather-dependent with little or no reserve, so a dry winter can cause reduction in hydroelectric generation of electricity the following year. The reduction in hydroelectric capacity is made up by power from generators using alternate fuels, or is purchased from out-of-state sources. Therefore, electric rates can vary widely in California. Figure 12 depicts fuel, power, and water indices for 12,000-foot wells in the Rocky Mountains and California. Note that the fuel, power and water costs decreased from 1985 to 1991 for the Rocky Mountains, followed by a small increase in 1992, then a 3 percent increase in 1993. Costs in 1994 dropped by less than 3 percent and there was no change for 1995. California fuel, power and water costs have increased every year since 1987, except for 1995, and have exceeded the previous 1985 peak in all of the 1992-1995 period.

Secondary Recovery

Table 4 provides a summary of the composite secondary oil recovery operating costs for west Texas. The average

Table 3. Summary of Direct Annual Operating Costs and Composite Indices for Primary Oil Recovery Operations (10 Producing Wells)

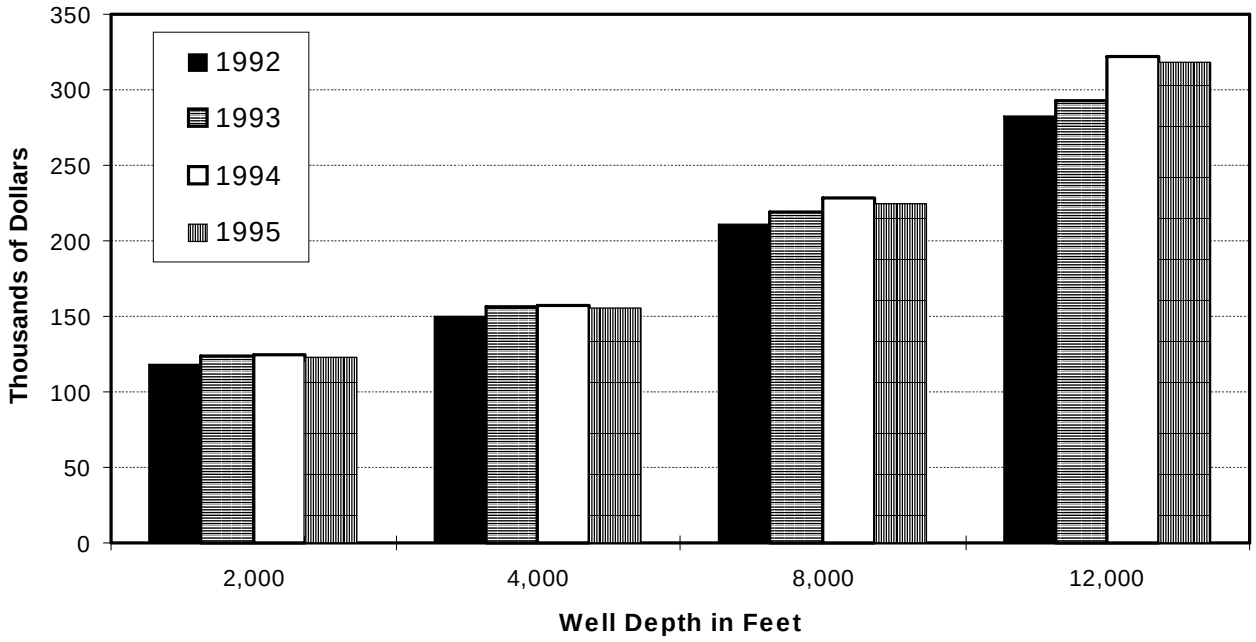
Area	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
			2,000-Foot Wells		
California	267.3	269.3	282.3	274.2	150,000
Oklahoma	213.3	220.7	217.5	214.6	95,500
South Louisiana	232.7	241.5	249.3	251.3	136,700
South Texas	222.4	246.4	245.5	246.3	135,200
West Texas	230.7	236.6	237.1	236.4	107,800
Rocky Mountains	208.1	215.6	218.3	220.1	122,600
Average or Index	**229.7**	**239.1**	**242.6**	**241.5**	**124,600**
			4,000-Foot Wells		
California	284.2	286.4	301.2	290.4	200,400
Oklahoma	218.4	226.2	221.5	219.9	112,600
South Louisiana	229.2	240.8	246.8	249.9	195,400
South Texas	224.5	247.4	243.8	233.7	183,900
West Texas	230.4	237.4	235.5	235.3	124,700
Rocky Mountains	204.7	212.2	213.9	217.5	139,400
Average or Index	**232.7**	**243.1**	**245.5**	**242.6**	**159,400**
			8,000-Foot Wells		
California	351.0	353.5	387.8	374.1	346,400
Oklahoma	237.2	245.0	277.5	278.3	210,100
South Louisiana	235.9	247.1	253.2	256.9	233,500
South Texas	222.7	244.3	241.5	240.2	222,900
West Texas	231.1	238.3	235.9	234.8	173,500
Rocky Mountains	90.9	94.6	97.0	98.3	185,800
Average or Index	**206.1**	**214.4**	**224.5**	**223.1**	**228,700**
			12,000-Foot Wells		
California	357.3	359.9	400.8	385.9	502,800
Oklahoma	244.8	253.6	279.0	278.0	248,800
South Louisiana	235.5	246.9	276.2	279.4	320,700
South Texas	234.3	251.3	273.5	277.7	331,600
West Texas	238.6	248.0	271.5	271.9	256,700
Rocky Mountains	233.2	239.0	267.9	272.6	274,200
Average or Index	**261.1**	**270.1**	**299.1**	**298.1**	**322,500**
Aggregate Average	**233.3**	**242.4**	**256.2**	**254.6**	**208,800**

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

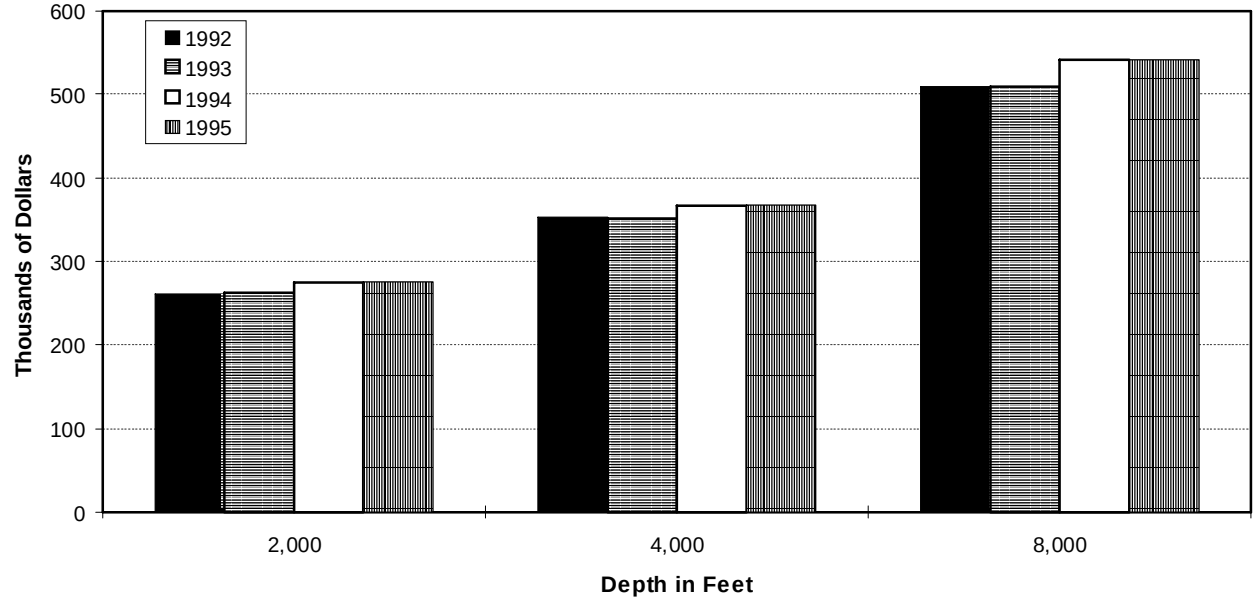
Source: Energy Information Administration, Office of Oil and Gas

Figure 10. Aggregate Operating Costs for Primary Oil Recovery Operations, 1992-1995



Source: Table 3

Figure 11. Annual Operating Costs for Secondary Oil Recovery In West Texas, 1992-1995 (10 Producing and 11 Injection Wells)



Source: Table 4

Table 4. Summary of Direct Annual Operating Costs and Composite Indices for Secondary Oil Recovery Operations in West Texas

Component	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
			2,000-Foot Wells		
Normal Daily	254.1	255.9	277.6	278.4	171,800
Surface Repair	234.1	229.5	231.8	232.3	50,400
Subsurface Repair	197.1	198.2	195.2	196.0	53,300
Total or Index	**236.2**	**236.5**	**248.4**	**249.1**	**275,500**
			4,000-Foot Wells		
Normal Daily	314.2	315.1	340.1	341.1	208,400
Surface Repair	238.5	233.8	236.7	237.3	81,400
Subsurface Repair	193.1	193.9	191.2	192.2	78,400
Total or Index	**258.9**	**258.3**	**269.5**	**270.3**	**368,200**
			8,000-Foot Wells		
Normal Daily	303.9	305.0	341.9	342.6	301,800
Surface Repair	240.5	236.8	239.7	239.7	91,100
Subsurface Repair	199.3	199.7	196.8	197.6	149,000
Total or Index	**252.8**	**252.8**	**268.3**	**268.9**	**541,900**
Aggregate Average	**250.6**	**250.5**	**263.8**	**264.5**	**395,200**

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

Source: Energy Information Administration, Office of Oil and Gas

Table 5. Summary of Direct Annual Operating Costs and Composite Indices per Platform--Gulf of Mexico (10,500-Foot True Vertical Depth Wells)

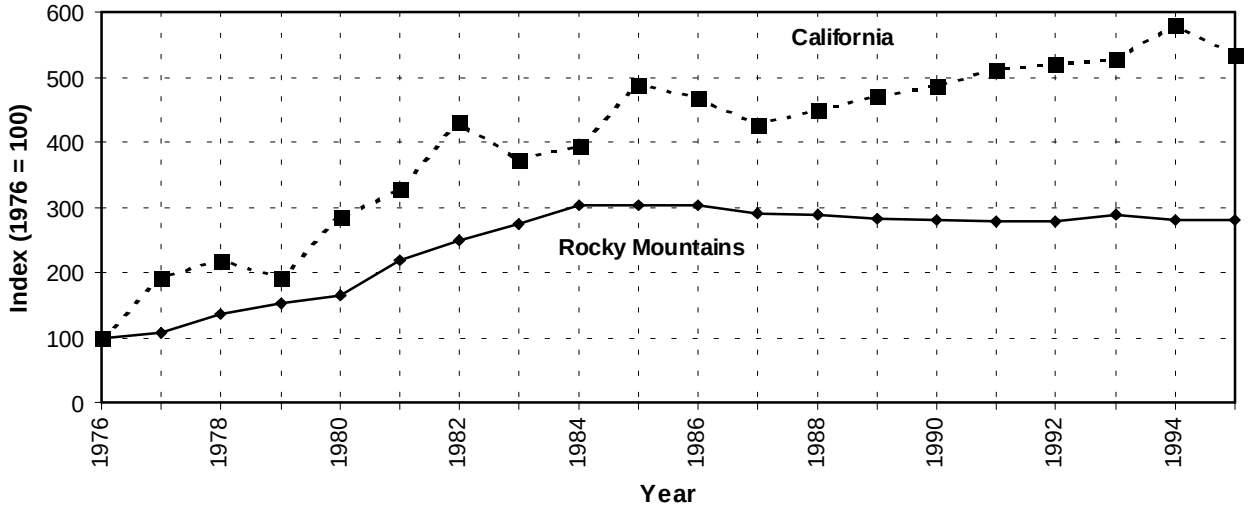
Water Depth	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
			12-Slot Platforms		
100 Foot	211.4	219.3	227.6	233.6	3,178,500
300 Foot	209.5	217.6	226.0	231.9	3,331,000
Average or Index	**207.2**	**215.1**	**223.3**	**229.2**	**3,254,750**
			18-Slot Platforms		
100 Foot	204.1	212.8	221.5	228.4	3,894,000
300 Foot	197.9	206.8	215.3	222.3	3,967,500
600 Foot	193.2	202.7	212.6	218.9	4,442,280
Average or Index	**184.0**	**192.5**	**200.9**	**207.2**	**4,101,260**
Aggregate Average	**191.6**	**199.8**	**208.2**	**214.3**	**3,762,700**

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

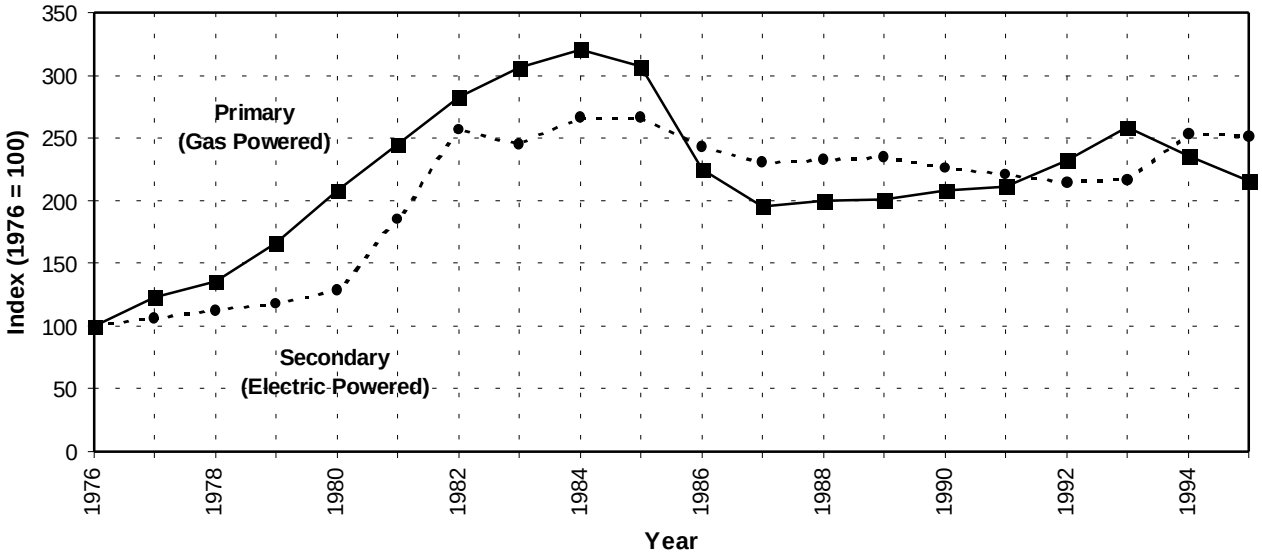
Source: Energy Information Administration, Office of Oil and Gas

Figure 12. Fuel, Power, and Water, Cost Indices for 12,000-Foot Oil Wells in California and Rocky Mountains



Source: Energy Information Administration, Office of Oil and Gas.

Figure 13. Fuel, Power, and Water Cost Indices for Primary and Secondary Operating Costs for 4,000-foot Wells in West Texas



Source: Energy Information Administration, Office of Oil and Gas.

1992-1994 period and dropped 1 percent in 1995. Fuel, power, and water costs for primary recovery operations in this region increased 7 percent from 1992 to 1994 and fell 9 percent in 1995. The differences in the changes for fuel, power, and water costs occurred because engines power by natural gas engines were the prime movers for primary recovery operations in this region, and electric motors were used for secondary recovery operations. As an example, Figure 13 shows fuel, power, and water cost indices for primary and secondary oil recovery in west Texas for 4,000-foot wells. Peaks for both of these indices occurred in the 1984-1985 period.

Offshore Operations

Table 5 presents a summary of annual operating costs and composite indices for offshore production operations in the Gulf of Mexico for wells with a true vertical depth of 10,500 feet. Production from offshore installations includes large gas volumes compared to the average onshore lease. The aggregate average of costs at all water depths increased by 12 percent from 1992 to $3,762,700 per platform in 1995.

Equipment Costs for Gas Leases

Equipment and operating costs for gas leases producing from depths of 2,000, 4,000, 8,000, 12,000, and 16,000 feet, were determined for 6 onshore regions of the lower 48 States (Figure 2). For each region and depth, costs and indices for equipment for a one-well lease were determined for representative or average gas production rates. Costs and indices were also calculated for a higher and, where possible, for a lower production rate. Composite indices and costs for equipment are presented for a one-well lease with production rates of 50, 250, 500, 1,000, 5,000, and 10,000 Mcf of gas per day by depth and region. Figure 14 displays the average equipment costs by rate of production and well depth for 1995. There is a large difference between the equipment costs for some production rates and depths, such as wells of various depths producing 250 Mcf per day. This difference is the result of variations in the type and size of equipment needed in different regions, for different depths, and for different production rates. For example, dehydrators and line heaters are needed in cold climates but may not be needed in more temperate climates.

The indices for the aggregate costs of gas lease equipment for all depths and regions turned downward for the 1992-1995 period, with a drop of about 8 percent in 1994. The 3 percent increase in 1995 resulted from an overall aggregate average gas lease equipment increase to $44,300 (Table 6).

Tables 7 through 12 present summaries of composite gas lease equipment costs and indices for a given production rate by depth and region. For each production rate, the costs are summed and averaged for the selected regions and depths. These average costs and the corresponding indices are presented in each table. The 1992-1995 change in equipment costs ranged from an increase of 5 percent for wells producing 10 MMcf of gas per day to a decrease of 8 percent for wells flowing 1 MMcf of gas per day.

Table 13 contains gas lease equipment costs aggregated by depth. Changes in gas equipment costs from 1992 to 1995 were positive for 2,000-foot wells, where costs rose about 4 percent and ranged from decreases of 1 to 6 percent for other depths. The dominant factor in determining gas well equipment costs is the production capacity of the equipment. Figure 15 illustrates the aggregate average gas well equipment costs for 1990 through 1993 by production rate. The significant feature of Table 13 is the substantial drop in costs from 1993 to 1994, when year to year decreases were from 4 to 11 percent.

Operating Costs for Gas Leases

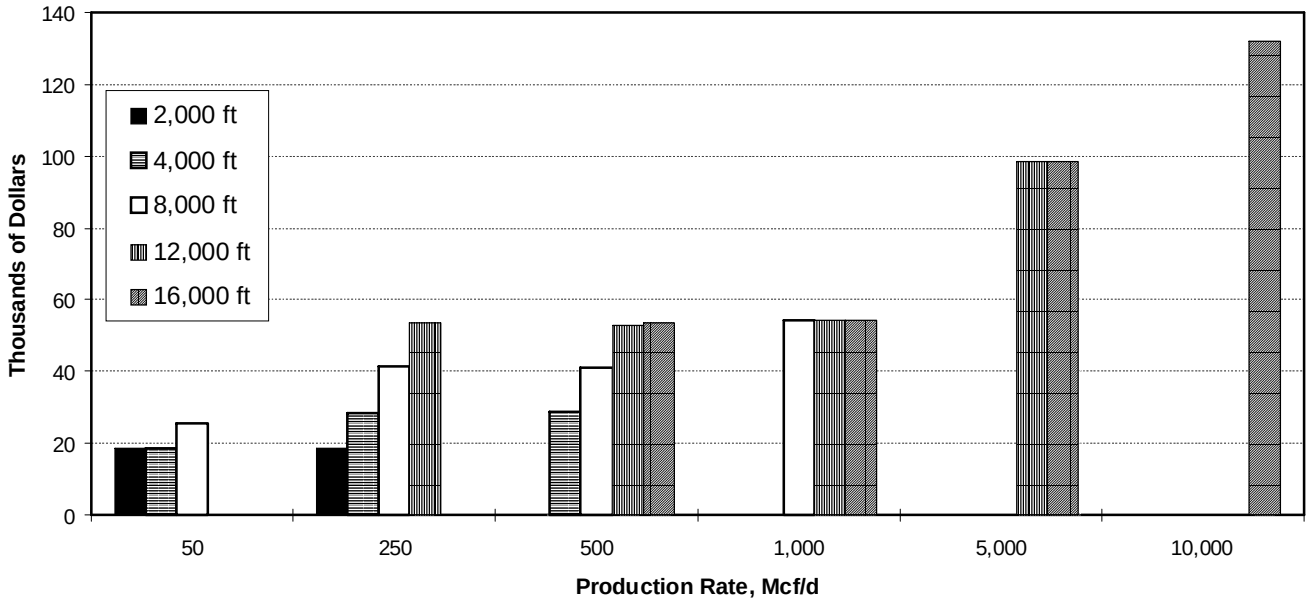
Operating costs for gas leases aggregated for all depths, regions and production rates are shown in Table 14. There was an increase of 4 percent from 1992 to 1995, to $23,000. Tables 15 through 20 are summaries of composite costs and indices for operating a gas lease. Each table is a summary for one production rate for the same depth and region used for lease equipment costs. For each depth and production rate, the individual operating costs by region were averaged and indices were calculated. From 1992 to 1995, wells producing 250 thousand cubic feet per day exhibited an operating cost increase of about 3 percent, while costs for wells producing at a rate of 10 million cubic feet per day rose at about 7 percent. Note that both equipment and operating cost increases were at a maximum for wells in the latter group.

Well depth has more effect on gas well operating costs than on equipment costs, since depth is a major factor in the cost of down-hole repairs, the amount of chemicals used, and other maintenance cost components. However, the changes in operating costs aggregated by depth from 1992 through 1995 show little variation across time. The annual changes ranged from only 4 to 5 percent from 1992 to 1995. The annual gas well operating costs aggregated by depth are shown in Table 21.

Figure 17 depicts the aggregate average annual gas well operating costs by depth and producing rate for 1995. Operating costs decreased as the producing rate increased from 250 to 500 thousand cubic feet of gas per day in 8,000- and 12,000-foot wells. This is a result of the well design and the completion techniques used. Wells producing at 500 thousand cubic feet of gas per day, or more, were considered to be completed with packers. Packers protect the casing-tubing annulus and the casing wellhead from the bottom-hole pressure and any corrosive properties of the well's fluids. With

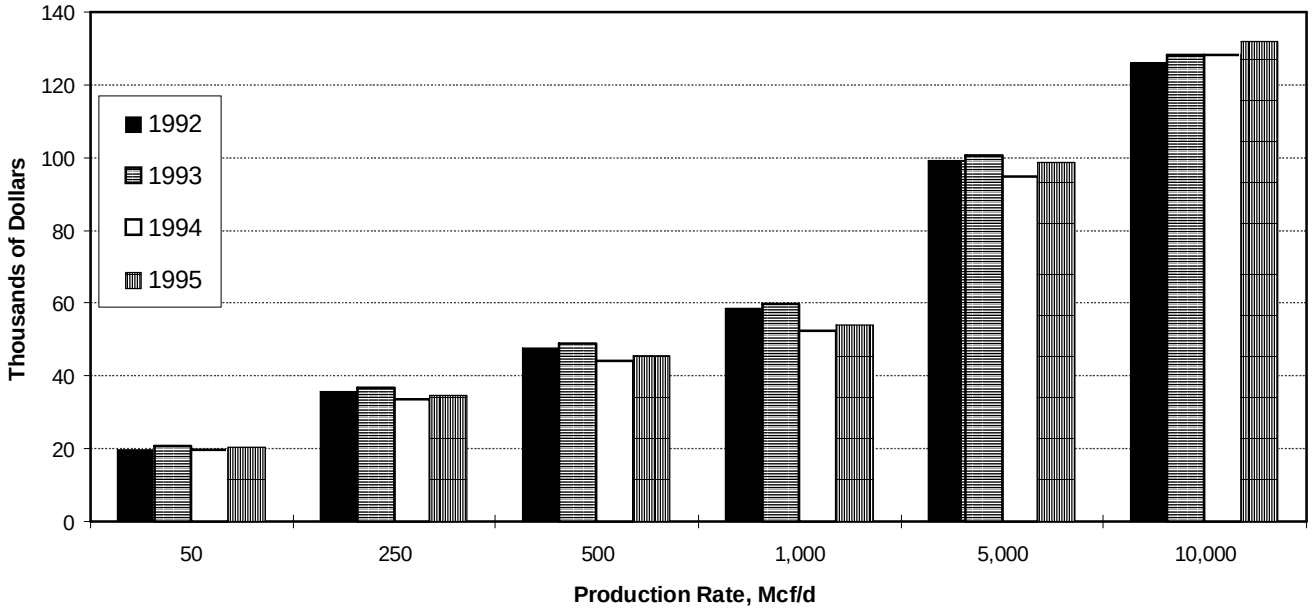
these flow rates, the tubing flow velocity is sufficient to remove the well liquids which accumulate in the tubing. Either tubing displacement or corrosion inhibitor squeeze jobs can be used to protect the production string from corrosion or scale deposition. Wells producing at rates of 250 thousand cubic feet of gas per day or less have lower tubing flow velocities which are not always adequate to remove accumulated liquids from the well. Increasing liquid levels usually cause reduced gas production. Therefore, these wells were considered to be completed without packers to permit fluids to be forced up the tubing by expansion of the compressed gas in the casing-tubing annulus. Because the gas wells which produce at lower flow rates have no packers, the casing-tubing annulus is exposed to the corrosive properties of the well fluids and often needs chemical protection. Tubing displacement and corrosion inhibitor squeeze jobs are not effective without a packer, or making them effective would be cost prohibitive. Therefore, continuous chemical injection down the casing-tubing annulus is a common practice. This involves surface chemical injection pumps, maintenance, and larger volumes of chemicals. Therefore, wells which produce less than 250 thousand cubic feet of gas per day have higher fuel, chemical and disposal costs, and higher surface maintenance costs.

Figure 14. Annual Gas Well Equipment Costs by Well Depth and Production Rate (1995)



Source: Tables 7 through 12.

Figure 15. Aggregate Average Equipment Costs for a One-Well Gas Lease by Production Rate, 1992-1995



Source: Tables 7 through 12.

Table 6. Average Equipment Costs and Indices for Gas Leases Aggregated for All Depths, Areas and Production Rates (One Producing Well)

	Index (1976=100)				1995* Cost
	1992	1993	1994	1995	(dollars)
Aggregate average for all Production Rates	**194.9**	**200.4**	**183.3**	**189.3**	**44,300**

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

Source: Energy Information Administration, Office of Oil and Gas

Table 7. Summary of Gas Lease Equipment Costs and Composite Indices for One Well Producing 50 Thousand Cubic Feet per Day

	Index (1976=100)				1995* Cost
Area	1992	1993	1994	1995	(dollars)
			2,000-Foot Wells		
Mid-Continent	176.2	184.2	177.2	183.2	18,500
North Louisiana	167.6	174.3	168.6	176.2	18,500
South Louisiana	167.6	174.3	168.6	176.2	18,500
Rocky Mountains	163.4	171.4	164.3	170.5	19,100
South Texas	168.9	179.6	171.8	177.7	18,300
West Texas	174.3	186.1	176.2	182.2	18,400
Average or Index	**168.6**	**177.1**	**170.5**	**177.1**	**18,600**
			4,000-Foot Wells		
Mid-Continent	176.2	184.2	177.2	183.2	18,500
South Louisiana	167.6	174.3	168.6	176.2	18,500
Rocky Mountains	163.4	171.4	164.3	170.5	19,100
South Texas	168.9	179.6	171.8	177.7	18,300
West Texas	174.3	186.1	176.2	182.2	18,400
Average or Index	**170.2**	**179.8**	**172.1**	**178.8**	**18,600**
			8,000-Foot Wells		
West Texas	193.9	203.1	186.3	194.7	25,500
Aggregate Average for Production Rate	**172.0**	**180.4**	**172.0**	**178.5**	**19,100**

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

Source: Energy Information Administration, Office of Oil and Gas

Table 8. Summary of Gas Lease Equipment Costs and Composite Indices for One Well Producing 250 Thousand Cubic Feet per Day

Area	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
			2,000-Foot Wells		
Mid-Continent	172.9	180.4	173.8	179.4	19,200
North Louisiana	167.6	174.3	168.6	176.2	18,500
South Louisiana	167.6	174.3	168.6	176.2	18,500
Rocky Mountains	163.4	171.4	164.3	170.5	19,100
South Texas	168.9	179.6	171.8	177.7	18,300
West Texas	174.3	186.1	176.2	182.2	18,400
Average or Index	**167.9**	**176.4**	**169.8**	**176.4**	**18,700**
			4,000-Foot Wells		
Mid-Continent	192.5	199.3	182.8	191.8	25,700
North Louisiana	187.8	194.2	179.1	188.5	26,200
South Louisiana	184.9	190.6	176.3	184.2	25,600
Rocky Mountains	181.7	187.7	167.7	172.8	40,600
South Texas	183.3	192.0	177.5	184.8	25,500
West Texas	190.3	200.7	182.8	191.0	25,600
Average or Index	**186.3**	**193.5**	**177.1**	**184.3**	**28,200**
			8,000-Foot Wells		
Mid-Continent	188.3	193.9	174.8	179.1	41,200
North Louisiana	179.8	184.5	167.2	172.3	41,000
South Louisiana	180.3	185.3	168.1	172.7	41,100
Rocky Mountains	170.6	174.7	145.6	149.0	44,100
South Texas	179.7	187.3	169.5	173.7	41,000
West Texas	186.1	192.6	172.6	177.0	40,700
Average or Index	**180.0**	**185.7**	**165.3**	**169.4**	**41,500**
			12,000-Foot Wells		
Mid-Continent	208.6	213.7	202.0	208.6	53,400
Rocky Mountains	190.4	194.2	170.5	176.3	55,000
West Texas	205.9	212.1	198.8	206.3	52,800
Average or Index	**200.7**	**205.5**	**188.7**	**195.3**	**53,700**
Aggregate Average for Production Rate	**184.2**	**190.7**	**173.8**	**179.8**	**32,900**

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

Source: Energy Information Administration, Office of Oil and Gas

Table 9. Summary of Gas Lease Equipment Costs and Composite Indices for One Well Producing 500 Thousand Cubic Feet per Day

Area	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
			4,000-Foot Wells		
Mid-Continent	198.4	204.7	187.4	196.9	25,000
North Louisiana	169.2	176.9	170.2	176.9	18,400
Rocky Mountains	173.4	178.0	146.9	150.3	43,000
Average or Index	**179.1**	**184.9**	**161.6**	**167.4**	**28,800**
			8,000-Foot Wells		
Mid-Continent	192.5	197.4	178.9	182.9	41,700
North Louisiana	180.0	185.1	167.2	171.9	40,400
South Louisiana	180.0	185.1	167.2	171.9	40,400
Rocky Mountains	172.9	177.4	147.2	150.7	43,400
South Texas	179.8	187.1	168.7	173.0	40,300
West Texas	185.5	191.7	171.5	175.9	40,100
Average or Index	**181.7**	**187.1**	**166.0**	**170.5**	**41,100**
			12,000-Foot Wells		
Mid-Continent	211.6	216.9	204.8	211.6	52,700
North Louisiana	203.9	209.0	197.7	205.1	52,500
South Louisiana	203.9	209.0	197.7	205.1	52,500
Rocky Mountains	193.1	197.4	172.7	178.6	54,300
South Texas	203.9	211.0	199.2	206.3	52,400
West Texas	209.6	215.7	202.4	209.6	52,200
Average or Index	**204.2**	**209.6**	**195.4**	**202.3**	**52,800**
			16,000-Foot Wells		
Mid-Continent	197.7	202.0	177.2	182.6	54,400
South Louisiana	203.9	209.0	197.7	205.1	52,500
West Texas	195.0	199.7	174.5	180.2	53,700
Average or Index	**198.6**	**203.2**	**182.4**	**188.4**	**53,500**
Aggregate Average for Production Rate	**192.2**	**197.5**	**178.7**	**184.4**	**45,000**

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

Source: Energy Information Administration, Office of Oil and Gas

Table 10. Summary of Gas Lease Equipment Costs and Composite Indices for One Well Producing 1 Million Cubic Feet per Day

Area	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
			8,000-Foot Wells		
South Louisiana	192.4	196.4	172.7	178.3	54,200
South Texas	193.4	199.0	174.1	179.7	54,100
Average or Index	**192.7**	**197.4**	**173.3**	**178.9**	**54,200**
			12,000-Foot Wells		
Mid-Continent	197.7	202.0	177.2	182.6	54,400
North Louisiana	192.4	196.4	172.7	178.3	54,200
South Louisiana	192.4	196.4	172.7	178.3	54,200
Rocky Mountains	193.1	197.4	172.7	178.6	54,300
South Texas	192.7	198.3	173.5	179.1	54,100
West Texas	195.0	199.7	174.5	180.2	53,700
Average or Index	**193.7**	**198.0**	**173.8**	**179.5**	**54,200**
			16,000-Foot Wells		
Mid-Continent	197.7	202.0	177.2	182.6	54,400
North Louisiana	192.4	196.4	172.7	178.3	54,200
South Louisiana	192.4	196.4	172.7	178.3	54,200
West Texas	195.0	199.7	174.5	180.2	53,700
Average or Index	**194.4**	**198.7**	**174.4**	**179.7**	**54,100**
Aggregate Average for Production Rate	**193.7**	**198.0**	**173.8**	**179.1**	**54,100**

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

Source: Energy Information Administration, Office of Oil and Gas

Table 11. Summary of Gas Lease Equipment Costs and Composite Indices for One Well Producing 5 Million Cubic Feet per Day

Area	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
			12,000-Foot Wells		
South Louisiana	222.6	225.8	212.8	220.9	98,500
South Texas	222.7	227.3	213.5	221.6	98,400
Average or Index	**222.7**	**226.5**	**213.3**	**221.3**	**98,500**
			16,000-Foot Wells		
Mid-Continent	226.9	230.1	216.9	224.8	98,700
North Louisiana	222.6	225.8	212.8	220.9	98,500
South Louisiana	222.6	225.8	212.8	220.9	98,500
West Texas	224.6	228.7	214.8	222.8	97,800
Average or Index	**223.9**	**227.3**	**214.0**	**222.1**	**98,400**
Aggregate Average for Production Rate	**223.9**	**227.3**	**214.0**	**222.1**	**98,400**

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

Source: Energy Information Administration, Office of Oil and Gas

Table 12. Summary of Gas Lease Equipment Costs and Composite Indices for One Well Producing 10 Million Cubic Feet per Day

Area	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
North Louisiana.....	212.8	216.2	216.2	222.4	131,900

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

Source: Energy Information Administration, Office of Oil and Gas

Table 13. Summary of Aggregate Average Gas Lease Equipment Costs by Well Depth (1992-1995)

Well Depth (feet)	Average Costs (dollars) 1992	1993	1994	1995
2,000.....	17,800	18,700	17,900	18,600
4,000.....	25,200	26,200	24,000	24,900
8,000.....	44,600	46,000	40,800	41,900
12,000.....	60,800	62,300	56,800	58,800
16,000.....	77,200	78,600	72,700	75,200

* Preliminary

Source: Energy Information Administration, Office of Oil and Gas

Table 14. Average Operating Costs and Indices for Gas Leases Aggregated for All Depths, Areas and Production Rates (One Producing Well)

Area	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
Aggregate Average for all Production Rates	**208.5**	**215.1**	**215.1**	**217.0**	**23,000**

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

Source: Energy Information Administration, Office of Oil and Gas

Table 15. Summary of Gas Lease Operating Costs and Composite Indices for One Well Producing 50 Thousand Cubic Feet per Day

Area	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
			2,000-Foot Wells		
Mid-Continent	258.8	270.6	270.6	273.5	9,300
North Louisiana	207.3	214.6	219.5	222.0	9,100
South Louisiana	209.8	217.1	222.0	224.4	9,200
Rocky Mountains	212.5	216.7	216.7	216.7	10,400
South Texas	228.2	246.2	248.7	251.3	9,800
West Texas	247.1	244.1	247.1	247.1	8,400
Average or Index	**222.5**	**230.0**	**232.5**	**235.0**	**9,400**
			4,000-Foot Wells		
Mid-Continent	240.5	250.0	250.0	252.4	10,600
South Louisiana	210.6	217.0	221.3	227.7	10,700
Rocky Mountains	208.9	212.5	214.3	216.1	12,100
South Texas	226.7	246.7	246.7	248.9	11,200
West Texas	246.3	246.3	246.3	246.3	10,100
Average or Index	**226.1**	**234.8**	**234.8**	**237.0**	**10,900**
			8,000-Foot Wells		
West Texas	227.6	227.6	225.9	227.6	13,200
Aggregate Average for Production Rate	**225.0**	**231.8**	**234.1**	**234.1**	**10,300**

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

Source: Energy Information Administration, Office of Oil and Gas

Table 16. Summary of Gas Lease Operating Costs and Composite Indices for One Well Producing 250 Thousand Cubic Feet per Day

Area	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
			2,000-Foot Wells		
Mid-Continent	248.9	259.6	259.6	261.7	12,300
North Louisiana	206.1	212.2	216.3	218.4	10,700
South Louisiana	208.2	214.3	218.4	220.4	10,800
Rocky Mountains	210.7	214.3	214.3	214.3	12,000
South Texas	223.4	238.3	240.4	242.6	11,400
West Texas	238.1	235.7	238.1	238.1	10,000
Average or Index	**222.9**	**229.2**	**231.3**	**233.3**	**11,200**
			4,000-Foot Wells		
Mid-Continent	239.4	247.0	245.5	247.0	16,300
North Louisiana	209.0	213.4	214.9	217.9	14,600
South Louisiana	213.4	217.9	219.4	223.9	15,000
Rocky Mountains	210.8	216.1	215.1	217.2	20,200
South Texas	216.9	232.3	230.8	232.3	15,100
West Texas	229.5	229.5	227.9	227.9	13,900
Average or Index	**218.6**	**224.3**	**224.3**	**227.1**	**15,900**
			8,000-Foot Wells		
Mid-Continent	236.8	243.4	242.5	241.5	25,600
North Louisiana	205.9	211.0	211.9	215.3	25,400
South Louisiana	208.5	212.7	214.4	216.9	25,600
Rocky Mountains	211.2	217.6	215.2	215.2	26,900
South Texas	211.3	224.3	224.3	226.1	26,000
West Texas	228.3	227.4	225.5	226.4	24,000
Average or Index	**215.7**	**221.7**	**220.9**	**222.6**	**25,600**
			12,000-Foot Wells		
Mid-Continent	230.1	236.8	235.3	236.8	31,500
Rocky Mountains	211.0	215.6	214.9	216.2	33,300
West Texas	223.0	222.2	220.7	221.5	29,900
Average or Index	**220.6**	**224.1**	**222.7**	**224.1**	**31,600**
Aggregate Average for Production Rate	**218.4**	**223.0**	**223.0**	**224.1**	**19,500**

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

Source: Energy Information Administration, Office of Oil and Gas

Table 17. Summary of Gas Lease Operating Costs and Composite Indices for One Well Producing 500 Thousand Cubic Feet per Day

Area	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
			4,000-Foot Wells		
Mid-Continent	251.7	263.3	261.7	263.3	15,800
North Louisiana	202.8	209.9	212.7	215.5	15,300
Rocky Mountains	203.2	211.6	211.6	212.6	20,200
Average or Index	**217.3**	**225.3**	**226.7**	**228.0**	**17,100**
			8,000-Foot Wells		
Mid-Continent	248.2	259.0	256.6	256.6	21,300
North Louisiana	198.1	205.8	208.7	211.5	22,000
South Louisiana	201.9	208.7	211.5	215.4	22,400
Rocky Mountains	209.5	218.1	215.2	216.2	22,700
South Texas	176.4	193.6	192.7	194.5	21,400
West Texas	231.3	230.1	227.7	227.7	18,900
Average or Index	**209.2**	**217.3**	**217.3**	**219.4**	**21,500**
			12,000-Foot Wells		
Mid-Continent	236.9	248.5	246.6	248.5	25,600
North Louisiana	194.1	200.0	203.4	208.5	24,600
South Louisiana	204.2	209.3	213.6	217.8	25,700
Rocky Mountains	208.7	215.7	215.7	217.3	27,600
South Texas	209.6	227.0	228.7	231.3	26,600
West Texas	223.8	222.9	220.0	221.0	23,200
Average or Index	**213.2**	**220.2**	**221.1**	**224.6**	**25,600**
			16,000-Foot Wells		
Mid-Continent	229.7	239.8	236.4	236.4	27,900
South Louisiana	199.2	204.5	208.3	212.9	28,100
West Texas	221.7	221.7	219.2	220.0	26,400
Average or Index	**217.1**	**222.0**	**221.1**	**223.6**	**27,500**
Aggregate Average for Production Rate	**223.2**	**231.3**	**231.3**	**233.3**	**23,100**

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

Source: Energy Information Administration, Office of Oil and Gas

Table 18. Summary of Gas Lease Operating Costs and Composite Indices for One Well Producing 1 Million Cubic Feet per Day

Area	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
			8,000-Foot Wells		
South Louisiana	202.3	209.9	211.5	215.3	28,200
South Texas	230.7	249.6	248.8	250.4	31,800
Average or Index	**216.3**	**229.5**	**230.2**	**232.6**	**30,000**
			12,000-Foot Wells		
Mid-Continent	239.8	250.4	247.4	247.4	32,900
North Louisiana	194.1	201.3	202.6	207.2	31,700
South Louisiana	204.6	211.8	213.1	217.6	33,300
Rocky Mountains	211.5	219.9	219.9	221.2	34,500
South Texas	191.9	209.4	208.7	211.4	31,500
West Texas	222.1	221.3	218.4	218.4	29,700
Average or Index	**209.5**	**217.7**	**217.0**	**219.7**	**32,300**
			16,000-Foot Wells		
Mid-Continent	233.1	243.2	239.9	240.5	35,600
North Louisiana	196.5	202.3	204.7	208.1	35,800
South Louisiana	198.3	204.1	206.4	210.5	36,200
West Texas	222.0	221.3	218.7	220.0	33,000
Average or Index	**210.6**	**216.1**	**216.1**	**218.6**	**35,200**
Aggregate Average for Production Rate	**212.2**	**219.6**	**219.6**	**222.3**	**32,900**

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

Source: Energy Information Administration, Office of Oil and Gas

Table 19. Summary of Gas Lease Operating Costs and Composite Indices for One Well Producing 5 Million Cubic Feet per Day

Area	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
			12,000-Foot Wells		
South Louisiana	195.8	203.5	204.2	209.0	30,100
South Texas	184.9	197.6	197.0	200.0	33,200
Average or Index	**190.3**	**200.6**	**200.6**	**204.5**	**31,700**
			16,000-Foot Wells		
Mid-Continent	181.6	188.8	186.7	188.3	36,900
North Louisiana	177.6	184.3	185.2	189.5	39,800
South Louisiana	177.5	183.7	185.2	189.5	39,600
West Texas	179.0	182.5	180.5	182.5	36,500
Average or Index	**178.9**	**184.8**	**184.3**	**187.3**	**38,200**
Aggregate Average for Production Rate	**181.4**	**188.8**	**188.3**	**191.5**	**36,000**

* Preliminary

Note: Reported average or aggregate average indices are indices of the average costs. They are not an average of the index values.

Source: Energy Information Administration, Office of Oil and Gas

Table 20. Summary of Gas Lease Operating Costs and Composite Indices for One Well Producing 10 Million Cubic Feet per Day

Area	Index (1976=100) 1992	1993	1994	1995	1995* Cost (dollars)
	16,000-Foot Wells				
North Louisiana.....	170.4	176.7	179.8	182.9	52,500

* Preliminary

Note: This is the only area in which a 16,000-foot well producing 10 MMcf per day is reported.

Source: Energy Information Administration, Office of Oil and Gas

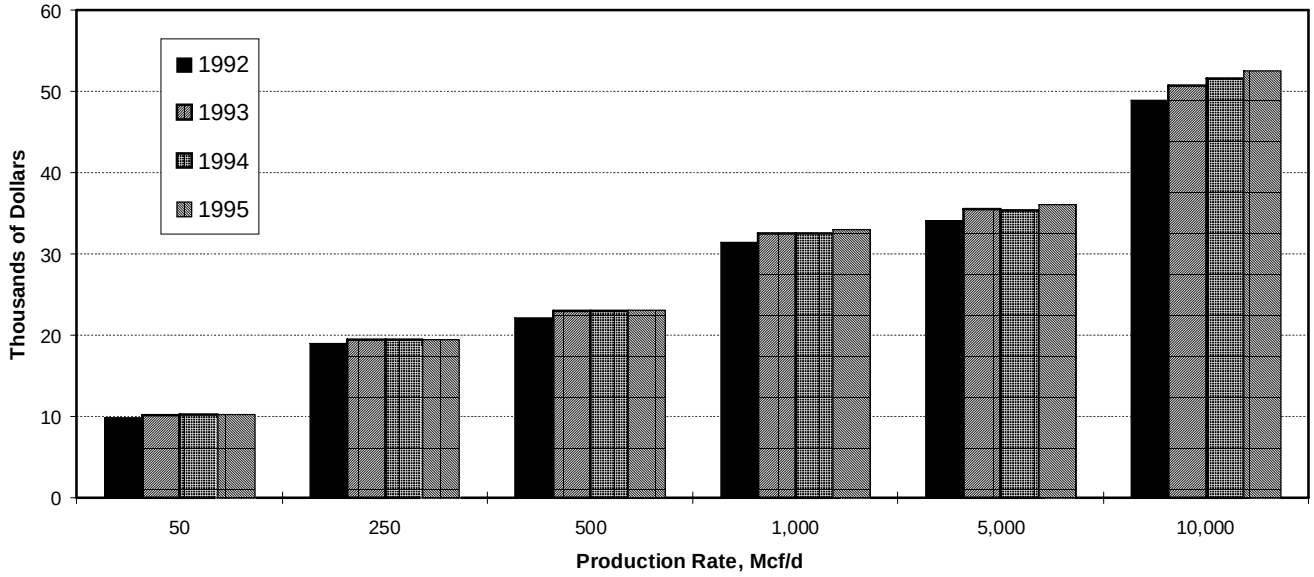
Table 21. Summary of Aggregate Average Gas Lease Operating Cost, by Well Depth (1992-95)

Well Depth (feet)	Average Cost, Dollars 1992	1993	1994	1995*
2,000.....	9,800	10,100	10,200	10,300
4,000.....	13,800	14,200	14,200	14,400
8,000.....	22,700	23,500	23,500	23,700
12,000.....	28,400	29,400	29,400	29,700
16,000.....	34,200	35,200	35,200	35,700

* Preliminary

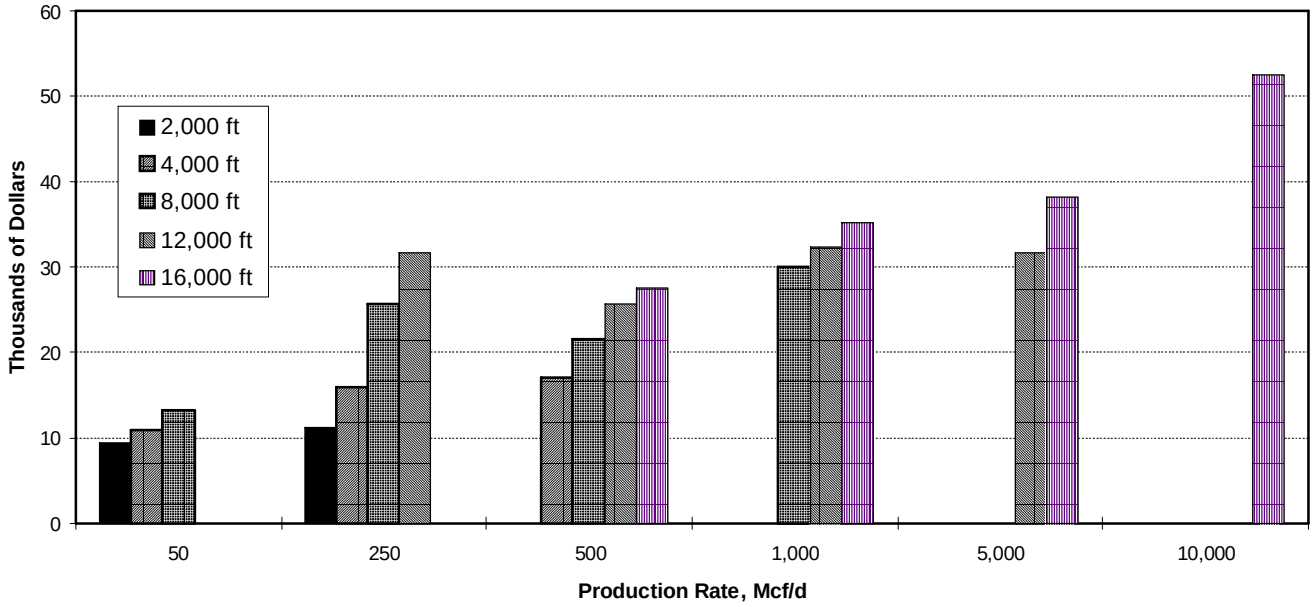
Source: Energy Information Administration, Office of Oil and Gas

Figure 16. Aggregate Average Annual Gas Well Operating Costs for a One-Well Gas Lease by Production Rate, 1992-1995



Source: Tables 14 through 19.

Figure 17. Annual Gas Well Operating Costs by Depth and Production Rate, 1995



Source: Tables 14 through 19.

4. Indexing Review

Technological and Data Changes

The uniform oil lease equipment design adopted in 1976 was the basic criterion for oil lease equipment cost estimates. Revisions have been made to stay current with engineering and competitive practices. Individual component prices were combined into one price for a group of equipment, as necessary, to assure confidentiality of prices. Appendix Tables A15 through A18 contain detailed equipment lists of representative wells in west Texas for each depth, reflecting all changes made to date.

Standardization of the data used has evolved during the past 19 years. Improved methods for measuring various contractor costs were used and applied to previous estimates. The gas lease equipment designs were made in 1980 and the equipment and operating components were priced back through 1976. There have been no recent design changes for gas equipment. A typical design is shown in Appendix Table H11, which contains a list of equipment for a 12,000-foot gas well producing 1 MMcf per day in west Texas.

Estimated preliminary costs for the prior report were revised to reflect new data. Some of these changes and factors were:

- New projections of *Joint Association Survey* (JAS) data for west Texas were made to estimate 1995 drilling costs.
- Regional wellhead gas prices for 1992-1995 are from the latest edition of the EIA Natural Gas Annual (DOE/EIA-0131 94). These 1995 prices are estimated.

Primary Oil Recovery

Leases for oil wells were assumed to consist of 10 wells producing by artificial lift into a centrally located tank battery. The depths of all wells on the leases were 2,000, 4,000, 8,000, or 12,000 feet.

Table 22. Type of Artificial Lift and Prime Mover Used for Each Depth and Region

Region	Type of Lift	Prime Mover	Type of Lift	Prime Mover
	2,000-Foot Wells		4,000-Foot Wells	
California	Rod	Motor	Rod	Motor
Oklahoma	Rod	Engine	Rod	Engine
South Louisiana	Rod	Engine	Gas	Engine
South Texas	Rod	Engine	Gas	Engine
West Texas	Rod	Engine	Rod	Engine
Rocky Mountains	Rod	Motor	Rod	Motor
	8,000-Foot Wells		12,000-Foot Wells	
California	Hydraulic	Motor	Hydraulic	Motor
Oklahoma	Hydraulic	Engine	Hydraulic	Engine
South Louisiana	Gas	Engine	Hydraulic	Engine
South Texas	Gas	Engine	Hydraulic	Engine
West Texas	Rod	Engine	Hydraulic	Engine
Rocky Mountains	Rod	Motor	Hydraulic	Motor

Source: Energy Information Administration, Office of Oil and Gas.

Costs were determined for new equipment capable of producing 200 barrels of liquid per day per well foronshore primary operations. Tubing costs were included for information only. Note that care must be exercised when combining these equipment costs with drilling costs to obtain total lease development and equipment costs, because most drilling cost estimates include tubing costs. The artificial lift selected was dependent upon the type of lift found to be dominant for each depth in each region. The two types of prime movers considered were electric motors and natural gas engines. Table 22 details the type of lift and prime mover used in each region and depth.Annual operating costs were estimated for daily production rates of 100 barrels of liquid per day per well for each depth in each region of operation.

Secondary Oil Recovery

Costs for secondary oil recovery in west Texas were calculated for wells producing from depths of 2,000, 4,000, and 8,000 feet. Each lease had 10 producing wells, 11 injection wells, and 1 disposal well. Additional costs included those for water supply wells, water storage tanks, injection plant, filtering systems, and injection lines. Equipment was designed to handle 350 barrels of liquid per day per producing well. Gas engines used in primary operations were replaced by electric motors for secondary oil recovery. Some equipment for primary oil production was replaced with larger equipment to accommodate the increased liquid volumes assumed for secondary recovery production. Increases in operational costs for secondary oil recovery are indicated for the increased liquid lift of 290 barrels of liquid per day per producing well and the water injection system. Additional equipment costs are presented in Appendix Tables A9, A10, and A11, and direct annual operating costs are presented in Tables A12, A13, and A14.

Offshore Gas and Primary Oil Recovery

Equipment and operating costs for the offshore Gulf of Mexico were estimated for 12- and 18-slot platforms containing one dually completed well in each slot. Maximum crude oil production was assumed to total 11,000 barrels of oil per day from wells on each platform. Maximum associated gas production was assumed to be 40 MMcf cubic feet of gas per day per platform. Note that the balance between gas and oil is weighted more heavily toward gas in offshore operations than in onshore leases. Operating costs were derived for platforms assumed to be 50, 100, and 125 miles from shore corresponding to water depths of 100, 300, and 600 feet, respectively. Meals, platform maintenance, helicopter and boat transportation of personnel and supplies, communication costs, insurance costs for platform and production equipment and administrative expenses are included in normal production toward gas in offshore operations than in onshore leases. Operating costs were derived for platforms assumed to be 50, 100, and 125 miles from shore corresponding to water depths of 100, 300, and 600 feet, respectively. Meals, platform maintenance, helicopter and boat transportation of personnel and supplies, communication costs, insurance costs for platform and production equipment and administrative expenses are included in normal production
expenses. Crude oil and natural gas transportation costs to shore were excluded, as were water disposal costs.

Gas Recovery

Leases for gas wells were assumed to consist of one well producing into an onsite separator with two storage tanks (a lease condensate sales tank and a water storage tank). Line heaters, dehydration units, and methanol injectors were included where needed. It was assumed that any compression or gas treatment would be provided by the first purchaser. The cost data presented were based on the installation of new equipment and included items needed from the wellhead to the inlet on the meter run for the gas stream and through the tank for the liquid streams. Downhole tubing costs were not included, nor were equipment for disposal of produced water above nominal amounts of water entrained in the gas stream. Gas production rates of 50, 250, 500, 1,000, 5,000, and 10,000 Mcf of gas per day and well depths of 2,000, 4,000, 8,000, 12,000, and 16,000 feet were the assumed volume and depth divisions for the cost determinations. These volumes were selected because of different processing equipment requirements for each of these flow rates. Production records were used to determine the average production rate for each depth in each region. The equipment and operating costs for each of these average production rates were then calculated. For a broader view of each flow rate in each region at each depth, the equipment and operating costs of the next higher and/or lower rates are shown. Costs were calculated for equipping gas wells at producing rates of 50 Mcf per day even though a new well coming onstream at this rate may never reach payout. This low rate of flow was selected to identify costs of production from stripper gas wells. Flow rates above 10 MMcf per day usually require custom design of equipment and are not priced in this report.

The depths of 2,000, 4,000, 8,000, and 12,000 feet were chosen to be compatible with data provided for oil production. An additional depth of 16,000 feet was added for gas equipment and operations because there was significant gas production from this depth in some regions studied.

Section I

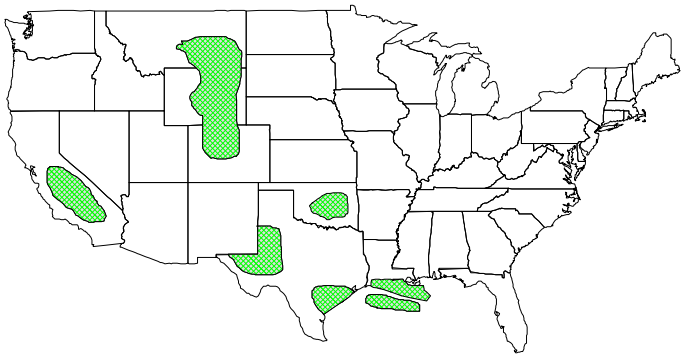
Appendices A Through G

Costs and Indices for Domestic Oil Field Equipment and Production Operations

Appendices A Through G

Costs and Indices for Domestic Oil Field Equipment and Production Operations

Figure 1. Geographical Regions for Oil Producing Leases



Source: Energy Information Administration, Office of Oil and Gas.

A detailed breakdown of costs and cost indices for 1992 through 1995 is shown in each of the oil lease appendix tables. These tables include both lease equipment costs and direct annual operating costs with their appropriate index numbers. Appendices A through G present the costs and indices for each region and type of operation for oil production.

The tables are arranged by region with each region identified by an alpha character. For example, Tables A1 through A18 are for west Texas. Tables A1 through A4 contain equipment costs and indices for primary production for four depths, beginning with the shallowest depth. Tables A5 through A8 are the annual operating costs and indices by depth for primary operations. Tables A9, A10, and A11 present additional equipment costs required for secondary operations for three depths.

Tables A12, A13, and A14 contain annual operating costs by depth for secondary production. Tables A15 through A18 are sample detailed equipment listings by depth for the region.

The remaining Tables containing costs and indices for oil leases by region are arranged in similar order. They are: Appendix B--south Texas, Appendix C--south Louisiana, Appendix D--Oklahoma, Appendix E--Wyoming, Appendix F--California, and Appendix G--Gulf of Mexico.

Notes: • 1995 data are preliminary and are marked with a single asterisk (*). • All prior data were revised. • Indices marked with a double asterisk (**) are composite indices. • Other indices are pure cost. • Entries with (***) are estimated from *Joint Association Survey on Drilling Costs* data.

Table A1. Lease Equipment Costs and Indices for Primary Oil Production in West Texas (10 Wells Producing from 2,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	108.9	110.1	110.9	155.0	55,500
Rods	107.9	107.9	122.0	122.0	23,300
Pumps	131.0	133.3	147.6	152.4	12,800
Pumping Equipment	161.9	171.3	175.9	188.1	246,000
Subtotal or Index**	**145.4**	**152.1**	**157.4**	**173.9**	**337,600**
Gathering System:					
Flowlines	251.0	248.3	252.4	256.6	37,200
Manifold	262.1	260.6	263.6	266.7	35,200
Subtotal or Index**	**256.3**	**254.2**	**257.8**	**261.4**	**72,400**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	152.3	153.5	136.8	145.8	22,600
Storage Tanks	188.4	190.2	193.2	198.2	66,600
Accessory Equipment	206.8	210.9	212.9	220.4	32,400
Disposal System	186.5	190.8	189.9	193.5	80,300
LACT Unit	169.9	174.2	174.2	171.0	15,900
Subtotal or Index**	**183.3**	**186.4**	**185.0**	**189.1**	**247,900**
Total or Index**	**168.2**	**172.9**	**175.5**	**186.4**	**657,900**

Table A2. Lease Equipment Costs and Indices for Primary Oil Production in West Texas (10 Wells Producing from 4,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	107.4	108.7	109.2	152.9	111,000
Rods	101.5	101.5	113.3	113.6	44,400
Pumps	132.9	136.6	134.1	154.9	12,700
Pumping Equipment	146.3	155.7	158.4	177.6	398,200
Subtotal or Index**	**132.7**	**139.2**	**142.3**	**164.6**	**566,300**
Gathering System:					
Flowlines	239.4	236.7	240.4	244.1	45,900
Manifold	262.1	260.6	263.6	266.7	35,200
Subtotal or Index**	**248.8**	**246.6**	**250.0**	**253.4**	**81,100**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	152.3	153.5	136.8	145.8	22,600
Storage Tanks	188.4	190.2	193.2	198.2	66,600
Accessory Equipment	206.8	210.9	212.9	220.4	32,400
Disposal System	185.7	190.4	189.5	193.0	82,600
LACT Unit	169.9	174.2	174.2	171.0	15,900
Subtotal or Index**	**183.1**	**186.3**	**185.0**	**189.0**	**250,200**
Total or Index**	**153.1**	**158.2**	**160.2**	**176.5**	**897,600**

Table A3. Lease Equipment Costs and Indices for Primary Oil Production in West Texas (10 Wells Producing from 8,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	110.5	109.3	111.5	147.6	276,500
Rods	89.7	89.8	100.1	100.1	100,000
Pumps	136.7	136.7	157.8	172.2	15,500
Pumping Equipment	154.3	165.7	173.0	190.2	808,300
Subtotal or Index	**133.8**	**140.2**	**146.7**	**166.5**	**1,200,300**
Gathering System:					
Flowlines	228.2	225.1	228.6	232.4	60,200
Manifold	262.1	260.6	263.6	266.7	35,200
Subtotal or Index	**239.6**	**237.1**	**240.4**	**244.0**	**95,400**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	152.3	153.5	136.8	145.8	22,600
Storage Tanks	188.4	190.2	193.2	198.2	66,600
Accessory Equipment	206.8	210.9	212.9	220.4	32,400
Disposal System	199.2	204.6	203.5	207.5	77,400
LACT Unit	169.9	174.2	174.2	171.0	15,900
Subtotal or Index	**186.9**	**190.3**	**188.9**	**193.1**	**245,000**
Total or Index	**146.0**	**151.6**	**156.9**	**173.7**	**1,540,700**

Table A4. Lease Equipment Costs and Indices for Primary Oil Production in West Texas (10 Wells Producing from 12,000 Feet by Hydraulic Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	206.5	162.6	136.6	144.1	736,000
Pumps	153.4	153.4	250.5	261.7	196,000
Pumping Equipment	192.7	189.8	171.7	176.5	313,900
Subtotal or Index	**198.1**	**168.1**	**155.9**	**163.2**	**1,245,900**
Gathering System:					
Flowlines	248.0	213.6	190.3	192.9	174,800
Manifold	262.1	260.6	263.6	266.7	35,200
Subtotal or Index	**249.8**	**219.6**	**199.6**	**202.3**	**210,000**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	152.3	153.5	136.8	145.8	22,600
Storage Tanks	188.4	190.2	193.2	198.2	66,600
Accessory Equipment	206.8	210.9	212.9	220.4	32,400
Disposal System	199.2	204.6	203.5	207.5	77,400
LACT Unit	169.9	174.2	174.2	171.0	15,900
Subtotal or Index	**186.9**	**190.3**	**188.9**	**193.1**	**245,000**
Total or Index	**202.0**	**176.3**	**164.7**	**171.1**	**1,700,900**

Table A5. Direct Annual Operating Costs and Indices for Primary Oil Production in West Texas (10 Wells Producing from 2,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	305.0	315.0	315.0	325.0	19,500
Labor (pumper)	263.5	255.4	255.4	255.4	18,900
Auto Usage	257.7	257.7	261.5	273.1	7,100
Chemicals	203.7	203.7	203.7	203.7	5,500
Fuel, Power & Water	233.3	270.8	266.7	244.4	17,600
Operative Supplies	233.3	233.3	233.3	233.3	1,400
Subtotal or Index**	**257.4**	**267.5**	**266.8**	**264.2**	**70,000**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	237.9	231.0	231.0	231.0	6,700
Supplies & Services	234.4	231.3	228.1	231.3	7,400
Equipment Usage	246.2	253.8	253.8	253.8	3,300
Other	180.0	180.0	173.3	173.3	2,600
Subtotal or Index**	**228.1**	**225.8**	**223.6**	**224.7**	**20,000**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	217.9	217.9	215.4	215.4	8,400
Remedial Services	131.3	137.5	137.5	137.5	2,200
Equipment Repair	128.9	131.1	144.4	151.1	6,800
Other	150.0	150.0	200.0	200.0	400
Subtotal or Index**	**163.7**	**165.7**	**171.6**	**174.5**	**17,800**
Total or Index**	**230.7**	**236.6**	**237.1**	**236.4**	**107,800**

Table A6. Direct Annual Operating Costs and Indices for Primary Oil Production in West Texas (10 Wells Producing from 4,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	302.9	314.7	314.7	323.5	22,000
Labor (pumper)	263.5	255.4	255.4	255.4	18,900
Auto Usage	257.7	257.7	261.5	273.1	7,100
Chemicals	218.5	218.5	218.5	218.5	5,900
Fuel, Power & Water	236.4	276.1	265.9	243.2	21,400
Operative Supplies	250.0	250.0	250.0	250.0	1,500
Subtotal or Index**	**259.5**	**272.3**	**269.6**	**265.7**	**76,800**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	237.9	231.0	231.0	231.0	6,700
Supplies & Services	235.3	232.4	232.4	232.4	7,900
Equipment Usage	253.8	261.5	261.5	261.5	3,400
Other	187.5	187.5	183.3	183.3	4,400
Subtotal or Index**	**227.0**	**225.0**	**224.0**	**224.0**	**22,400**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	215.2	215.2	212.1	212.1	14,000
Remedial Services	156.5	160.9	160.9	160.9	3,700
Equipment Repair	124.5	126.5	128.6	149.0	7,300
Other	166.7	166.7	166.7	166.7	500
Subtotal or Index**	**173.0**	**174.5**	**173.8**	**180.9**	**25,500**
Total or Index**	**230.4**	**237.4**	**235.5**	**235.3**	**124,700**

Table A7. Direct Annual Operating Costs and Indices for Primary Oil Production in West Texas (10 Wells Producing from 8,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	306.3	317.7	317.7	326.6	25,800
Labor (pumper)	263.5	255.4	255.4	255.4	18,900
Auto Usage	257.7	257.7	261.5	273.1	7,100
Chemicals	200.0	200.0	200.0	196.6	5,700
Fuel, Power & Water	239.8	281.3	264.1	239.8	30,700
Operative Supplies	228.6	228.6	228.6	228.6	1,600
Subtotal or Index**	**258.0**	**274.3**	**268.2**	**261.8**	**89,800**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	237.9	231.0	231.0	231.0	6,700
Supplies & Services	230.8	228.2	228.2	228.2	8,900
Equipment Usage	213.3	220.0	220.0	220.0	3,300
Other	180.0	180.0	176.7	176.7	5,300
Subtotal or Index**	**216.8**	**215.0**	**214.2**	**214.2**	**24,200**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	236.8	236.8	234.7	234.7	33,800
Remedial Services	190.0	190.0	185.7	187.1	13,100
Equipment Repair	148.3	146.7	163.3	183.3	11,000
Other	166.7	166.7	166.7	177.8	1,600
Subtotal or Index**	**204.2**	**203.9**	**205.3**	**210.2**	**59,500**
Total or Index**	**231.1**	**238.3**	**235.9**	**234.8**	**173,500**

Table A8. Direct Annual Operating Costs and Indices for Primary Oil Production in West Texas (10 Wells Producing from 12,000 Feet by Hydraulic Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	307.1	319.4	318.4	327.6	32,100
Labor (pumper)	263.5	255.4	255.4	255.4	18,900
Auto Usage	257.7	257.7	261.5	273.1	7,100
Chemicals	190.9	190.9	190.9	190.9	6,300
Fuel, Power & Water	240.3	283.0	261.4	236.4	41,600
Operative Supplies	290.0	300.0	290.0	290.0	2,900
Subtotal or Index**	**258.5**	**278.2**	**268.8**	**261.2**	**108,900**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	237.9	231.0	231.0	231.0	6,700
Supplies & Services	221.8	227.7	222.8	223.8	22,600
Equipment Usage	213.3	220.0	220.0	220.0	3,300
Other	216.7	216.7	216.7	216.7	1,300
Subtotal or Index**	**223.8**	**227.2**	**223.8**	**224.5**	**33,900**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	206.1	206.1	198.5	198.5	13,100
Remedial Services	195.8	196.6	192.4	195.0	23,200
Equipment Repair	249.7	250.3	403.9	421.8	75,500
Other	166.7	166.7	175.0	175.0	2,100
Subtotal or Index**	**222.3**	**222.9**	**293.6**	**302.9**	**113,900**
Total or Index**	**238.6**	**248.0**	**271.5**	**271.9**	**256,700**

Table A9. Additional Lease Equipment Costs and Indices for Secondary Oil Production in West Texas (10 Wells Producing from 2,000 Feet by Rod Lift and 11 Water Injection Wells)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Injection Equipment:					
Supply Wells	170.3	163.9	175.0	179.6	131,300
Plant	291.4	296.7	290.2	299.4	100,900
Distribution Lines	169.7	183.4	180.6	178.4	75,300
Header	254.1	253.6	258.5	263.8	54,600
Electrical Service	328.3	328.7	327.2	330.6	87,600
Subtotal or Index**	**221.2**	**222.6**	**225.3**	**229.2**	**449,700**
Producing Equipment:					
Tubing Replacement	120.2	121.4	120.4	143.1	56,100
Rods & Pumps	110.1	110.7	119.8	121.1	38,500
Pumping Equipment	258.2	274.5	281.6	335.7	32,900
Subtotal or Index**	**132.9**	**135.8**	**139.7**	**157.8**	**127,500**
Injection Wells:***					
Subtotal or Index**	**147.1**	**143.3**	**138.3**	**137.0**	**725,600**
Total or Index**	**216.3**	**213.8**	**210.9**	**213.4**	**1,302,800**

Table A10. Additional Lease Equipment Costs and Indices for Secondary Oil Production in West Texas (10 Wells Producing from 4,000 Feet by Rod Lift and 11 Water Injection Wells)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Injection Equipment:					
Supply Wells	168.7	162.1	173.2	177.8	130,000
Plant	287.3	292.9	286.4	295.6	99,900
Distribution Lines	170.1	183.9	180.6	178.4	75,300
Header	254.1	253.6	258.5	263.8	54,600
Electrical Service	238.9	239.1	238.0	240.5	88,500
Subtotal or Index**	**209.4**	**210.8**	**213.3**	**217.0**	**448,300**
Producing Equipment:					
Tubing Replacement	116.4	117.6	117.2	158.7	121,100
Rods & Pumps	103.6	104.0	112.9	113.9	59,900
Pumping Equipment	135.5	141.0	141.4	162.5	326,100
Subtotal or Index**	**126.0**	**129.6**	**131.2**	**153.9**	**507,100**
Injection Wells:***					
Subtotal or Index**	**153.3**	**157.1**	**152.8**	**151.3**	**1,717,600**
Total or Index**	**154.8**	**158.3**	**156.0**	**159.9**	**2,673,000**

Table A11. Additional Lease Equipment Costs and Indices for Secondary Oil Production in West Texas (10 Wells Producing from 8,000 Feet by Rod Lift and 11 Water Injection Wells)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Injection Equipment:					
Supply Wells	169.1	161.2	174.0	178.6	231,800
Plant	301.7	307.4	302.4	311.8	205,800
Distribution Lines	170.5	184.4	181.1	178.9	113,400
Header	234.1	233.0	237.5	241.9	64,600
Electrical Service	255.1	254.8	252.5	253.5	135,600
Subtotal or Index**	**213.8**	**214.4**	**217.6**	**221.3**	**751,200**
Producing Equipment:					
Tubing Replacement	115.7	114.6	116.1	151.1	291,600
Rods & Pumps	93.0	93.0	102.3	101.5	120,300
Pumping Equipment	135.5	142.6	143.1	161.6	607,800
Subtotal or Index**	**122.6**	**126.2**	**128.5**	**148.3**	**1,019,700**
Injection Wells:***					
Subtotal or Index**	**133.3**	**127.4**	**118.3**	**117.1**	**3,490,400**
Total or Index**	**138.3**	**134.6**	**128.4**	**131.3**	**5,261,300**

Table A12. Direct Annual Operating Costs and Indices for Secondary Oil Production in West Texas (10 Wells Producing from 2,000 Feet by Rod Lift and 11 Water Injection Wells)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	309.0	317.2	318.6	329.0	47,700
Labor (pumper)	304.2	295.0	295.0	295.0	35,400
Chemicals	202.9	202.9	202.9	200.0	7,000
Fuel, Power & Water	212.6	216.6	259.9	257.0	77,600
Operative Supplies	280.0	266.7	273.3	273.3	4,100
Subtotal or Index**	**254.1**	**255.9**	**277.6**	**278.4**	**171,800**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	239.1	231.9	231.9	231.9	16,000
Supplies & Services	227.3	221.8	227.3	228.2	25,100
Equipment Usage	278.3	282.6	282.6	282.6	6,500
Other	193.3	193.3	186.7	186.7	2,800
Subtotal or Index**	**234.1**	**229.5**	**231.8**	**232.3**	**50,400**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	227.3	227.3	222.4	222.4	31,800
Remedial Services	178.0	180.5	178.0	180.5	7,400
Equipment Repair	139.6	139.6	137.7	137.7	7,300
Other	182.9	188.6	191.4	194.3	6,800
Subtotal or Index**	**197.1**	**198.2**	**195.2**	**196.0**	**53,300**
Total or Index**	**236.2**	**236.5**	**248.4**	**249.1**	**275,500**

Table A13. Direct Annual Operating Costs and Indices for Secondary Oil Production in West Texas (10 Wells Producing from 4,000 Feet by Rod Lift and 11 Water Injection Wells)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	309.0	317.2	318.6	329.0	47,700
Labor (pumper)	303.9	295.0	295.0	295.0	53,100
Chemicals	209.4	209.4	209.4	209.4	6,700
Fuel, Power & Water	212.6	215.5	255.5	253.1	94,400
Operative Supplies	250.0	242.3	250.0	250.0	6,500
Subtotal or Index**	**314.2**	**315.1**	**340.1**	**341.1**	**208,400**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	241.2	234.2	234.2	234.2	26,700
Supplies & Services	220.5	214.6	221.1	222.2	38,000
Equipment Usage	308.7	313.0	313.0	313.0	14,400
Other	200.0	200.0	191.7	191.7	2,300
Subtotal or Index**	**238.5**	**233.8**	**236.7**	**237.3**	**81,400**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	222.2	222.2	217.9	217.9	45,100
Remedial Services	189.7	191.2	188.2	191.2	13,000
Equipment Repair	133.3	133.3	131.0	131.0	11,000
Other	177.6	181.6	185.7	189.8	9,300
Subtotal or Index**	**193.1**	**193.9**	**191.2**	**192.2**	**78,400**
Total or Index**	**258.9**	**258.3**	**269.5**	**270.3**	**368,200**

Table A14. Direct Annual Operating Costs and Indices for Secondary Oil Production in West Texas (10 Wells Producing from 8,000 Feet by Rod Lift and 11 Water Injection Wells)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	305.3	316.6	316.0	324.9	54,900
Labor (pumper)	303.9	295.0	295.0	295.0	53,100
Chemicals	209.4	209.4	209.4	209.4	6,700
Fuel, Power & Water	230.3	231.7	282.3	280.9	180,600
Operative Supplies	253.8	246.2	250.0	250.0	6,500
Subtotal or Index**	**303.9**	**305.0**	**341.9**	**342.6**	**301,800**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	241.2	234.2	234.2	234.2	26,700
Supplies & Services	230.5	223.4	230.5	230.5	38,500
Equipment Usage	264.0	270.8	270.8	270.8	24,100
Other	190.0	190.0	180.0	180.0	1,800
Subtotal or Index**	**240.5**	**236.8**	**239.7**	**239.7**	**91,100**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	215.5	215.5	211.8	211.8	86,000
Remedial Services	246.3	246.3	240.3	242.5	32,500
Equipment Repair	120.9	120.9	119.4	119.4	16,600
Other	173.3	177.3	181.3	185.3	13,900
Subtotal or Index**	**199.3**	**199.7**	**196.8**	**197.6**	**149,000**
Total or Index**	**252.8**	**252.8**	**268.3**	**268.9**	**541,900**

Table A15. Detailed Lease Equipment List for 2,000-Foot Wells in West Texas (10 Producing Wells)

Tubing (20,000 feet)

Size: 2-3/8 inches
Weight: 4.7 pounds per foot
Grade: H-40

Sucker Rods (20,000 feet)

Size: 5/8 inches
API class: K

Rod Pump (10)

API type: TH
Size: 2 by 1-3/4 inches by 9 feet

Pumping Unit (10)

API size: C57D-76-54
Engine: 9 horsepower single cylinder

Oil Flowline (11,500 feet)

Size: 2-3/8 inches
Material: polyvinyl chloride 1120
Weight: 0.43 pounds per foot
Pressure rating: 160 pounds per square inch

Manifold (1)

Valves: 2-inch, 3-way, 2-position, electric operated (10)

Production Separator (1)

Type: vertical
Size: 30 inches by 10 feet
Capacity: 2,700 barrels of fluid per day and 5.7 million cubic feet of gas per day

Vapor Recovery Unit (1)

Capacity: 40 thousand cubic feet of gas per day

Test Separator (1)

Type: vertical
Size: 24 inches by 7-1/2 feet
Capacity: 1.290 barrels of fluid per day
Working pressure: 125 pounds per square inch
Net oil computer: Electronic

Heater Treater (1)

Working pressure: 50 pounds per square inch
Size: 4 feet by 27-1/2 feet

Oil Storage Tanks (2)

Storage capacity: 2,000 barrels
Type: 10-gauge, bolted steel
Construction: gas tight
Size: 30 feet by 16 feet

Water Disposal Pump (1)

Type: Quintuplex
Plungers: 1-1/2 inches
Working pressure: 1,000 pounds per square inch
Electric motor: 20 horsepower

Water Disposal Line (2,000 feet)

Size: 2-3/8 inches
Weight: 3.75 pounds per foot
Grade: B
Mill test: 2,500 pounds per square inch

LACT Unit (1)

Capacity: 2,000 barrels per day
Working pressure: 125 pounds per square inch

Source: Energy Information Administration, Office of Oil and Gas.

Table A16. Detailed Lease Equipment List for 4,000-Foot Wells in West Texas (10 Producing Wells)

Tubing (40,000 feet)

Size: 2-3/8 inches
Weight: 4.7 pounds per foot
Grade: J-55

Sucker Rods (20,000 feet)

Size: 5/8 inches (24,000 feet)
Size: 3/4 inches (16,000 feet)
API class: K

Rod Pump (10)

API type: RWBC
Size: 2 by 1-1/2 inches by 9 feet

Pumping Unit (10)

API size: M160D-173-74
Engine: 12 horsepower single cylinder

Oil Flowline (16,000 feet)

Size: 2-3/8 inches
Material: polyvinyl chloride 1120
Weight: 0.43 pounds per foot
Pressure rating: 160 pounds per square inch

Manifold (1)

Valves: 2-inch, 3-way, 2-position, electric operated (10)

Production Separator (1)

Type: vertical
Size: 30 inches by 10 feet
Capacity: 2,700 barrels of fluid per day and 5.7 million cubic feet of gas per day

Vapor Recovery Unit (1)

Capacity: 40 thousand cubic feet of gas per day

Test Separator (1)

Type: vertical
Size: 24 inches by 7-1/2 feet
Capacity: 1.290 barrels of fluid per day
Working pressure: 125 pounds per square inch
Net oil computer: Electronic

Heater Treater (1)

Working pressure: 50 pounds per square inch
Size: 4 feet by 27-1/2 feet

Oil Storage Tanks (2)

Storage capacity: 2,000 barrels
Type: 10-gauge, bolted steel
Construction: gas tight
Size: 30 feet by 16 feet

Water Disposal Pump (1)

Type: Quintuplex
Plungers: 1-1/2 inches
Working pressure: 1,000 pounds per square inch
Electric motor: 20 horsepower

Water Disposal Line (2,000 feet)

Size: 2-3/8 inches
Weight: 3.75 pounds per foot
Grade: B
Mill test: 2,500 pounds per square inch

LACT Unit (1)

Capacity: 2,000 barrels per day
Working pressure: 125 pounds per square inch

Source: Energy Information Administration, Office of Oil and Gas.

Table A17. Detailed Lease Equipment List for 8,000-Foot Wells in West Texas (10 Producing Wells)

Tubing (80,000 feet)

Size: 2-7/8 inches
Weight: 6.5 pounds per foot
Grade: J-55

Sucker Rods (80,000 feet)

Size: 1 inch (15,250 feet)
Size: 7/8 inches (17,500 feet)
Size: 3/4 inches (47,250 feet)
API class: K

Rod Pump (10)

API type: RWBC
Size: 2-1/2 by 1-1/4 inches by 20 feet

Pumping Unit (10)

API size: M456D-305-144
Engine: 32 horsepower single cylinder

Oil Flowline (23,200 feet)

Size: 2-3/8 inches
Material: polyvinyl chloride 1120
Weight: 0.43 pounds per foot
Pressure rating: 160 pounds per square inch

Manifold (1)

Valves: 2-inch, 3-way, 2-position, electric operated (10)

Production Separator (1)

Type: vertical
Size: 30 inches by 10 feet
Capacity: 2,700 barrels of fluid per day and 5.7 million cubic feet of gas per day

Vapor Recovery Unit (1)

Capacity: 40 thousand cubic feet of gas per day

Test Separator (1)

Type: vertical
Size: 24 inches by 7-1/2 feet
Capacity: 1.290 barrels of fluid per day
Working pressure: 125 pounds per square inch
Net oil computer: Electronic

Heater Treater (1)

Working pressure: 50 pounds per square inch
Size: 4 feet by 27-1/2 feet

Oil Storage Tanks (2)

Storage capacity: 2,000 barrels
Type: 10-gauge, bolted steel
Construction: gas tight
Size: 30 feet by 16 feet

Water Disposal Pump (1)

Type: Quintuplex
Plungers: 1-1/2 inches
Working pressure: 1,000 pounds per square inch
Electric motor: 20 horsepower

Water Disposal Line (3,400 feet)

Size: 2-3/8 inches
Weight: 3.75 pounds per foot
Grade: B
Mill test: 2,500 pounds per square inch

LACT Unit (1)

Capacity: 2,000 barrels per day
Working pressure: 125 pounds per square inch

Source: Energy Information Administration, Office of Oil and Gas.

Table A18. Detailed Lease Equipment List for 12,000-Foot Wells in West Texas (10 Producing Wells)

Tubing (240,000 feet)

Size: 2-7/8 inches (120,000 feet)
Weight: 6.5 pounds per foot
Grade: N-80
Size: 1.66 inches (120,000 feet)
Weight: 2.4 pounds per foot
Grade: J-55

Hydraulic Bottom Hole Pump (10)

Size: 2 by 1-3/8 by 1-3/16 inches

Surface Pumping Equipment (4)

Type: Triplex
Engine: 6-cylinder, 100 horsepower

Power Oil Flowlines (23,200 feet)

Size: 1-1/2 inches
Grade: J-55

Power Oil Tank (1)

Storage capacity: 750 barrels
Type: 10-gauge, bolted steel
Construction: gas tight
Size: 15-1/2 feet by 24 feet

Oil Flowlines (23,200 feet)

Size: 2-3/8 inches
Material: polyvinyl chloride 1120
Weight: 0.43 pounds per foot
Pressure rating: 160 pounds per square inch

Manifold (1)

Valves: 2-inch, 3-way, 2-position, electric operated (10)

Production Separator (1)

Type: vertical
Size: 30 inches by 10 feet
Capacity: 2,700 barrels of fluid per day and 5.7 million cubic feet of gas per day

Test Separator (1)

Type: vertical
Size: 24 inches by 7-1/2 feet
Capacity: 1.290 barrels of fluid per day
Working pressure: 125 pounds per square inch
Net oil computer: Electronic

Heater Treater (1)

Working pressure: 50 pounds per square inch
Size: 4 feet by 27-1/2 feet

Oil Storage Tanks (2)

Storage capacity: 2,000 barrels
Type: 10-gauge, bolted steel
Construction: gas tight
Size: 30 feet by 16 feet

Water Disposal Pump (1)

Type: Quintuplex
Plungers: 1-1/2 inches
Working pressure: 1,000 pounds per square inch
Electric motor: 20 horsepower

Water Disposal Line (2,000 feet)

Size: 2-3/8 inches
Weight: 3.75 pounds per foot
Grade: B
Mill test: 2,500 pounds per square inch

LACT Unit (1)

Capacity: 2,000 barrels per day
Working pressure: 125 pounds per square inch

Vapor Recovery Unit (1)

Capacity: 40 thousand cubic feet of gas per day

Source: Energy Information Administration, Office of Oil and Gas.

Table B1. Lease Equipment Costs and Indices for Primary Oil Production in South Texas (10 Wells Producing from 2,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	109.2	110.6	111.2	155.5	55,500
Rods	101.0	102.0	118.9	122.4	24,600
Pumps	131.0	133.3	147.6	152.4	12,800
Pumping Equipment	162.2	172.6	177.3	189.4	247,200
Subtotal or Index**	**144.8**	**152.3**	**157.9**	**174.7**	**340,100**
Gathering System:					
Flowlines	284.6	305.4	309.4	313.4	46,700
Manifold	261.2	260.4	263.4	266.4	35,700
Subtotal or Index**	**273.5**	**284.1**	**287.6**	**291.2**	**82,400**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	152.3	153.5	136.8	145.8	22,600
Storage Tanks	190.1	195.8	198.8	203.9	68,300
Accessory Equipment	206.8	214.3	216.3	223.8	32,900
Disposal System	183.2	191.8	192.3	196.7	84,400
LACT Unit	169.9	174.2	174.2	171.0	15,900
Subtotal or Index**	**182.7**	**188.6**	**187.7**	**192.0**	**254,200**
Total or Index**	**269.6**	**281.0**	**285.8**	**303.5**	**676,700**

Table B2. Lease Equipment Costs and Indices for Primary Oil Production in South Texas (10 Wells Producing from 4,000 Feet by Gas Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	105.7	106.9	107.5	151.1	109,400
Valves and Mandrels	342.7	349.8	390.1	394.5	99,800
Pumping Equipment	160.1	162.9	163.9	169.9	177,400
Subtotal or Index**	**163.4**	**166.3**	**172.0**	**191.3**	**386,600**
Gathering System:					
Flowlines	160.4	168.8	184.1	186.0	160,500
Manifold	261.2	260.4	263.4	266.4	35,700
Subtotal or Index**	**173.9**	**181.1**	**194.8**	**196.8**	**196,200**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	152.3	153.5	136.8	145.8	22,600
Storage Tanks	190.1	195.8	198.8	203.9	68,300
Accessory Equipment	206.8	214.3	216.3	223.8	32,900
Disposal System	182.6	191.9	192.1	196.4	87,000
LACT Unit	169.9	174.2	174.2	171.0	15,900
Subtotal or Index**	**182.5**	**188.6**	**187.7**	**191.9**	**256,800**
Total or Index**	**171.7**	**176.5**	**182.0**	**192.7**	**839,600**

Table B3. Lease Equipment Costs and Indices for Primary Oil Production in South Texas (10 Wells Producing from 8,000 Feet by Gas Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	105.8	107.1	107.6	151.4	218,900
Valves and Mandrels	342.9	350.0	390.4	394.9	139,800
Pumping Equipment	158.4	161.2	162.2	168.2	177,400
Subtotal or Index	**154.6**	**157.2**	**162.8**	**187.8**	**536,100**
Gathering System:					
Flowlines	156.4	164.8	180.2	182.6	247,200
Manifold	261.2	260.4	263.4	266.4	35,700
Subtotal or Index	**165.9**	**173.5**	**187.7**	**190.1**	**282,900**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	152.3	153.5	136.8	145.8	22,600
Storage Tanks	190.1	195.8	198.8	203.9	68,300
Accessory Equipment	206.8	214.3	216.3	223.8	32,900
Disposal System	183.1	190.2	191.2	195.6	80,000
LACT Unit	169.9	174.2	174.2	171.0	15,900
Subtotal or Index	**182.7**	**188.0**	**187.3**	**191.6**	**249,800**
Total or Index	**164.1**	**168.6**	**175.0**	**189.3**	**1,068,800**

Table B4. Lease Equipment Costs and Indices for Primary Oil Production in South Texas (10 Wells Producing from 12,000 Feet by Hydraulic Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	207.2	163.2	137.0	144.6	736,000
Pumps	153.4	153.4	250.5	261.7	196,000
Pumping Equipment	192.8	196.9	178.7	183.6	326,500
Subtotal or Index	**198.5**	**170.1**	**157.9**	**165.2**	**1,258,500**
Gathering System:					
Flowlines	239.0	224.4	214.9	216.7	236,800
Manifold	261.2	260.4	263.4	266.4	35,700
Subtotal or Index	**239.0**	**224.4**	**214.9**	**216.7**	**236,800**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	152.3	153.5	136.8	145.8	22,600
Storage Tanks	190.1	195.8	198.8	203.9	68,300
Accessory Equipment	206.8	214.3	216.3	223.8	32,900
Disposal System	182.9	190.6	193.2	197.8	81,900
LACT Unit	169.9	174.2	174.2	171.0	15,900
Subtotal or Index	**182.6**	**188.2**	**187.9**	**192.3**	**251,700**
Total or Index	**200.8**	**178.4**	**168.1**	**174.4**	**1,747,000**

Table B5. Direct Annual Operating Costs and Indices for Primary Oil Production in South Texas (10 Wells Producing from 2,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	305.0	316.7	315.0	325.0	19,500
Labor (pumper)	274.4	317.4	317.4	317.4	27,300
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	207.4	211.1	211.1	207.4	5,600
Fuel, Power & Water	246.6	286.3	258.9	232.9	17,000
Operative Supplies	218.2	254.5	254.5	254.5	2,800
Subtotal or Index**	**264.5**	**292.2**	**285.1**	**281.2**	**79,300**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	187.3	221.1	221.1	221.1	15,700
Supplies & Services	189.1	218.2	218.2	218.2	12,000
Equipment Usage	217.4	239.1	239.1	239.1	5,500
Other	275.0	316.7	316.7	316.7	3,800
Subtotal or Index**	**198.8**	**229.8**	**229.8**	**229.8**	**37,000**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	154.7	160.4	179.2	200.0	10,600
Remedial Services	146.2	150.0	153.8	157.7	4,100
Equipment Repair	128.0	128.0	140.0	152.0	3,800
Other	150.0	150.0	200.0	200.0	400
Subtotal or Index**	**146.2**	**150.0**	**164.2**	**178.3**	**18,900**
Total or Index**	**222.4**	**246.4**	**245.5**	**246.3**	**135,200**

Table B6. Direct Annual Operating Costs and Indices for Primary Oil Production in South Texas (10 Wells Producing from 4,000 Feet by Gas Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	304.4	316.2	314.7	323.5	22,000
Labor (pumper)	274.4	317.4	317.4	317.4	27,300
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	218.5	222.2	222.2	222.2	6,000
Fuel, Power & Water	260.7	305.1	273.5	178.6	20,900
Operative Supplies	187.5	206.3	206.3	209.4	6,700
Subtotal or Index**	**263.1**	**292.4**	**282.0**	**253.5**	**90,000**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	187.3	221.1	221.1	221.1	15,700
Supplies & Services	184.2	198.4	199.2	202.8	51,300
Equipment Usage	216.7	237.5	237.5	237.5	5,700
Other	300.0	337.5	337.5	337.5	5,400
Subtotal or Index**	**192.0**	**211.5**	**212.1**	**214.6**	**78,100**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	233.3	242.9	261.9	290.5	6,100
Remedial Services	180.0	185.7	191.4	200.0	7,000
Equipment Repair	188.9	200.0	211.1	244.4	2,200
Other	166.7	166.7	166.7	166.7	500
Subtotal or Index**	**197.1**	**204.4**	**214.7**	**232.4**	**15,800**
Total or Index**	**224.5**	**247.4**	**243.8**	**233.7**	**183,900**

Table B7. Direct Annual Operating Costs and Indices for Primary Oil Production in South Texas (10 Wells Producing from 8,000 Feet by Gas Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	310.3	323.1	321.8	330.8	25,800
Labor (pumper)	274.4	317.4	317.4	317.4	27,300
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	214.8	218.5	218.5	214.8	5,800
Fuel, Power & Water	257.1	301.5	269.9	227.1	30,200
Operative Supplies	197.1	217.1	217.1	220.0	7,700
Subtotal or Index**	**264.1**	**293.8**	**282.8**	**270.6**	**103,900**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	187.3	221.1	221.1	221.1	15,700
Supplies & Services	199.3	214.6	214.9	219.2	61,600
Equipment Usage	228.0	248.0	248.0	248.0	6,200
Other	275.0	315.0	315.0	315.0	6,300
Subtotal or Index**	**202.8**	**222.9**	**223.2**	**226.2**	**89,800**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	224.2	230.3	248.5	269.7	8,900
Remedial Services	146.7	151.1	158.9	170.0	15,300
Equipment Repair	180.0	180.0	193.3	226.7	3,400
Other	166.7	166.7	166.7	177.8	1,600
Subtotal or Index**	**168.7**	**172.8**	**183.0**	**198.6**	**29,200**
Total or Index**	**222.7**	**244.3**	**241.5**	**240.2**	**222,900**

Table B8. Direct Annual Operating Costs and Indices for Primary Oil Production in South Texas (10 Wells Producing from 12,000 Feet by Hydraulic Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	308.2	320.4	318.4	327.6	32,100
Labor (pumper)	274.4	317.4	317.4	317.4	27,300
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	206.5	206.5	206.5	206.5	6,400
Fuel, Power & Water	232.6	273.8	244.4	219.8	41,100
Operative Supplies	278.6	314.3	314.3	314.3	4,400
Subtotal or Index**	**259.2**	**288.9**	**276.2**	**268.5**	**118,400**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	187.3	221.1	221.1	221.1	15,700
Supplies & Services	213.3	233.3	233.3	234.2	28,100
Equipment Usage	228.0	248.0	248.0	248.0	6,200
Other	216.7	216.7	216.7	216.7	1,300
Subtotal or Index**	**206.8**	**230.6**	**230.6**	**231.1**	**51,300**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	195.7	198.6	210.0	221.4	15,500
Remedial Services	220.4	225.7	239.8	256.1	68,900
Equipment Repair	249.2	250.3	403.4	421.2	75,400
Other	153.8	153.8	161.5	161.5	2,100
Subtotal or Index**	**225.2**	**228.6**	**289.1**	**304.9**	**161,900**
Total or Index**	**234.3**	**251.3**	**273.5**	**277.7**	**331,600**

Table C1. Lease Equipment Costs and Indices for Primary Oil Production in South Louisiana (10 Wells Producing from 2,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	108.5	109.6	110.2	155.0	54,700
Rods	107.8	107.4	123.0	123.0	25,100
Pumps	131.0	133.3	147.6	152.4	12,800
Pumping Equipment	164.7	174.3	179.1	191.4	246,000
Subtotal or Index**	**146.9**	**153.6**	**159.1**	**175.8**	**338,600**
Gathering System:					
Flowlines	244.2	243.9	263.0	269.1	88,800
Manifold	262.4	261.7	264.7	267.7	35,600
Subtotal or Index**	**249.5**	**249.0**	**263.5**	**268.7**	**124,400**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	152.3	153.5	136.8	145.8	22,600
Storage Tanks	187.8	191.3	196.7	203.3	68,100
Accessory Equipment	206.8	210.9	212.9	220.4	32,400
Disposal System	178.2	181.3	184.9	189.7	79,300
LACT Unit	169.9	174.2	174.2	171.0	15,900
Subtotal or Index**	**180.5**	**183.7**	**184.4**	**189.2**	**248,400**
Total or Index**	**266.0**	**273.0**	**280.7**	**297.8**	**711,400**

Table C2. Lease Equipment Costs and Indices for Primary Oil Production in South Louisiana (10 Wells Producing from 4,000 Feet by Gas Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	105.6	106.8	107.4	151.5	108,600
Pumps	342.7	349.8	390.1	394.5	99,800
Pumping Equipment	160.1	162.9	163.9	169.9	177,400
Subtotal or Index**	**163.6**	**166.4**	**172.2**	**191.6**	**385,800**
Gathering System:					
Flowlines	224.7	224.1	242.8	251.0	197,500
Manifold	262.4	261.7	264.7	267.7	35,600
Subtotal or Index**	**230.1**	**229.6**	**246.0**	**253.4**	**233,100**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	152.3	153.5	136.8	145.8	22,600
Storage Tanks	187.8	191.3	196.7	203.3	68,100
Accessory Equipment	206.8	210.9	212.9	220.4	32,400
Disposal System	178.6	181.6	185.6	190.2	81,800
LACT Unit	169.9	174.2	174.2	171.0	15,900
Subtotal or Index**	**180.6**	**183.8**	**184.6**	**189.4**	**250,900**
Total or Index**	**183.3**	**185.5**	**192.0**	**204.2**	**869,800**

Table C3. Lease Equipment Costs and Indices for Primary Oil Production in South Louisiana (10 Wells Producing from 8,000 Feet by Gas Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	105.7	107.0	107.5	151.7	217,200
Pumps	342.9	350.0	390.4	394.9	139,800
Pumping Equipment	158.4	161.2	162.2	168.2	177,400
Subtotal or Index**	**154.8**	**157.4**	**163.1**	**188.1**	**534,400**
Gathering System:					
Flowlines	220.6	220.0	238.8	247.4	305,600
Manifold	262.4	261.7	264.7	267.7	35,600
Subtotal or Index**	**224.7**	**224.0**	**241.3**	**249.4**	**341,200**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	152.3	153.5	136.8	145.8	22,600
Storage Tanks	187.8	191.3	196.7	203.3	68,100
Accessory Equipment	206.8	210.9	212.9	220.4	32,400
Disposal System	183.5	185.5	191.4	197.8	80,300
LACT Unit	169.9	174.2	174.2	171.0	15,900
Subtotal or Index**	**182.2**	**185.0**	**186.4**	**191.7**	**249,400**
Total or Index**	**178.6**	**180.5**	**188.0**	**204.2**	**1,125,000**

Table C4. Lease Equipment Costs and Indices for Primary Oil Production in South Louisiana (10 Wells Producing from 12,000 Feet by Hydraulic Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	208.1	163.7	137.3	144.9	731,400
Pumps	153.4	153.4	250.5	261.7	196,000
Pumping Equipment	191.2	191.0	173.8	179.6	319,300
Subtotal or Index**	**198.7**	**169.1**	**157.1**	**164.6**	**1,246,700**
Gathering System:					
Flowlines	234.3	213.7	207.8	215.3	285,000
Manifold	262.4	261.7	264.7	267.7	35,600
Subtotal or Index**	**236.9**	**218.1**	**213.0**	**220.0**	**320,600**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	152.3	153.5	136.8	145.8	22,600
Storage Tanks	187.8	191.3	196.7	203.3	68,100
Accessory Equipment	206.8	210.9	212.9	220.4	32,400
Disposal System	196.5	198.7	204.5	210.3	83,700
LACT Unit	169.9	174.2	174.2	171.0	15,900
Subtotal or Index**	**186.2**	**189.1**	**190.4**	**195.5**	**252,800**
Total or Index**	**202.5**	**178.5**	**169.1**	**176.3**	**1,820,100**

Table C5. Direct Annual Operating Costs and Indices for Primary Oil Production in South Louisiana (10 Wells Producing from 2,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	290.0	293.3	300.0	303.3	18,200
Labor (pumper)	232.0	240.7	257.0	261.0	44,900
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	200.0	203.7	203.7	203.7	5,500
Fuel, Power & Water	326.0	386.0	376.0	364.0	18,200
Operative Supplies	214.3	214.3	214.3	214.3	1,500
Subtotal or Index**	**255.7**	**269.8**	**278.0**	**279.8**	**95,400**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	192.1	200.0	205.3	210.5	8,000
Supplies & Services	202.8	197.2	191.7	183.3	6,600
Equipment Usage	356.3	356.3	375.0	393.8	6,300
Subtotal or Index**	**225.6**	**226.7**	**230.0**	**232.2**	**20,900**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	198.3	196.7	206.7	206.7	12,400
Remedial Services	138.5	138.5	142.3	146.2	3,800
Equipment Repair	132.0	132.0	144.0	152.0	3,800
Other	150.0	150.0	200.0	200.0	400
Subtotal or Index**	**169.0**	**168.1**	**177.9**	**180.5**	**20,400**
Total or Index**	**232.7**	**241.5**	**249.3**	**251.3**	**136,700**

Table C6. Direct Annual Operating Costs and Indices for Primary Oil Production in South Louisiana (10 Wells Producing from 4,000 Feet by Gas Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	289.7	294.1	300.0	302.9	20,600
Labor (pumper)	232.0	240.7	257.0	261.0	44,900
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	211.1	211.1	214.8	214.8	5,800
Fuel, Power & Water	362.0	436.7	424.1	410.1	32,400
Operative Supplies	186.2	193.1	196.6	200.0	5,800
Subtotal or Index**	**265.0**	**284.8**	**291.0**	**291.5**	**116,600**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	192.1	200.0	205.3	210.5	8,000
Supplies & Services	186.6	189.3	193.7	199.2	50,400
Equipment Usage	347.1	347.1	364.7	382.4	6,500
Subtotal or Index**	**196.1**	**199.4**	**204.5**	**210.7**	**64,900**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	196.3	196.3	207.4	203.7	5,500
Remedial Services	151.4	154.3	160.0	162.9	5,700
Equipment Repair	188.9	200.0	211.1	244.4	2,200
Other	166.7	166.7	166.7	166.7	500
Subtotal or Index**	**173.0**	**175.7**	**183.8**	**187.8**	**13,900**
Total or Index**	**229.2**	**240.8**	**246.8**	**249.9**	**195,400**

Table C7. Direct Annual Operating Costs and Indices for Primary Oil Production in South Louisiana (10 Wells Producing from 8,000 Feet by Gas Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	293.7	298.7	303.8	307.6	24,300
Labor (pumper)	232.0	240.7	257.0	261.0	44,900
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	254.5	254.5	259.1	259.1	5,700
Fuel, Power & Water	358.9	434.4	422.2	407.8	36,700
Operative Supplies	203.1	206.3	212.5	218.8	7,000
Subtotal or Index**	**271.9**	**292.9**	**298.8**	**299.3**	**125,700**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	192.1	200.0	205.3	210.5	8,000
Supplies & Services	206.0	209.3	213.9	220.3	61,900
Equipment Usage	355.6	361.1	383.3	405.6	7,300
Subtotal or Index**	**212.5**	**216.3**	**222.0**	**229.1**	**77,200**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	274.4	274.4	287.2	287.2	11,200
Remedial Services	152.2	153.3	158.9	160.0	14,400
Equipment Repair	192.9	192.9	207.1	242.9	3,400
Other	166.7	166.7	166.7	177.8	1,600
Subtotal or Index**	**188.2**	**188.8**	**196.7**	**201.3**	**30,600**
Total or Index**	**235.9**	**247.1**	**253.2**	**256.9**	**233,500**

Table C8. Direct Annual Operating Costs and Indices for Primary Oil Production in South Louisiana (10 Wells Producing from 12,000 Feet by Hydraulic Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	295.9	301.0	307.1	309.2	30,300
Labor (pumper)	232.0	240.7	257.0	261.0	44,900
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	192.9	196.4	196.4	196.4	5,500
Fuel, Power & Water	350.8	426.3	415.3	400.0	47,200
Operative Supplies	214.3	221.4	228.6	228.6	3,200
Subtotal or Index**	**275.6**	**300.0**	**305.1**	**303.7**	**138,200**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	192.1	200.0	205.3	210.5	8,000
Supplies & Services	212.3	223.6	225.5	226.4	24,000
Equipment Usage	355.6	361.1	383.3	405.6	7,300
Subtotal or Index**	**223.5**	**233.3**	**238.3**	**242.6**	**39,300**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	188.2	188.2	193.4	193.4	14,700
Remedial Services	175.1	175.5	183.3	184.4	49,600
Equipment Repair	260.9	262.1	423.0	441.4	76,800
Other	166.7	166.7	175.0	175.0	2,100
Subtotal or Index**	**204.9**	**205.5**	**263.1**	**269.7**	**143,200**
Total or Index**	**235.5**	**246.9**	**276.2**	**279.4**	**320,700**

Table D1. Lease Equipment Costs and Indices for Primary Oil Production in Oklahoma (10 Wells Producing from 2,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	107.6	108.8	109.3	154.0	54,500
Rods	100.5	100.5	112.3	112.3	22,900
Pumps	131.0	133.3	147.6	152.4	12,800
Pumping Equipment	161.5	171.4	176.1	188.2	245,400
Subtotal or Index	**144.0**	**150.9**	**156.0**	**172.5**	**335,600**
Gathering System:					
Flowlines	253.2	255.6	261.1	266.7	33,600
Manifold	262.9	261.4	264.4	268.2	35,400
Subtotal or Index	**258.1**	**258.5**	**262.8**	**267.4**	**69,000**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	152.3	153.5	136.8	145.8	22,600
Storage Tanks	189.0	192.2	195.2	200.9	67,300
Accessory Equipment	206.8	210.9	212.9	220.4	32,400
Disposal System	178.2	184.2	183.7	187.5	74,800
LACT Unit	169.9	174.2	174.2	171.0	15,900
Subtotal or Index	**180.8**	**184.9**	**183.6**	**187.9**	**243,100**
Total or Index	**263.5**	**272.1**	**276.3**	**293.9**	**647,700**

Table D2. Lease Equipment Costs and Indices for Primary Oil Production in Oklahoma (10 Wells Producing from 4,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	105.3	106.4	107.0	151.1	108,500
Rods	97.5	97.8	108.1	108.1	43,800
Pumps	132.9	136.6	134.1	154.9	12,700
Pumping Equipment	146.2	156.0	158.7	178.0	397,200
Subtotal or Index	**131.6**	**138.3**	**141.4**	**163.6**	**562,200**
Gathering System:					
Flowlines	238.7	241.1	246.0	251.5	41,000
Manifold	262.9	261.4	264.4	268.2	35,400
Subtotal or Index	**249.5**	**250.2**	**254.2**	**259.0**	**76,400**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	152.3	153.5	136.8	145.8	22,600
Storage Tanks	189.0	192.2	195.2	200.9	67,300
Accessory Equipment	206.8	210.9	212.9	220.4	32,400
Disposal System	208.6	215.6	214.9	219.3	89,700
LACT Unit	169.9	174.2	174.2	171.0	15,900
Subtotal or Index	**190.3**	**194.7**	**193.4**	**197.9**	**258,000**
Total or Index	**207.4**	**215.2**	**217.9**	**240.3**	**896,600**

Table D3. Lease Equipment Costs and Indices for Primary Oil Production in Oklahoma (10 Wells Producing from 8,000 Feet by Hydraulic Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	202.9	131.8	133.2	163.8	466,600
Pumps	153.4	153.4	250.5	261.7	196,000
Pumping Equipment	205.2	205.2	183.9	189.4	289,400
Subtotal or Index**	**196.4**	**156.8**	**165.5**	**185.7**	**952,000**
Gathering System:					
Flowlines	259.4	221.1	193.1	197.0	146,000
Manifold	262.9	261.4	264.4	268.2	35,400
Subtotal or Index**	**259.9**	**227.1**	**203.9**	**207.8**	**181,400**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	152.3	153.5	136.8	145.8	22,600
Storage Tanks	189.0	192.2	195.2	200.9	67,300
Accessory Equipment	206.8	210.9	212.9	220.4	32,400
Disposal System	206.2	214.1	213.1	217.1	94,200
LACT Unit	169.9	174.2	174.2	171.0	15,900
Subtotal or Index**	**189.9**	**194.6**	**193.2**	**197.5**	**262,500**
Total or Index**	**202.8**	**172.0**	**175.1**	**190.5**	**1,395,900**

Table D4. Lease Equipment Costs and Indices for Primary Oil Production in Oklahoma (10 Wells Producing from 12,000 Feet by Hydraulic Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	207.3	163.1	136.7	144.3	730,200
Pumps	153.4	153.4	250.5	261.7	196,000
Pumping Equipment	187.6	187.9	169.7	174.6	310,500
Subtotal or Index**	**197.4**	**167.9**	**155.7**	**163.0**	**1,236,700**
Gathering System:					
Flowlines	259.4	221.1	193.1	197.0	146,000
Manifold	262.9	261.4	264.4	268.2	35,400
Subtotal or Index**	**259.9**	**227.1**	**203.9**	**207.8**	**181,400**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	152.3	153.5	136.8	145.8	22,600
Storage Tanks	189.0	192.2	195.2	200.9	67,300
Accessory Equipment	206.8	210.9	212.9	220.4	32,400
Disposal System	180.6	187.5	186.7	190.6	68,600
LACT Unit	169.9	174.2	174.2	171.0	15,900
Subtotal or Index**	**181.6**	**185.8**	**184.5**	**188.8**	**236,900**
Total or Index**	**201.0**	**175.6**	**163.7**	**170.4**	**1,655,000**

Table D5. Direct Annual Operating Costs and Indices for Primary Oil Production in Oklahoma (10 Wells Producing from 2,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	288.3	300.0	298.3	305.0	18,300
Labor (pumper)	210.8	223.0	223.0	223.0	16,500
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	203.7	207.4	207.4	203.7	5,500
Fuel, Power & Water	279.6	307.4	279.6	238.9	12,900
Operative Supplies	216.7	216.7	216.7	216.7	1,300
Subtotal or Index**	**250.0**	**263.0**	**256.9**	**250.4**	**61,600**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	206.9	206.9	206.9	220.7	6,400
Supplies & Services	218.8	212.5	206.3	200.0	6,400
Equipment Usage	276.9	284.6	284.6	292.3	3,800
Subtotal or Index**	**224.3**	**223.0**	**220.3**	**224.3**	**16,600**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	138.7	138.7	132.3	127.4	7,900
Remedial Services	143.8	150.0	150.0	150.0	2,400
Equipment Repair	124.4	126.7	140.0	146.7	6,600
Other	150.0	150.0	200.0	200.0	400
Subtotal or Index**	**134.4**	**136.0**	**138.4**	**138.4**	**17,300**
Total or Index**	**213.3**	**220.7**	**217.5**	**214.6**	**95,500**

Table D6. Direct Annual Operating Costs and Indices for Primary Oil Production in Oklahoma (10 Wells Producing from 4,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	286.8	298.5	297.1	302.9	20,600
Labor (pumper)	210.8	223.0	223.0	223.0	16,500
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	244.4	248.1	248.1	244.4	6,600
Fuel, Power & Water	292.4	321.2	292.4	248.5	16,400
Operative Supplies	233.3	233.3	233.3	233.3	1,400
Subtotal or Index**	**259.8**	**273.7**	**266.5**	**257.9**	**68,600**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	206.9	206.9	206.9	220.7	6,400
Supplies & Services	223.5	223.5	223.5	235.3	8,000
Equipment Usage	284.6	300.0	300.0	300.0	3,900
Subtotal or Index**	**227.6**	**230.3**	**230.3**	**240.8**	**18,300**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	160.6	160.6	154.3	150.0	14,100
Remedial Services	154.2	154.2	154.2	158.3	3,800
Equipment Repair	122.0	124.0	126.0	146.0	7,300
Other	250.0	250.0	250.0	250.0	500
Subtotal or Index**	**149.4**	**150.0**	**147.1**	**151.2**	**25,700**
Total or Index**	**218.4**	**226.2**	**221.5**	**219.9**	**112,600**

Table D7. Direct Annual Operating Costs and Indices for Primary Oil Production in Oklahoma (10 Wells Producing from 8,000 Feet by Hydraulic Lift)

Component	Index (1976=100)				1995* Cost
	1992	1993	1994	1995	(dollars)
Normal Daily Expense:					
Supervision and Overhead	288.6	301.3	298.7	305.1	24,100
Labor (pumper)	210.8	223.0	223.0	223.0	16,500
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	179.3	179.3	179.3	179.3	5,200
Fuel, Power & Water	304.3	335.1	304.3	257.4	24,200
Operative Supplies	287.5	300.0	300.0	312.5	2,500
Subtotal or Index**	**262.8**	**278.6**	**268.9**	**257.6**	**79,600**
Subsurface Maintenance, Repair & Services:					
Labor (roustabout)	206.9	206.9	206.9	220.7	6,400
Supplies & Services	226.0	235.1	235.1	239.0	18,400
Equipment Usage	280.0	286.7	286.7	293.3	4,400
Subtotal or Index**	**228.1**	**234.7**	**234.7**	**241.3**	**29,200**
Subsurface Maintenance,					
Workover Rig Services	178.7	178.7	177.0	173.8	10,600
Remedial Services	172.2	174.7	173.4	173.4	13,700
Equipment Repair	248.9	248.9	404.5	423.6	75,400
Other	214.3	214.3	214.3	228.6	1,600
Subtotal or Index**	**216.3**	**216.9**	**301.5**	**311.7**	**101,300**
Total or Index**	**237.2**	**245.0**	**277.5**	**278.3**	**210,100**

Table D8. Direct Annual Operating Costs and Indices for Primary Oil Production in Oklahoma (10 Wells Producing from 12,000 Feet by Hydraulic Lift)

Component	Index (1976=100)				1995* Cost
	1992	1993	1994	1995	(dollars)
Normal Daily Expense:					
Supervision and Overhead	287.8	302.0	298.0	304.1	29,800
Labor (pumper)	210.8	223.0	223.0	223.0	16,500
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	190.9	193.9	193.9	190.9	6,300
Fuel, Power & Water	313.4	345.7	313.4	264.6	33,600
Operative Supplies	311.1	322.2	322.2	333.3	3,000
Subtotal or Index**	**271.6**	**289.6**	**277.6**	**263.1**	**96,300**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	206.9	206.9	206.9	220.7	6,400
Supplies & Services	217.5	225.2	225.2	232.0	23,900
Equipment Usage	280.0	286.7	286.7	293.3	4,400
Subtotal or Index**	**221.8**	**227.9**	**227.9**	**236.1**	**34,700**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	182.4	182.4	180.2	176.9	16,100
Remedial Services	232.0	234.0	232.0	234.0	24,100
Equipment Repair	249.2	250.3	403.4	421.8	75,500
Other	222.2	222.2	233.3	233.3	2,100
Subtotal or Index**	**228.0**	**229.1**	**300.0**	**308.4**	**117,800**
Total or Index**	**244.8**	**253.6**	**279.0**	**278.0**	**248,800**

Table E1. Lease Equipment Costs and Indices for Primary Oil Production in the Rocky Mountains (10 Wells Producing from 2,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	102.4	103.7	104.3	146.4	54,900
Rods	80.3	80.3	90.9	91.7	23,300
Pumps	131.0	133.3	147.6	152.4	12,800
Pumping Equipment	152.1	160.0	160.7	172.9	169,800
Subtotal or Index**	**129.3**	**134.3**	**137.1**	**153.9**	**260,800**
Gathering System:					
Flowlines	258.6	259.9	263.8	267.8	40,700
Manifold	260.2	258.6	261.7	264.7	35,200
Subtotal or Index**	**259.3**	**259.3**	**262.8**	**266.3**	**75,900**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	149.7	151.5	136.2	144.8	23,600
Storage Tanks	183.9	186.9	189.9	194.9	65,300
Accessory Equipment	206.8	211.6	213.6	221.1	32,500
Disposal System	212.7	219.4	219.1	224.0	77,500
LACT Unit	169.9	174.2	174.2	171.0	15,900
Electrification	243.6	245.2	244.4	247.3	59,600
Subtotal or Index**	**197.5**	**201.3**	**200.2**	**204.4**	**304,500**
Total or Index**	**169.3**	**173.3**	**174.5**	**184.8**	**641,200**

Table E2. Lease Equipment Costs and Indices for Primary Oil Production in the Rocky Mountains (10 Wells Producing from 4,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	100.1	101.3	101.8	143.6	109,100
Rods	87.8	87.8	98.0	98.7	44,300
Pumps	132.9	136.6	134.1	154.9	12,700
Pumping Equipment	131.6	137.3	137.9	159.5	296,500
Subtotal or Index**	**117.8**	**121.6**	**123.4**	**146.9**	**462,600**
Gathering System:					
Flowlines	248.0	248.5	252.5	256.1	50,700
Manifold	260.2	258.6	261.7	264.7	35,200
Subtotal or Index**	**252.9**	**252.6**	**256.2**	**259.5**	**85,900**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	149.7	151.5	136.2	144.8	23,600
Storage Tanks	183.9	186.9	189.9	194.9	65,300
Accessory Equipment	206.8	211.6	213.6	221.1	32,500
Disposal System	215.1	222.2	221.9	226.8	79,600
LACT Unit	169.9	174.2	174.2	171.0	15,900
Electrification	242.9	244.6	242.5	245.6	70,500
Subtotal or Index**	**199.4**	**203.2**	**201.9**	**206.0**	**317,500**
Total or Index**	**151.7**	**155.2**	**156.2**	**172.4**	**866,000**

Table E3. Lease Equipment Costs and Indices for Primary Oil Production in the Rocky Mountains (10 Wells Producing from 8,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	104.6	103.5	105.6	139.9	274,700
Rods	92.8	92.9	100.5	100.8	110,300
Pumps	136.7	136.7	157.8	172.2	15,500
Pumping Equipment	135.7	141.6	142.0	155.4	575,000
Subtotal or Index	**119.9**	**122.8**	**125.1**	**142.5**	**975,500**
Gathering System:					
Flowlines	238.5	238.8	242.1	245.8	67,100
Manifold	260.2	258.6	261.7	264.7	35,200
Subtotal or Index	**245.6**	**245.3**	**248.5**	**252.0**	**102,300**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	149.7	151.5	136.2	144.8	23,600
Storage Tanks	183.9	186.9	189.9	194.9	65,300
Accessory Equipment	206.8	211.6	213.6	221.1	32,500
Disposal System	213.0	221.0	220.4	224.7	84,700
LACT Unit	169.9	174.2	174.2	171.0	15,900
Electrification	247.2	248.5	245.7	248.0	97,200
Subtotal or Index	**202.9**	**206.7**	**205.1**	**208.9**	**349,300**
Total or Index	**141.2**	**144.1**	**145.7**	**159.9**	**1,427,100**

Table E4. Lease Equipment Costs and Indices for Primary Oil Production in the Rocky Mountains (10 Wells Producing from 12,000 Feet by Hydraulic Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	198.5	156.3	131.1	138.4	732,600
Pumps	153.4	153.4	250.5	261.7	196,000
Pumping Equipment	229.8	230.8	205.3	213.0	294,000
Subtotal or Index	**199.8**	**169.8**	**157.0**	**164.7**	**1,222,600**
Gathering System:					
Flowlines	253.0	216.4	189.7	192.6	151,200
Manifold	260.2	258.6	261.7	264.7	35,200
Subtotal or Index	**254.0**	**222.5**	**200.1**	**203.1**	**186,400**
Lease Equipment:					
Producing Separator	165.6	168.8	173.4	173.4	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	149.7	151.5	136.2	144.8	23,600
Storage Tanks	183.9	186.9	189.9	194.9	65,300
Accessory Equipment	206.8	211.6	213.6	221.1	32,500
Disposal System	215.9	223.9	223.3	228.1	86,000
LACT Unit	169.9	174.2	174.2	171.0	15,900
Electrification	266.5	265.2	262.0	262.7	41,500
Subtotal or Index	**207.8**	**211.9**	**210.5**	**214.6**	**294,900**
Total or Index	**206.1**	**180.8**	**168.6**	**175.4**	**1,703,900**

Table E5. Direct Annual Operating Costs and Indices for Primary Oil Production in the Rocky Mountains (10 Wells Producing from 2,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	265.7	270.0	278.6	280.0	19,600
Labor (pumper)	287.4	287.4	287.4	287.4	25,000
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	214.8	214.8	214.8	214.8	5,800
Fuel, Power & Water	253.6	307.2	311.6	310.1	21,400
Operative Supplies	214.3	214.3	214.3	214.3	1,500
Subtotal or Index**	**263.5**	**277.5**	**281.1**	**282.1**	**80,400**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	207.3	212.2	212.2	212.2	8,700
Supplies & Services	212.9	206.5	200.0	193.5	6,000
Equipment Usage	235.3	235.3	235.3	235.3	4,000
Subtotal or Index**	**214.6**	**214.6**	**212.4**	**210.1**	**18,700**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	116.5	116.5	116.5	120.9	13,900
Remedial Services	104.8	109.5	109.5	114.3	2,400
Equipment Repair	128.9	131.1	144.4	151.1	6,800
Other	150.0	150.0	200.0	200.0	400
Subtotal or Index**	**118.6**	**119.7**	**123.5**	**128.4**	**23,500**
Total or Index**	**208.1**	**215.6**	**218.3**	**220.1**	**122,600**

Table E6. Direct Annual Operating Costs and Indices for Primary Oil Production in the Rocky Mountains (10 Wells Producing from 4,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	271.4	277.9	285.7	287.0	22,100
Labor (pumper)	287.4	287.4	287.4	287.4	25,000
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	229.6	229.6	229.6	229.6	6,200
Fuel, Power & Water	250.0	289.4	291.5	291.5	27,400
Operative Supplies	214.3	228.6	228.6	228.6	1,600
Subtotal or Index**	**264.4**	**277.9**	**280.8**	**282.0**	**89,400**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	207.3	212.2	212.2	212.2	8,700
Supplies & Services	218.8	225.0	225.0	225.0	7,200
Equipment Usage	233.3	233.3	233.3	233.3	4,200
Subtotal or Index**	**216.5**	**220.9**	**220.9**	**220.9**	**20,100**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	113.9	113.9	113.9	118.5	17,900
Remedial Services	134.5	134.5	137.9	144.8	4,200
Equipment Repair	122.0	124.0	126.0	146.0	7,300
Other	166.7	166.7	166.7	166.7	500
Subtotal or Index**	**118.9**	**119.3**	**120.2**	**128.3**	**29,900**
Total or Index**	**204.7**	**212.2**	**213.9**	**217.5**	**139,400**

Table E7. Direct Annual Operating Costs and Indices for Primary Oil Production in the Rocky Mountains (10 Wells Producing from 8,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	272.2	277.8	286.7	286.7	25,800
Labor (pumper)	287.4	287.4	287.4	287.4	25,000
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	210.3	210.3	210.3	206.9	6,000
Fuel, Power & Water	255.2	280.7	282.1	282.1	40,900
Operative Supplies	228.6	228.6	228.6	228.6	1,600
Subtotal or Index**	**263.4**	**274.4**	**277.3**	**277.8**	**106,400**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	207.3	212.2	212.2	212.2	8,700
Supplies & Services	221.2	224.2	224.2	224.2	7,400
Equipment Usage	242.1	242.1	242.1	242.1	4,600
Subtotal or Index**	**219.4**	**222.6**	**222.6**	**222.6**	**20,700**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	120.5	120.5	120.5	124.4	32,100
Remedial Services	200.0	203.8	206.3	216.3	17,300
Equipment Repair	148.3	146.7	163.3	183.3	11,000
Other	150.0	150.0	150.0	160.0	1,600
Subtotal or Index**	**140.9**	**141.4**	**144.4**	**152.0**	**62,000**
Total or Index**	**202.3**	**207.6**	**210.2**	**213.9**	**189,100**

Table E8. Direct Annual Operating Costs and Indices for Primary Oil Production in the Rocky Mountains (10 Wells Producing from 12,000 Feet by Hydraulic Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	271.4	277.7	286.6	285.7	32,000
Labor (pumper)	287.4	287.4	287.4	287.4	25,000
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	200.0	200.0	200.0	197.0	6,500
Fuel, Power & Water	279.9	298.5	299.5	299.5	59,600
Operative Supplies	220.0	230.0	230.0	230.0	2,300
Subtotal or Index**	**271.7**	**281.3**	**284.1**	**284.3**	**132,500**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	207.3	212.2	212.2	212.2	8,700
Supplies & Services	228.3	238.3	238.3	238.3	14,300
Equipment Usage	242.1	242.1	242.1	242.1	4,600
Subtotal or Index**	**223.3**	**230.0**	**230.0**	**230.0**	**27,600**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	133.3	133.3	133.3	135.3	13,800
Remedial Services	164.6	167.7	169.3	178.7	22,700
Equipment Repair	249.7	250.3	403.9	421.8	75,500
Other	166.7	166.7	175.0	175.0	2,100
Subtotal or Index**	**193.3**	**194.5**	**260.7**	**271.7**	**114,100**
Total or Index**	**233.2**	**239.0**	**267.9**	**272.6**	**274,200**

Table F1. Lease Equipment Costs and Indices for Primary Oil Production in California (10 Wells Producing from 2,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	107.1	105.8	107.9	143.0	68,800
Rods	104.5	104.5	110.8	111.2	31,800
Pumps	128.6	128.6	153.8	147.9	17,600
Pumping Equipment	122.2	127.3	127.6	146.5	246,500
Subtotal or Index**	**117.7**	**120.8**	**123.3**	**142.0**	**364,700**
Gathering System:					
Flowlines	226.0	224.6	242.3	224.9	63,200
Manifold	259.7	259.0	261.9	264.9	35,500
Subtotal or Index**	**236.9**	**235.7**	**248.7**	**237.8**	**98,700**
Lease Equipment:					
Producing Separator	158.2	161.2	165.7	165.7	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Free water knockout	150.7	153.3	133.3	134.7	10,100
Heater Treater	229.3	233.7	231.7	243.2	143,500
Storage Tanks	175.5	178.4	181.0	185.9	64,500
Accessory Equipment	206.8	210.9	212.9	220.4	32,400
Disposal System	177.9	181.6	183.6	187.0	66,000
LACT Unit	169.9	174.2	174.2	171.0	15,900
Electrification	247.7	249.6	247.3	250.8	65,700
Subtotal or Index**	**202.1**	**205.6**	**204.8**	**210.4**	**428,200**
Total or Index**	**161.7**	**164.7**	**166.7**	**177.6**	**891,600**

Table F2. Lease Equipment Costs and Indices for Primary Oil Production in California (10 Wells Producing from 4,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	104.6	103.5	105.5	140.0	136,800
Rods	99.3	99.3	105.6	105.8	58,800
Pumps	129.2	129.2	153.1	146.2	19,000
Pumping Equipment	104.0	108.7	108.9	124.3	338,400
Subtotal or Index**	**104.3**	**107.0**	**109.1**	**126.1**	**553,000**
Gathering System:					
Flowlines	212.6	211.1	228.9	210.8	81,800
Manifold	259.7	259.0	261.9	264.9	35,500
Subtotal or Index**	**224.7**	**223.4**	**237.4**	**224.7**	**117,300**
Lease Equipment:					
Producing Separator	158.2	161.2	165.7	165.7	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Free water knockout	150.7	153.3	133.3	134.7	10,100
Heater Treater	229.3	233.7	231.7	243.2	143,500
Storage Tanks	175.5	178.4	181.0	185.9	64,500
Accessory Equipment	206.8	210.9	212.9	220.4	32,400
Disposal System	174.8	178.3	180.8	183.5	67,700
LACT Unit	169.9	174.2	174.2	171.0	15,900
Electrification	226.5	228.0	225.9	229.3	75,200
Subtotal or Index**	**199.5**	**202.8**	**202.2**	**207.6**	**439,400**
Total or Index**	**141.9**	**144.5**	**146.7**	**158.0**	**1,109,700**

Table F3. Lease Equipment Costs and Indices for Primary Oil Production in California (10 Wells Producing from 8,000 Feet by Hydraulic Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	115.1	109.4	107.0	112.7	441,000
Pumps	153.4	153.4	250.5	261.7	196,000
Pumping Equipment	223.0	223.8	196.5	204.2	281,800
Subtotal or Index**	**144.5**	**141.0**	**145.2**	**152.1**	**918,800**
Gathering System:					
Flowlines	259.5	230.5	206.7	209.2	201,700
Manifold	259.7	259.0	261.9	264.9	35,500
Subtotal or Index**	**259.6**	**234.0**	**213.5**	**216.0**	**237,200**
Lease Equipment:					
Producing Separator	158.2	161.2	165.7	165.7	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	150.7	153.3	133.3	134.7	10,100
Free water knockout	229.3	233.7	231.7	243.2	143,500
Storage Tanks	175.5	178.4	181.0	185.9	64,500
Accessory Equipment	206.8	210.9	212.9	220.4	32,400
Disposal System	174.2	177.5	180.5	182.0	71,900
LACT Unit	169.9	174.2	174.2	171.0	15,900
Electrification	254.6	254.0	250.6	251.7	43,800
Subtotal or Index**	**199.4**	**202.7**	**202.2**	**207.2**	**412,200**
Total or Index**	**170.3**	**165.6**	**165.9**	**171.8**	**1,568,200**

Table F4. Lease Equipment Costs and Indices for Primary Oil Production in California (10 Wells Producing from 12,000 Feet by Hydraulic Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Producing Equipment:					
Tubing	179.3	141.1	118.4	125.0	732,200
Pumps	153.4	153.4	250.5	261.7	196,000
Pumping Equipment	229.4	230.2	202.9	210.8	322,800
Subtotal or Index**	**186.3**	**159.0**	**146.4**	**153.7**	**1,251,000**
Gathering System:					
Flowlines	259.5	230.5	206.7	209.2	201,700
Manifold	259.7	259.0	261.9	264.9	35,500
Subtotal or Index**	**259.6**	**234.0**	**213.5**	**216.0**	**237,200**
Lease Equipment:					
Producing Separator	158.2	161.2	165.7	165.7	11,100
Test Separator	190.1	193.1	189.1	188.1	19,000
Heater Treater	150.7	153.3	133.3	134.7	10,100
Free water knockout	229.3	233.7	231.7	243.2	143,500
Storage Tanks	175.5	178.4	181.0	185.9	64,500
Accessory Equipment	206.8	210.9	212.9	220.4	32,400
Disposal System	174.2	177.5	180.5	182.0	71,900
LACT Unit	169.9	174.2	174.2	171.0	15,900
Electrification	260.2	259.7	258.7	258.3	53,200
Subtotal or Index**	**200.8**	**204.1**	**203.8**	**208.6**	**421,600**
Total or Index**	**196.1**	**174.4**	**163.3**	**169.6**	**1,909,800**

Table F5. Direct Annual Operating Costs and Indices for Primary Oil Production in California (10 Wells Producing from 2,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	295.0	305.0	308.3	321.7	19,300
Labor (pumper)	276.0	276.0	276.0	276.0	26,500
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	226.3	226.3	226.3	221.1	4,200
Fuel, Power & Water	427.4	430.1	482.3	431.9	48,800
Operative Supplies	225.0	225.0	225.0	225.0	1,800
Subtotal or Index**	**328.0**	**330.8**	**350.2**	**335.5**	**107,700**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	200.0	200.0	200.0	200.0	10,800
Supplies & Services	231.0	234.5	231.0	234.5	6,800
Equipment Usage	242.9	250.0	221.4	221.4	3,100
Subtotal or Index**	**215.5**	**217.5**	**212.4**	**213.4**	**20,700**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	170.5	170.5	170.5	172.1	10,500
Remedial Services	142.9	142.9	142.9	157.1	1,100
Equipment Repair	140.7	140.7	164.4	164.4	9,700
Other	150.0	150.0	150.0	150.0	300
Subtotal or Index**	**155.0**	**155.0**	**165.9**	**167.4**	**21,600**
Total or Index**	**267.3**	**269.3**	**282.3**	**274.2**	**150,000**

Table F6. Direct Annual Operating Costs and Indices for Primary Oil Production in California (10 Wells Producing from 4,000 Feet by Rod Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	292.6	302.9	307.4	319.1	21,700
Labor (pumper)	276.0	276.0	276.0	276.0	26,500
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	223.8	223.8	223.8	219.0	4,600
Fuel, Power & Water	480.6	483.4	533.1	483.4	84,600
Operative Supplies	225.0	225.0	225.0	225.0	1,800
Subtotal or Index**	**365.6**	**368.7**	**391.9**	**372.3**	**146,300**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	200.0	200.0	200.0	200.0	10,800
Supplies & Services	225.8	229.0	225.8	225.8	7,000
Equipment Usage	240.0	246.7	220.0	220.0	3,300
Subtotal or Index**	**214.0**	**216.0**	**211.0**	**211.0**	**21,100**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	171.0	171.0	171.0	173.0	17,300
Remedial Services	176.9	184.6	184.6	184.6	2,400
Equipment Repair	137.0	137.0	156.8	158.0	12,800
Other	166.7	166.7	166.7	166.7	500
Subtotal or Index**	**157.4**	**157.9**	**166.0**	**167.5**	**33,000**
Total or Index**	**284.2**	**286.4**	**301.2**	**290.4**	**200,400**

Table F7. Direct Annual Operating Costs and Indices for Primary Oil Production in California (10 Wells Producing from 8,000 Feet by Hydraulic Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	293.7	305.1	308.9	320.3	25,300
Labor (pumper)	276.0	276.0	276.0	276.0	26,500
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	220.0	223.3	220.0	220.0	6,600
Fuel, Power & Water	517.8	519.5	570.5	523.7	188,000
Operative Supplies	209.1	209.1	209.1	209.1	2,300
Subtotal or Index**	**418.7**	**421.3**	**452.3**	**426.3**	**255,800**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	200.0	200.0	200.0	200.0	10,800
Supplies & Services	260.3	267.6	264.7	266.2	18,100
Equipment Usage	250.0	262.5	231.3	231.3	3,700
Subtotal or Index**	**235.5**	**240.6**	**235.5**	**236.2**	**32,600**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	184.2	184.2	184.2	189.5	3,600
Remedial Services	212.3	214.0	214.0	219.3	12,500
Equipment Repair	235.0	234.0	368.9	392.2	40,400
Other	166.7	166.7	166.7	166.7	1,500
Subtotal or Index**	**219.7**	**219.7**	**293.6**	**308.5**	**58,000**
Total or Index**	**351.0**	**353.5**	**387.8**	**374.1**	**346,400**

Table F8. Direct Annual Operating Costs and Indices for Primary Oil Production in California (10 Wells Producing from 12,000 Feet by Hydraulic Lift)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
Normal Daily Expense:					
Supervision and Overhead	293.9	305.1	308.2	321.4	31,500
Labor (pumper)	276.0	276.0	276.0	276.0	26,500
Auto Usage	268.0	268.0	272.0	284.0	7,100
Chemicals	211.4	211.4	208.6	208.6	7,300
Fuel, Power & Water	515.8	518.0	564.0	519.2	288,700
Operative Supplies	200.0	200.0	200.0	200.0	2,400
Subtotal or Index**	**436.3**	**439.1**	**470.6**	**442.2**	**363,500**
Surface Maintenance, Repair & Services:					
Labor (roustabout)	200.0	200.0	200.0	200.0	10,800
Supplies & Services	239.5	246.5	244.2	245.3	21,100
Equipment Usage	250.0	262.5	231.3	231.3	3,700
Subtotal or Index**	**226.9**	**232.1**	**227.6**	**228.2**	**35,600**
Subsurface Maintenance, Repair & Services:					
Workover Rig Services	192.9	192.9	192.9	192.9	5,400
Remedial Services	177.1	178.1	179.0	183.8	19,300
Equipment Repair	254.7	255.3	411.7	430.2	77,000
Other	153.8	153.8	153.8	153.8	2,000
Subtotal or Index**	**220.3**	**220.9**	**307.4**	**319.1**	**103,700**
Total or Index**	**357.3**	**359.9**	**400.8**	**385.9**	**502,800**

Table G1. Annual Operating Costs and Indices for a 12-Slot Platform in the Gulf of Mexico 100-Foot Water Depth

Component	Index (1976=100)				1995* Cost
	1992	1993	1994	1995	(dollars)
Labor	261.9	261.9	272.4	272.4	629,300
Supervision	262.4	262.4	272.8	272.8	94,400
Payroll Overhead	349.3	349.3	363.2	363.2	289,500
Food Expense	146.7	153.8	183.7	189.7	75,500
Labor Transportation	249.1	259.4	259.4	259.4	458,600
Surface Equipment	224.4	227.7	224.6	229.3	113,500
Operating Supplies	224.2	227.3	224.2	229.3	22,700
Workover	264.9	282.8	286.4	313.6	857,500
Communications	483.7	479.1	479.1	479.1	20,600
Administrative	254.7	255.3	263.0	264.0	306,200
Insurance	107.2	123.3	144.9	144.9	310,700
Total or Index	**234.0**	**242.7**	**252.0**	**258.5**	**3,178,500**

Table G2. Annual Operating Costs and Indices for a 12-Slot Platform in the Gulf of Mexico 300-Foot Water Depth

Component	Index (1976=100)				1995* Cost
	1992	1993	1994	1995	(dollars)
Labor	261.9	261.9	272.4	272.4	629,300
Supervision	262.4	262.4	272.8	272.8	94,400
Payroll Overhead	349.3	349.3	363.2	363.2	289,500
Food Expense	146.7	153.8	183.7	189.7	75,500
Labor Transportation	253.8	263.2	263.2	263.2	505,400
Surface Equipment	224.6	227.8	224.6	229.4	114,700
Operating Supplies	225.0	228.0	225.0	229.0	22,900
Workover	269.4	288.3	291.8	319.5	913,800
Communications	93.8	93.1	93.1	93.1	28,400
Administrative	254.5	255.1	262.8	263.8	306,800
Insurance	106.4	122.4	143.9	143.9	350,300
Total or Index	**209.5**	**217.6**	**226.0**	**231.9**	**3,331,000**

Table G3. Annual Operating Costs and Indices for a 18-Slot Platform in the Gulf of Mexico 100-Foot Water Depth

Component	Index (1976=100)				1995* Cost
	1992	1993	1994	1995	(dollars)
Labor	253.6	253.6	263.8	263.8	693,700
Supervision	254.1	254.1	264.2	264.2	104,100
Payroll Overhead	337.9	337.9	351.4	351.4	319,100
Food Expense	146.6	153.6	183.5	189.5	86,200
Labor Transportation	249.1	259.4	259.4	259.4	458,600
Surface Equipment	202.9	205.8	203.1	207.2	114,600
Operating Supplies	201.8	205.4	202.7	206.3	22,900
Workover	269.0	287.2	290.9	318.5	1,286,200
Communications	169.1	167.5	167.5	167.5	20,600
Administrative	244.0	244.6	252.2	253.0	332,500
Insurance	106.3	122.3	143.6	143.6	455,500
Total or Index	**204.1**	**212.8**	**221.5**	**228.4**	**3,894,000**

Table G4. Annual Operating Costs and Indices for a 18-Slot Platform in the Gulf of Mexico 300-Foot Water Depth

Component	Index (1976=100)				1995* Cost
	1992	1993	1994	1995	(dollars)
Labor	253.6	253.6	263.8	263.8	693,700
Supervision	254.1	254.1	264.2	264.2	104,100
Payroll Overhead	338.3	338.3	351.8	351.8	319,100
Food Expense	146.6	153.6	183.5	189.5	86,200
Labor Transportation	203.6	213.1	213.1	213.1	409,200
Surface Equipment	200.7	203.6	200.9	205.0	114,600
Operating Supplies	200.0	203.6	200.9	204.5	22,900
Workover	273.3	292.5	296.0	324.1	1,370,600
Communications	93.8	93.1	93.1	93.1	28,400
Administrative	243.2	243.9	251.4	252.3	332,500
Insurance	105.3	121.1	142.3	142.3	486,200
Total or Index	**197.9**	**206.8**	**215.3**	**222.3**	**3,967,500**

Table G5. Annual Operating Costs and Indices for a 18-Slot Platform in the Gulf of Mexico 600-Foot Water Depth

Component	Index (1976=100)				1995* Cost
	1992	1993	1994	1995	(dollars)
Labor	253.6	253.6	263.8	263.8	693,700
Supervision	254.1	254.1	264.2	264.2	104,100
Payroll Overhead	338.3	338.3	351.8	351.8	319,100
Food Expense	146.6	153.6	183.5	189.5	86,200
Labor Transportation	246.8	255.7	255.7	255.7	523,080
Surface Equipment	226.8	230.0	227.0	231.6	130,600
Operating Supplies	226.5	229.2	226.5	231.0	26,100
Workover	263.7	282.2	286.6	313.5	1,405,200
Communications	88.8	88.3	88.3	88.3	32,300
Administrative	248.4	249.1	256.5	257.5	340,200
Insurance	111.8	128.6	151.1	151.1	781,700
Total or Index	**193.2**	**202.7**	**212.6**	**218.9**	**4,442,280**

Section II

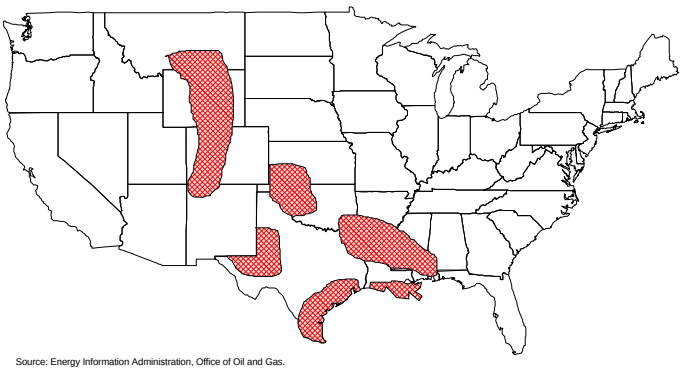
Appendices H Through M

Costs and Indices for Domestic Gas Field Equipment and Production Operations

Appendices H Through M

Costs and Indices for Domestic Gas Field Equipment and Production Operations

Figure 2. Geographical Regions for Gas Producing Leases



Source: Energy Information Administration, Office of Oil and Gas.

Appendices H through M contain details for gas leases. A detailed breakdown of 1995 costs and indices for 1992 through 1995 is shown in each of the gas lease tables. The tables are arranged by region with each region identified by an alpha character. Each table within the appendix is for a different depth. For example, Table H1 contains equipping cost data for west Texas gas leases at 2,000-foot depths; Table H2 contains equipping cost data for gas leases at 4,000-foot depths; Table H5 contains equipping cost data for 16,000-foot wells. Tables H6 through H10 contain operating costs for gas wells at 2,000, 4,000, 8,000, 12,000 and 16,000-foot depths, respectively. Each table is further divided into costs associated with different flow rates. For example, Table H1 has equipping costs for production rates of 50 and 250 thousand cubic feet per day only. Table H11 is a typical equipment list for a 12,000-foot gas well producing 1 million cubic feet per day in west Texas.

The remaining tables of costs and indices for gas leases by region are arranged in similar order. These appendices are: Appendix I--south Texas, Appendix J--south Louisiana, Appendix K--north Louisiana, Appendix L-- Mid- Continent, and Appendix M--Rocky Mountain Region.

Notes: • 1995 data are preliminary and are marked with a single asterisk (*). • All prior data were revised. • Indices marked with a double asterisk (**) are composite indices. • Other indices are pure cost.

Table H1. Lease Equipment Costs and Indices for Gas Production in West Texas (1 Well Producing from 2,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Flowlines and Connections	153.8	176.9	176.9	184.6	2,400
Production Package	161.8	170.6	170.6	170.6	5,800
Storage Tanks	187.0	198.1	179.6	188.9	10,200
Total or Index	**174.3**	**186.1**	**176.2**	**182.2**	**18,400**
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	153.8	176.9	176.9	184.6	2,400
Production Package	161.8	170.6	170.6	170.6	5,800
Storage Tanks	187.0	198.1	179.6	188.9	10,200
Total or Index	**174.3**	**186.1**	**176.2**	**182.2**	**18,400**

Table H2. Lease Equipment Costs and Indices for Gas Production in West Texas (1 Well Producing from 4,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Flowlines and Connections	153.8	176.9	176.9	184.6	2,400
Production Package	161.8	170.6	170.6	170.6	5,800
Storage Tanks	187.0	198.1	179.6	188.9	10,200
Total or Index	**174.3**	**186.1**	**176.2**	**182.2**	**18,400**
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	208.9	217.8	186.7	200.0	9,000
Production Package	171.4	182.9	182.9	182.9	6,400
Storage Tanks	187.0	198.1	179.6	188.9	10,200
Total or Index	**190.3**	**200.7**	**182.8**	**191.0**	**25,600**

Table H3. Lease Equipment Costs and Indices for Gas Production in West Texas (1 Well Producing from 8,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Flowlines and Connections	204.2	210.4	185.4	197.9	9,500
Production Package	189.7	200.0	200.0	200.0	5,800
Storage Tanks	187.0	198.1	179.6	188.9	10,200
Total or Index	**193.9**	**203.1**	**186.3**	**194.7**	**25,500**
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	204.2	210.4	185.4	197.9	9,500
Production Package	171.4	182.9	182.9	182.9	6,400
Dehydrators	181.7	183.9	158.1	157.0	14,600
Storage Tanks	187.0	198.1	179.6	188.9	10,200
Total or Index	**186.1**	**192.6**	**172.6**	**177.0**	**40,700**
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	226.8	231.7	202.4	217.1	8,900
Production Package	150.0	160.0	160.0	160.0	6,400
Dehydrators	181.7	183.9	158.1	157.0	14,600
Storage Tanks	187.0	198.1	179.6	188.9	10,200
Total or Index	**185.5**	**191.7**	**171.5**	**175.9**	**40,100**

Table H4. Lease Equipment Costs and Indices for Gas Production in West Texas (1 Well Producing from 12,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	285.5	291.3	291.3	313.0	21,600
Production Package	150.0	160.0	160.0	160.0	6,400
Dehydrators	181.7	183.9	158.1	157.0	14,600
Storage Tanks	187.0	198.1	179.6	188.9	10,200
Total or Index	**205.9**	**212.1**	**198.8**	**206.3**	**52,800**
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	309.7	314.5	316.1	338.7	21,000
Production Package	150.0	160.0	160.0	160.0	6,400
Dehydrators	181.7	183.9	158.1	157.0	14,600
Storage Tanks	187.0	198.1	179.6	188.9	10,200
Total or Index	**209.6**	**215.7**	**202.4**	**209.6**	**52,200**
	1 Million Cubic Feet Per Day				
Flowlines and Connections	321.2	323.1	323.1	348.1	18,100
Production Package	145.5	150.5	109.1	109.1	10,800
Dehydrators	181.7	183.9	158.1	157.0	14,600
Storage Tanks	187.0	198.1	179.6	188.9	10,200
Total or Index	**195.0**	**199.7**	**174.5**	**180.2**	**53,700**

Table H5. Lease Equipment Costs and Indices for Gas Production in West Texas (1 Well Producing from 16,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	321.2	323.1	323.1	348.1	18,100
Production Package	145.5	150.5	109.1	109.1	10,800
Dehydrators	181.7	183.9	158.1	157.0	14,600
Storage Tanks	187.0	198.1	179.6	188.9	10,200
Total or Index	**195.0**	**199.7**	**174.5**	**180.2**	**53,700**
	1 Million Cubic Feet Per Day				
Flowlines and Connections	321.2	323.1	323.1	348.1	18,100
Production Package	145.5	150.5	109.1	109.1	10,800
Dehydrators	181.7	183.9	158.1	157.0	14,600
Storage Tanks	187.0	198.1	179.6	188.9	10,200
Total or Index	**195.0**	**199.7**	**174.5**	**180.2**	**53,700**
	5 Million Cubic Feet Per Day				
Flowlines and Connections	303.7	304.3	301.2	323.8	53,100
Production Package	145.4	151.9	129.6	123.1	13,300
Dehydrators	203.5	207.1	187.6	187.6	21,200
Storage Tanks	187.0	198.1	179.6	188.9	10,200
Total or Index	**224.6**	**228.7**	**214.8**	**222.8**	**97,800**

Table H6. Direct Annual Operating Costs and Indices for Gas Production in West Texas (1 Well Producing from 2,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	275.0	275.0	283.3	283.3	3,400
Fuel, Chemicals & Disposal	300.0	300.0	300.0	300.0	600
Surface Maintenance	240.0	233.3	233.3	233.3	3,500
Subsurface Maintenance	180.0	180.0	180.0	180.0	900
Total or Index**	**247.1**	**244.1**	**247.1**	**247.1**	**8,400**
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	275.0	275.0	283.3	283.3	3,400
Fuel, Chemicals & Disposal	220.0	220.0	220.0	220.0	2,200
Surface Maintenance	240.0	233.3	233.3	233.3	3,500
Subsurface Maintenance	180.0	180.0	180.0	180.0	900
Total or Index**	**238.1**	**235.7**	**238.1**	**238.1**	**10,000**

Table H7. Direct Annual Operating Costs and Indices for Gas Production in West Texas (1 Well Producing from 4,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	264.3	271.4	271.4	271.4	3,800
Fuel, Chemicals & Disposal	220.0	220.0	220.0	220.0	1,100
Surface Maintenance	266.7	260.0	260.0	260.0	3,900
Subsurface Maintenance	185.7	185.7	185.7	185.7	1,300
Total or Index	**246.3**	**246.3**	**246.3**	**246.3**	**10,100**
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	264.3	271.4	271.4	271.4	3,800
Fuel, Chemicals & Disposal	220.0	220.0	220.0	220.0	4,400
Surface Maintenance	230.0	225.0	220.0	220.0	4,400
Subsurface Maintenance	185.7	185.7	185.7	185.7	1,300
Total or Index	**229.5**	**229.5**	**227.9**	**227.9**	**13,900**

Table H8. Direct Annual Operating Costs and Indices for Gas Production in West Texas (1 Well Producing from 8,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	268.8	275.0	275.0	281.3	4,500
Fuel, Chemicals & Disposal	220.0	220.0	220.0	220.0	2,200
Surface Maintenance	230.0	225.0	220.0	220.0	4,400
Subsurface Maintenance	175.0	175.0	175.0	175.0	2,100
Total or Index	**227.6**	**227.6**	**225.9**	**227.6**	**13,200**
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	268.8	275.0	275.0	281.3	4,500
Fuel, Chemicals & Disposal	228.2	228.2	228.2	228.2	8,900
Surface Maintenance	228.2	223.1	217.9	217.9	8,500
Subsurface Maintenance	175.0	175.0	175.0	175.0	2,100
Total or Index	**228.3**	**227.4**	**225.5**	**226.4**	**24,000**
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	268.8	275.0	275.0	281.3	4,500
Fuel, Chemicals & Disposal	238.1	238.1	238.1	233.3	4,900
Surface Maintenance	229.4	223.5	217.6	217.6	7,400
Subsurface Maintenance	175.0	175.0	175.0	175.0	2,100
Total or Index	**231.3**	**230.1**	**227.7**	**227.7**	**18,900**

Table H9. Direct Annual Operating Costs and Indices for Gas Production in West Texas (1 Well Producing from 12,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	273.7	278.9	278.9	284.2	5,400
Fuel, Chemicals & Disposal	222.0	222.0	222.0	222.0	11,100
Surface Maintenance	222.5	217.5	212.5	212.5	8,500
Subsurface Maintenance	188.5	188.5	188.5	188.5	4,900
Total or Index**	**223.0**	**222.2**	**220.7**	**221.5**	**29,900**
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	273.7	278.9	278.9	284.2	5,400
Fuel, Chemicals & Disposal	224.0	224.0	220.0	220.0	5,500
Surface Maintenance	222.9	217.1	211.4	211.4	7,400
Subsurface Maintenance	188.5	188.5	188.5	188.5	4,900
Total or Index**	**223.8**	**222.9**	**220.0**	**221.0**	**23,200**
	1 Million Cubic Feet Per Day				
Direct Labor & Overhead	273.7	278.9	278.9	284.2	5,400
Fuel, Chemicals & Disposal	226.9	226.9	225.0	223.1	11,600
Surface Maintenance	212.8	207.7	200.0	200.0	7,800
Subsurface Maintenance	188.5	188.5	188.5	188.5	4,900
Total or Index**	**222.1**	**221.3**	**218.4**	**218.4**	**29,700**

Table H10. Direct Annual Operating Costs and Indices for Gas Production in West Texas (1 Well Producing from 16,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	273.7	278.9	278.9	284.2	5,400
Fuel, Chemicals & Disposal	222.6	222.6	222.6	219.4	6,800
Surface Maintenance	225.6	223.1	215.4	217.9	8,500
Subsurface Maintenance	183.9	183.9	183.9	183.9	5,700
Total or Index**	**221.7**	**221.7**	**219.2**	**220.0**	**26,400**
	1 Million Cubic Feet Per Day				
Direct Labor & Overhead	273.7	278.9	278.9	284.2	5,400
Fuel, Chemicals & Disposal	223.0	221.3	219.7	219.7	13,400
Surface Maintenance	225.6	223.1	215.4	217.9	8,500
Subsurface Maintenance	183.9	183.9	183.9	183.9	5,700
Total or Index**	**222.0**	**221.3**	**218.7**	**220.0**	**33,000**
	5 Million Cubic Feet Per Day				
Direct Labor & Overhead	273.7	278.9	278.9	284.2	5,400
Fuel, Chemicals & Disposal	146.5	153.5	153.5	153.5	15,200
Surface Maintenance	238.8	236.7	230.6	234.7	11,500
Subsurface Maintenance	133.3	133.3	130.3	133.3	4,400
Total or Index**	**179.0**	**182.5**	**180.5**	**182.5**	**36,500**

Table H11. Detailed Lease Equipment List for 12,000-Foot Gas Wells in West Texas Producing 1 Million Cubic Feet per Day

Safety Valve

Size: 2 inches
Working Pressure: 10,000 pounds per square inch
Actuates: High/low pressures

Production Package

Choke: Built in, inlet
Coils: 2 inch XH
Heater rating: 250,000 BTU per hour
Size: 16 inches by 8 feet
Working pressure: 1,000 pounds per square inch

Dehydrator/Reconcentrator

Type: Glycol absorption
Size: 12-3/4 inches
Working pressure: 1,440 pounds per square inch

Storage Tanks (2)

Size: 10 feet by 15 feet
Capacity 210 barrels
Construction: Welded steel

Source: Energy Information Administration, Office of Oil and Gas

Table I1. Lease Equipment Costs and Indices for Gas Production in South Texas (1 Well Producing from 2,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Flowlines and Connections	161.5	184.6	184.6	192.3	2,500
Production Package	148.6	154.3	160.0	160.0	5,600
Storage Tanks	183.6	194.5	176.4	185.5	10,200
Total or Index	**168.9**	**179.6**	**171.8**	**177.7**	**18,300**
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	161.5	184.6	184.6	192.3	2,500
Production Package	148.6	154.3	160.0	160.0	5,600
Storage Tanks	183.6	194.5	176.4	185.5	10,200
Total or Index	**168.9**	**179.6**	**171.8**	**177.7**	**18,300**

Table I2. Lease Equipment Costs and Indices for Gas Production in South Texas (1 Well Producing from 4,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Flowlines and Connections	161.5	184.6	184.6	192.3	2,500
Production Package	148.6	154.3	160.0	160.0	5,600
Storage Tanks	183.6	194.5	176.4	185.5	10,200
Total or Index	**168.9**	**179.6**	**171.8**	**177.7**	**18,300**
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	206.5	213.0	184.8	195.7	9,000
Production Package	154.1	162.2	170.3	170.3	6,300
Storage Tanks	183.6	194.5	176.4	185.5	10,200
Total or Index	**183.3**	**192.0**	**177.5**	**184.8**	**25,500**

Table I3. Lease Equipment Costs and Indices for Gas Production in South Texas (1 Well Producing from 8,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	200.0	206.1	183.7	195.9	9,600
Production Package	154.1	162.2	170.3	170.3	6,300
Dehydrators	176.8	183.2	157.9	156.8	14,900
Storage Tanks	183.6	194.5	176.4	185.5	10,200
Total or Index	**179.7**	**187.3**	**169.5**	**173.7**	**41,000**
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	226.8	231.7	202.4	217.1	8,900
Production Package	135.7	142.9	150.0	150.0	6,300
Dehydrators	176.8	183.2	157.9	156.8	14,900
Storage Tanks	183.6	194.5	176.4	185.5	10,200
Total or Index	**179.8**	**187.1**	**168.7**	**173.0**	**40,300**
	1 Million Cubic Feet Per Day				
Flowlines and Connections	321.2	323.1	323.1	348.1	18,100
Production Package	146.0	150.0	109.0	109.0	10,900
Dehydrators	176.8	183.2	157.9	156.8	14,900
Storage Tanks	187.0	198.1	179.6	188.9	10,200
Total or Index	**193.4**	**199.0**	**174.1**	**179.7**	**54,100**

Table I4. Lease Equipment Costs and Indices for Gas Production in South Texas (1 Well Producing from 12,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	309.7	314.5	316.1	338.7	21,000
Production Package	135.7	142.9	150.0	150.0	6,300
Dehydrators	176.8	183.2	157.9	156.8	14,900
Storage Tanks	183.6	194.5	176.4	185.5	10,200
Total or Index	**203.9**	**211.0**	**199.2**	**206.3**	**52,400**
	1 Million Cubic Feet Per Day				
Flowlines and Connections	321.2	323.1	323.1	348.1	18,100
Production Package	146.0	150.0	109.0	109.0	10,900
Dehydrators	176.8	183.2	157.9	156.8	14,900
Storage Tanks	183.6	194.5	176.4	185.5	10,200
Total or Index	**192.7**	**198.3**	**173.5**	**179.1**	**54,100**
	5 Million Cubic Feet Per Day				
Flowlines and Connections	303.7	304.3	301.2	323.8	53,100
Production Package	145.5	150.9	129.1	123.6	13,600
Dehydrators	200.0	206.1	187.0	187.0	21,500
Storage Tanks	183.6	194.5	176.4	185.5	10,200
Total or Index	**222.7**	**227.3**	**213.5**	**221.6**	**98,400**

Table I5. Direct Annual Operating Costs and Indices for Gas Production in South Texas (1 Well Producing from 2,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	261.5	276.9	276.9	284.6	3,700
Fuel, Chemicals & Disposal	300.0	300.0	300.0	300.0	600
Surface Maintenance	210.5	236.8	236.8	236.8	4,500
Subsurface Maintenance	180.0	180.0	200.0	200.0	1,000
Total or Index	**228.2**	**246.2**	**248.7**	**251.3**	**9,800**
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	261.5	276.9	276.9	284.6	3,700
Fuel, Chemicals & Disposal	220.0	220.0	220.0	220.0	2,200
Surface Maintenance	210.5	236.8	236.8	236.8	4,500
Subsurface Maintenance	180.0	180.0	200.0	200.0	1,000
Total or Index	**223.4**	**238.3**	**240.4**	**242.6**	**11,400**

Table I6. Direct Annual Operating Costs and Indices for Gas Production in South Texas (1 Well Producing from 4,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	271.4	292.9	292.9	292.9	4,100
Fuel, Chemicals & Disposal	220.0	220.0	220.0	220.0	1,100
Surface Maintenance	210.5	236.8	236.8	236.8	4,500
Subsurface Maintenance	185.7	200.0	200.0	214.3	1,500
Total or Index	**226.7**	**246.7**	**246.7**	**248.9**	**11,200**
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	271.4	292.9	292.9	292.9	4,100
Fuel, Chemicals & Disposal	220.0	220.0	220.0	220.0	4,400
Surface Maintenance	191.7	216.7	212.5	212.5	5,100
Subsurface Maintenance	185.7	200.0	200.0	214.3	1,500
Total or Index	**216.9**	**232.3**	**230.8**	**232.3**	**15,100**

Table I7. Direct Annual Operating Costs and Indices for Gas Production in South Texas (1 Well Producing from 8,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	258.8	276.5	276.5	282.4	4,800
Fuel, Chemicals & Disposal	225.6	225.6	225.6	225.6	8,800
Surface Maintenance	187.2	212.8	208.5	208.5	9,800
Subsurface Maintenance	191.7	191.7	208.3	216.7	2,600
Total or Index**	**211.3**	**224.3**	**224.3**	**226.1**	**26,000**
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	258.8	276.5	276.5	282.4	4,800
Fuel, Chemicals & Disposal	125.0	140.0	137.5	137.5	5,500
Surface Maintenance	187.8	212.2	207.3	207.3	8,500
Subsurface Maintenance	191.7	191.7	208.3	216.7	2,600
Total or Index**	**176.4**	**193.6**	**192.7**	**194.5**	**21,400**
	1 Million Cubic Feet Per Day				
Direct Labor & Overhead	258.8	276.5	276.5	282.4	4,800
Fuel, Chemicals & Disposal	265.4	286.5	286.5	284.6	14,800
Surface Maintenance	191.3	213.0	206.5	208.7	9,600
Subsurface Maintenance	191.7	191.7	208.3	216.7	2,600
Total or Index**	**230.7**	**249.6**	**248.8**	**250.4**	**31,800**

Table I8. Direct Annual Operating Costs and Indices for Gas Production in South Texas (1 Well Producing from 12,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	265.0	285.0	285.0	290.0	5,800
Fuel, Chemicals & Disposal	196.6	217.2	217.2	213.8	6,200
Surface Maintenance	197.6	219.0	216.7	219.0	9,200
Subsurface Maintenance	200.0	204.2	216.7	225.0	5,400
Total or Index**	**209.6**	**227.0**	**228.7**	**231.3**	**26,600**
	1 Million Cubic Feet Per Day				
Direct Labor & Overhead	265.0	285.0	285.0	290.0	5,800
Fuel, Chemicals & Disposal	164.4	183.1	181.4	181.4	10,700
Surface Maintenance	191.3	213.0	206.5	208.7	9,600
Subsurface Maintenance	200.0	204.2	216.7	225.0	5,400
Total or Index**	**191.9**	**209.4**	**208.7**	**211.4**	**31,500**
	5 Million Cubic Feet Per Day				
Direct Labor & Overhead	265.0	285.0	285.0	290.0	5,800
Fuel, Chemicals & Disposal	156.1	164.9	163.2	163.2	9,300
Surface Maintenance	185.7	203.2	198.4	201.6	12,700
Subsurface Maintenance	184.6	188.5	200.0	207.7	5,400
Total or Index**	**184.9**	**197.6**	**197.0**	**200.0**	**33,200**

Table J1. Lease Equipment Costs and Indices for Gas Production in South Louisiana (1 Well Producing from 2,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Flowlines and Connections	150.0	164.3	164.3	178.6	2,500
Production Package	148.6	151.4	160.0	162.9	5,700
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**167.6**	**174.3**	**168.6**	**176.2**	**18,500**
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	150.0	164.3	164.3	178.6	2,500
Production Package	148.6	151.4	160.0	162.9	5,700
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**167.6**	**174.3**	**168.6**	**176.2**	**18,500**

Table J2. Lease Equipment Costs and Indices for Gas Production in South Louisiana (1 Well Producing from 4,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Flowlines and Connections	150.0	164.3	164.3	178.6	2,500
Production Package	148.6	151.4	160.0	162.9	5,700
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**167.6**	**174.3**	**168.6**	**176.2**	**18,500**
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	208.7	213.0	184.8	195.7	9,000
Production Package	156.8	162.2	167.6	170.3	6,300
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**184.9**	**190.6**	**176.3**	**184.2**	**25,600**

Table J3. Lease Equipment Costs and Indices for Gas Production in South Louisiana (1 Well Producing from 8,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	202.0	206.1	183.7	195.9	9,600
Production Package	156.8	162.2	167.6	170.3	6,300
Dehydrators	176.0	180.2	156.3	155.2	14,900
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**180.3**	**185.3**	**168.1**	**172.7**	**41,100**
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	226.8	231.7	202.4	217.1	8,900
Production Package	138.1	142.9	147.6	150.0	6,300
Dehydrators	176.0	180.2	156.3	155.2	14,900
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**180.0**	**185.1**	**167.2**	**171.9**	**40,400**
	1 Million Cubic Feet Per Day				
Flowlines and Connections	321.2	323.1	323.1	348.1	18,100
Production Package	146.0	149.0	109.0	109.0	10,900
Dehydrators	176.0	180.2	156.3	155.2	14,900
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**192.4**	**196.4**	**172.7**	**178.3**	**54,200**

Table J4. Lease Equipment Costs and Indices for Gas Production in South Louisiana (1 Well Producing from 12,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	309.7	314.5	316.1	338.7	21,000
Production Package	138.1	142.9	147.6	150.0	6,300
Dehydrators	176.0	180.2	156.3	155.2	14,900
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**203.9**	**209.0**	**197.7**	**205.1**	**52,500**
	1 Million Cubic Feet Per Day				
Flowlines and Connections	321.2	323.1	323.1	348.1	18,100
Production Package	146.0	149.0	109.0	109.0	10,900
Dehydrators	176.0	180.2	156.3	155.2	14,900
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**192.4**	**196.4**	**172.7**	**178.3**	**54,200**
	5 Million Cubic Feet Per Day				
Flowlines and Connections	303.7	304.3	301.2	323.8	53,100
Production Package	146.4	150.0	129.1	123.6	13,600
Dehydrators	199.1	203.4	185.3	185.3	21,500
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**222.6**	**225.8**	**212.8**	**220.9**	**98,500**

Table J5. Lease Equipment Costs and Indices for Gas Production in South Louisiana (1 Well Producing from 16,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	309.7	314.5	316.1	338.7	21,000
Production Package	138.1	142.9	147.6	150.0	6,300
Dehydrators	176.0	180.2	156.3	155.2	14,900
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**203.9**	**209.0**	**197.7**	**205.1**	**52,500**
	1 Million Cubic Feet Per Day				
Flowlines and Connections	321.2	323.1	323.1	348.1	18,100
Production Package	146.0	149.0	109.0	109.0	10,900
Dehydrators	176.0	180.2	156.3	155.2	14,900
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**192.4**	**196.4**	**172.7**	**178.3**	**54,200**
	5 Million Cubic Feet Per Day				
Flowlines and Connections	303.7	304.3	301.2	323.8	53,100
Production Package	146.4	150.0	129.1	123.6	13,600
Dehydrators	199.1	203.4	185.3	185.3	21,500
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**222.6**	**225.8**	**212.8**	**220.9**	**98,500**

Table J6. Direct Annual Operating Costs and Indices for Gas Production in South Louisiana (1 Well Producing from 2,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	253.8	261.5	269.2	269.2	3,500
Fuel, Chemicals & Disposal	300.0	300.0	300.0	300.0	600
Surface Maintenance	185.0	195.0	200.0	205.0	4,100
Subsurface Maintenance	166.7	166.7	166.7	166.7	1,000
Total or Index**	**209.8**	**217.1**	**222.0**	**224.4**	**9,200**
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	253.8	261.5	269.2	269.2	3,500
Fuel, Chemicals & Disposal	220.0	220.0	220.0	220.0	2,200
Surface Maintenance	185.0	195.0	200.0	205.0	4,100
Subsurface Maintenance	166.7	166.7	166.7	166.7	1,000
Total or Index**	**208.2**	**214.3**	**218.4**	**220.4**	**10,800**

Table J7. Direct Annual Operating Costs and Indices for Gas Production in South Louisiana (1 Well Producing from 4,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	264.3	271.4	278.6	285.7	4,000
Fuel, Chemicals & Disposal	220.0	220.0	220.0	220.0	1,100
Surface Maintenance	185.0	195.0	200.0	205.0	4,100
Subsurface Maintenance	175.0	175.0	175.0	187.5	1,500
Total or Index	**210.6**	**217.0**	**221.3**	**227.7**	**10,700**
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	264.3	271.4	278.6	285.7	4,000
Fuel, Chemicals & Disposal	220.0	220.0	220.0	220.0	4,400
Surface Maintenance	192.0	200.0	200.0	204.0	5,100
Subsurface Maintenance	175.0	175.0	175.0	187.5	1,500
Total or Index	**213.4**	**217.9**	**219.4**	**223.9**	**15,000**

Table J8. Direct Annual Operating Costs and Indices for Gas Production in South Louisiana (1 Well Producing from 8,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	252.9	258.8	264.7	270.6	4,600
Fuel, Chemicals & Disposal	225.6	225.6	225.6	225.6	8,800
Surface Maintenance	184.0	192.0	194.0	196.0	9,800
Subsurface Maintenance	191.7	191.7	191.7	200.0	2,400
Total or Index	**208.5**	**212.7**	**214.4**	**216.9**	**25,600**
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	252.9	258.8	264.7	270.6	4,600
Fuel, Chemicals & Disposal	200.0	207.7	211.5	215.4	5,600
Surface Maintenance	187.8	195.9	198.0	200.0	9,800
Subsurface Maintenance	191.7	191.7	191.7	200.0	2,400
Total or Index	**201.9**	**208.7**	**211.5**	**215.4**	**22,400**
	1 Million Cubic Feet Per Day				
Direct Labor & Overhead	252.9	258.8	264.7	270.6	4,600
Fuel, Chemicals & Disposal	200.0	209.3	213.0	214.8	11,600
Surface Maintenance	189.6	197.9	195.8	200.0	9,600
Subsurface Maintenance	191.7	191.7	191.7	200.0	2,400
Total or Index	**202.3**	**209.9**	**211.5**	**215.3**	**28,200**

Table J9. Direct Annual Operating Costs and Indices for Gas Production in South Louisiana (1 Well Producing from 12,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	260.0	265.0	275.0	280.0	5,600
Fuel, Chemicals & Disposal	196.7	203.3	206.7	210.0	6,300
Surface Maintenance	195.5	202.3	204.5	209.1	9,200
Subsurface Maintenance	183.3	183.3	187.5	191.7	4,600
Total or Index**	**204.2**	**209.3**	**213.6**	**217.8**	**25,700**
	1 Million Cubic Feet Per Day				
Direct Labor & Overhead	260.0	265.0	275.0	280.0	5,600
Fuel, Chemicals & Disposal	200.0	208.2	209.8	213.1	13,000
Surface Maintenance	189.6	197.9	195.8	200.0	9,600
Subsurface Maintenance	200.0	204.2	204.2	212.5	5,100
Total or Index**	**204.6**	**211.8**	**213.1**	**217.6**	**33,300**
	5 Million Cubic Feet Per Day				
Direct Labor & Overhead	260.0	265.0	275.0	280.0	5,600
Fuel, Chemicals & Disposal	163.4	178.0	178.0	178.0	7,300
Surface Maintenance	201.8	207.0	205.3	212.3	12,100
Subsurface Maintenance	184.6	188.5	188.5	196.2	5,100
Total or Index**	**195.8**	**203.5**	**204.2**	**209.0**	**30,100**

Table J10. Direct Annual Operating Costs and Indices for Gas Production in South Louisiana (1 Well Producing from 16,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	260.0	265.0	275.0	280.0	5,600
Fuel, Chemicals & Disposal	191.4	197.1	200.0	202.9	7,100
Surface Maintenance	195.5	202.3	204.5	209.1	9,200
Subsurface Maintenance	175.8	178.8	181.8	187.9	6,200
Total or Index**	**199.2**	**204.5**	**208.3**	**212.9**	**28,100**
	1 Million Cubic Feet Per Day				
Direct Labor & Overhead	260.0	265.0	275.0	280.0	5,600
Fuel, Chemicals & Disposal	197.2	202.8	205.6	208.5	14,800
Surface Maintenance	189.6	197.9	195.8	200.0	9,600
Subsurface Maintenance	175.8	178.8	181.8	187.9	6,200
Total or Index**	**198.3**	**204.1**	**206.4**	**210.5**	**36,200**
	5 Million Cubic Feet Per Day				
Direct Labor & Overhead	260.0	265.0	275.0	280.0	5,600
Fuel, Chemicals & Disposal	149.5	156.8	158.9	161.1	15,300
Surface Maintenance	194.9	200.0	198.3	205.1	12,100
Subsurface Maintenance	177.1	182.9	182.9	188.6	6,600
Total or Index**	**177.5**	**183.7**	**185.2**	**189.5**	**39,600**

Table K1. Lease Equipment Costs and Indices for Gas Production in North Louisiana (1 Well Producing from 2,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Flowlines and Connections	150.0	164.3	164.3	178.6	2,500
Production Package	148.6	151.4	160.0	162.9	5,700
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**167.6**	**174.3**	**168.6**	**176.2**	**18,500**
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	150.0	164.3	164.3	178.6	2,500
Production Package	148.6	151.4	160.0	162.9	5,700
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**167.6**	**174.3**	**168.6**	**176.2**	**18,500**

Table K2. Lease Equipment Costs and Indices for Gas Production in North Louisiana (1 Well Producing from 4,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	208.7	213.0	184.8	195.7	9,000
Production Package	167.6	175.7	178.4	186.5	6,900
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**187.8**	**194.2**	**179.1**	**188.5**	**26,200**
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	250.0	283.3	283.3	300.0	1,800
Production Package	138.1	142.9	147.6	150.0	6,300
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**169.2**	**176.9**	**170.2**	**176.9**	**18,400**

Table K3. Lease Equipment Costs and Indices for Gas Production in North Louisiana (1 Well Producing from 8,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	202.0	206.1	183.7	195.9	9,600
Production Package	154.1	156.8	162.2	167.6	6,200
Dehydrators	176.0	180.2	156.3	155.2	14,900
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**179.8**	**184.5**	**167.2**	**172.3**	**41,000**
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	226.8	231.7	202.4	217.1	8,900
Production Package	138.1	142.9	147.6	150.0	6,300
Dehydrators	176.0	180.2	156.3	155.2	14,900
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**180.0**	**185.1**	**167.2**	**171.9**	**40,400**

Table K4. Lease Equipment Costs and Indices for Gas Production in North Louisiana (1 Well Producing from 12,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	309.7	314.5	316.1	338.7	21,000
Production Package	138.1	142.9	147.6	150.0	6,300
Dehydrators	176.0	180.2	156.3	155.2	14,900
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**203.9**	**209.0**	**197.7**	**205.1**	**52,500**
	1 Million Cubic Feet Per Day				
Flowlines and Connections	321.2	323.1	323.1	348.1	18,100
Production Package	146.0	149.0	109.0	109.0	10,900
Dehydrators	176.0	180.2	156.3	155.2	14,900
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**192.4**	**196.4**	**172.7**	**178.3**	**54,200**

Table K5. Lease Equipment Costs and Indices for Gas Production in North Louisiana (1 Well Producing from 16,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	1 Million Cubic Feet Per Day				
Flowlines and Connections	321.2	323.1	323.1	348.1	18,100
Production Package	146.0	149.0	109.0	109.0	10,900
Dehydrators	176.0	180.2	156.3	155.2	14,900
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**192.4**	**196.4**	**172.7**	**178.3**	**54,200**
	5 Million Cubic Feet Per Day				
Flowlines and Connections	303.7	304.3	301.2	323.8	53,100
Production Package	146.4	150.0	129.1	123.6	13,600
Dehydrators	199.1	203.4	185.3	185.3	21,500
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**222.6**	**225.8**	**212.8**	**220.9**	**98,500**
	10 Million Cubic Feet Per Day				
Flowlines and Connections	303.7	304.3	301.2	323.8	53,100
Production Package	146.4	150.0	129.1	123.6	13,600
Dehydrators	190.1	194.3	208.4	208.7	54,900
Storage Tanks	183.9	191.1	175.0	183.9	10,300
Total or Index	**212.8**	**216.2**	**216.2**	**222.4**	**131,900**

Table K6. Direct Annual Operating Costs and Indices for Gas Production in North Louisiana (1 Well Producing from 2,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	253.8	261.5	269.2	269.2	3,500
Fuel, Chemicals & Disposal	250.0	250.0	250.0	250.0	500
Surface Maintenance	185.0	195.0	200.0	205.0	4,100
Subsurface Maintenance	166.7	166.7	166.7	166.7	1,000
Total or Index**	**207.3**	**214.6**	**219.5**	**222.0**	**9,100**
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	253.8	261.5	269.2	269.2	3,500
Fuel, Chemicals & Disposal	210.0	210.0	210.0	210.0	2,100
Surface Maintenance	185.0	195.0	200.0	205.0	4,100
Subsurface Maintenance	166.7	166.7	166.7	166.7	1,000
Total or Index**	**206.1**	**212.2**	**216.3**	**218.4**	**10,700**

Table K7. Direct Annual Operating Costs and Indices for Gas Production in North Louisiana (1 Well Producing from 4,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	264.3	271.4	278.6	285.7	4,000
Fuel, Chemicals & Disposal	205.0	205.0	205.0	205.0	4,100
Surface Maintenance	192.0	200.0	200.0	204.0	5,100
Subsurface Maintenance	175.0	175.0	175.0	175.0	1,400
Total or Index	**209.0**	**213.4**	**214.9**	**217.9**	**14,600**
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	264.3	271.4	278.6	285.7	4,000
Fuel, Chemicals & Disposal	187.5	195.8	200.0	200.0	4,800
Surface Maintenance	192.0	200.0	200.0	204.0	5,100
Subsurface Maintenance	175.0	175.0	175.0	175.0	1,400
Total or Index	**202.8**	**209.9**	**212.7**	**215.5**	**15,300**

Table K8. Direct Annual Operating Costs and Indices for Gas Production in North Louisiana (1 Well Producing from 8,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	252.9	258.8	264.7	270.6	4,600
Fuel, Chemicals & Disposal	212.8	212.8	212.8	212.8	8,300
Surface Maintenance	184.0	192.0	192.0	196.0	9,800
Subsurface Maintenance	208.3	216.7	216.7	225.0	2,700
Total or Index	**205.9**	**211.0**	**211.9**	**215.3**	**25,400**
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	252.9	258.8	264.7	270.6	4,600
Fuel, Chemicals & Disposal	176.9	184.6	188.5	188.5	4,900
Surface Maintenance	187.8	195.9	198.0	200.0	9,800
Subsurface Maintenance	208.3	216.7	216.7	225.0	2,700
Total or Index	**198.1**	**205.8**	**208.7**	**211.5**	**22,000**

Table K9. Direct Annual Operating Costs and Indices for Gas Production in North Louisiana (1 Well Producing from 12,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	260.0	265.0	275.0	280.0	5,600
Fuel, Chemicals & Disposal	190.0	196.7	200.0	203.3	6,100
Surface Maintenance	195.5	202.3	204.5	209.1	9,200
Subsurface Maintenance	141.7	145.8	145.8	154.2	3,700
Total or Index	**194.1**	**200.0**	**203.4**	**208.5**	**24,600**
	1 Million Cubic Feet Per Day				
Direct Labor & Overhead	260.0	265.0	275.0	280.0	5,600
Fuel, Chemicals & Disposal	196.7	204.9	206.6	209.8	12,800
Surface Maintenance	189.6	197.9	195.8	200.0	9,600
Subsurface Maintenance	141.7	145.8	145.8	154.2	3,700
Total or Index	**194.1**	**201.3**	**202.6**	**207.2**	**31,700**

Table K10. Direct Annual Operating Costs and Indices for Gas Production in North Louisiana (1 Well Producing from 16,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	1 Million Cubic Feet Per Day				
Direct Labor & Overhead	260.0	265.0	275.0	280.0	5,600
Fuel, Chemicals & Disposal	193.0	200.0	202.8	204.2	14,500
Surface Maintenance	189.6	195.8	193.8	197.9	9,500
Subsurface Maintenance	175.8	178.8	181.8	187.9	6,200
Total or Index	**196.5**	**202.3**	**204.7**	**208.1**	**35,800**
	5 Million Cubic Feet Per Day				
Direct Labor & Overhead	260.0	265.0	275.0	280.0	5,600
Fuel, Chemicals & Disposal	150.0	158.3	160.4	162.5	15,600
Surface Maintenance	194.9	200.0	196.6	203.4	12,000
Subsurface Maintenance	177.1	182.9	182.9	188.6	6,600
Total or Index	**177.6**	**184.3**	**185.2**	**189.5**	**39,800**
	10 Million Cubic Feet Per Day				
Direct Labor & Overhead	260.0	265.0	275.0	280.0	5,600
Fuel, Chemicals & Disposal	146.0	153.4	155.8	157.1	25,600
Surface Maintenance	198.6	202.9	207.2	213.0	14,700
Subsurface Maintenance	177.1	182.9	182.9	188.6	6,600
Total or Index	**170.4**	**176.7**	**179.8**	**182.9**	**52,500**

Table L1. Lease Equipment Costs and Indices for Gas Production in the Mid-Continent (1 Well Producing from 2,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Flowlines and Connections	169.2	184.6	184.6	192.3	2,500
Production Package	152.9	158.8	164.7	164.7	5,600
Storage Tanks	192.6	200.0	183.3	192.6	10,400
Total or Index	**176.2**	**184.2**	**177.2**	**183.2**	**18,500**
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	169.2	184.6	184.6	192.3	2,500
Production Package	147.5	152.5	157.5	157.5	6,300
Storage Tanks	192.6	200.0	183.3	192.6	10,400
Total or Index	**172.9**	**180.4**	**173.8**	**179.4**	**19,200**

Table L2. Lease Equipment Costs and Indices for Gas Production in the Mid-Continent (1 Well Producing from 4,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Flowlines and Connections	169.2	184.6	184.6	192.3	2,500
Production Package	152.9	158.8	164.7	164.7	5,600
Storage Tanks	192.6	200.0	183.3	192.6	10,400
Total or Index	**176.2**	**184.2**	**177.2**	**183.2**	**18,500**
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	213.3	220.0	188.9	202.2	9,100
Production Package	165.7	171.4	174.3	177.1	6,200
Storage Tanks	192.6	200.0	183.3	192.6	10,400
Total or Index	**192.5**	**199.3**	**182.8**	**191.8**	**25,700**
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	236.8	242.1	205.3	221.1	8,400
Production Package	165.7	171.4	174.3	177.1	6,200
Storage Tanks	192.6	200.0	183.3	192.6	10,400
Total or Index	**198.4**	**204.7**	**187.4**	**196.9**	**25,000**

Table L3. Lease Equipment Costs and Indices for Gas Production in the Mid-Continent (1 Well Producing from 8,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	206.3	212.5	187.5	200.0	9,600
Production Package	165.7	171.4	174.3	177.1	6,200
Dehydrators	184.9	189.2	163.4	161.3	15,000
Storage Tanks	192.6	200.0	183.3	192.6	10,400
Total or Index	**188.3**	**193.9**	**174.8**	**179.1**	**41,200**
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	226.8	231.7	202.4	217.1	8,900
Production Package	175.0	177.5	185.0	185.0	7,400
Dehydrators	184.9	189.2	163.4	161.3	15,000
Storage Tanks	192.6	200.0	183.3	192.6	10,400
Total or Index	**192.5**	**197.4**	**178.9**	**182.9**	**41,700**

Table L4. Lease Equipment Costs and Indices for Gas Production in the Mid-Continent (1 Well Producing from 12,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	288.4	292.8	294.2	314.5	21,700
Production Package	147.5	152.5	157.5	157.5	6,300
Dehydrators	184.9	189.2	163.4	161.3	15,000
Storage Tanks	192.6	200.0	183.3	192.6	10,400
Total or Index	**208.6**	**213.7**	**202.0**	**208.6**	**53,400**
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	309.7	314.5	316.1	338.7	21,000
Production Package	147.5	152.5	157.5	157.5	6,300
Dehydrators	184.9	189.2	163.4	161.3	15,000
Storage Tanks	192.6	200.0	183.3	192.6	10,400
Total or Index	**211.6**	**216.9**	**204.8**	**211.6**	**52,700**
	1 Million Cubic Feet Per Day				
Flowlines and Connections	321.2	323.1	323.1	348.1	18,100
Production Package	147.5	151.5	110.1	110.1	10,900
Dehydrators	184.9	189.2	163.4	161.3	15,000
Storage Tanks	192.6	200.0	183.3	192.6	10,400
Total or Index	**197.7**	**202.0**	**177.2**	**182.6**	**54,400**

Table L5. Lease Equipment Costs and Indices for Gas Production in the Mid-Continent (1 Well Producing from 16,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	321.2	323.1	323.1	348.1	18,100
Production Package	147.5	151.5	110.1	110.1	10,900
Dehydrators	184.9	189.2	163.4	161.3	15,000
Storage Tanks	192.6	200.0	183.3	192.6	10,400
Total or Index	**197.7**	**202.0**	**177.2**	**182.6**	**54,400**
	1 Million Cubic Feet Per Day				
Flowlines and Connections	321.2	323.1	323.1	348.1	18,100
Production Package	147.5	151.5	110.1	110.1	10,900
Dehydrators	184.9	189.2	163.4	161.3	15,000
Storage Tanks	192.6	200.0	183.3	192.6	10,400
Total or Index	**197.7**	**202.0**	**177.2**	**182.6**	**54,400**
	5 Million Cubic Feet Per Day				
Flowlines and Connections	303.7	304.3	301.2	323.8	53,100
Production Package	149.1	152.8	131.5	125.0	13,500
Dehydrators	206.2	210.6	192.0	192.0	21,700
Storage Tanks	192.6	200.0	183.3	192.6	10,400
Total or Index	**226.9**	**230.1**	**216.9**	**224.8**	**98,700**

Table L6. Direct Annual Operating Costs and Indices for Gas Production in the Mid-Continent (1 Well Producing from 2,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	250.0	258.3	258.3	266.7	3,200
Fuel, Chemicals & Disposal	300.0	300.0	300.0	300.0	600
Surface Maintenance	280.0	300.0	300.0	300.0	4,500
Subsurface Maintenance	200.0	200.0	200.0	200.0	1,000
Total or Index**	**258.8**	**270.6**	**270.6**	**273.5**	**9,300**
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	250.0	258.3	258.3	266.7	3,200
Fuel, Chemicals & Disposal	220.0	220.0	220.0	220.0	2,200
Surface Maintenance	275.0	295.0	295.0	295.0	5,900
Subsurface Maintenance	200.0	200.0	200.0	200.0	1,000
Total or Index**	**248.9**	**259.6**	**259.6**	**261.7**	**12,300**

Table L7. Direct Annual Operating Costs and Indices for Gas Production in the Mid-Continent (1 Well Producing from 4,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	242.9	250.0	250.0	257.1	3,600
Fuel, Chemicals & Disposal	220.0	220.0	220.0	220.0	1,100
Surface Maintenance	280.0	300.0	300.0	300.0	4,500
Subsurface Maintenance	175.0	175.0	175.0	175.0	1,400
Total or Index	**240.5**	**250.0**	**250.0**	**252.4**	**10,600**
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	242.9	250.0	250.0	257.1	3,600
Fuel, Chemicals & Disposal	220.0	220.0	220.0	220.0	4,400
Surface Maintenance	275.0	291.7	287.5	287.5	6,900
Subsurface Maintenance	175.0	175.0	175.0	175.0	1,400
Total or Index	**239.4**	**247.0**	**245.5**	**247.0**	**16,300**
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	242.9	250.0	250.0	257.1	3,600
Fuel, Chemicals & Disposal	263.2	278.9	278.9	278.9	5,300
Surface Maintenance	278.9	294.7	289.5	289.5	5,500
Subsurface Maintenance	175.0	175.0	175.0	175.0	1,400
Total or Index	**251.7**	**263.3**	**261.7**	**263.3**	**15,800**

Table L8. Direct Annual Operating Costs and Indices for Gas Production in the Mid-Continent (1 Well Producing from 8,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	243.8	256.3	256.3	256.3	4,100
Fuel, Chemicals & Disposal	228.2	228.2	228.2	225.6	8,800
Surface Maintenance	261.5	274.4	271.8	271.8	10,600
Subsurface Maintenance	175.0	175.0	175.0	175.0	2,100
Total or Index	**236.8**	**243.4**	**242.5**	**241.5**	**25,600**
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	243.8	256.3	256.3	256.3	4,100
Fuel, Chemicals & Disposal	271.4	281.0	281.0	281.0	5,900
Surface Maintenance	261.8	276.5	270.6	270.6	9,200
Subsurface Maintenance	175.0	175.0	175.0	175.0	2,100
Total or Index	**248.2**	**259.0**	**256.6**	**256.6**	**21,300**

Table L9. Direct Annual Operating Costs and Indices for Gas Production in the Mid-Continent (1 Well Producing from 12,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	247.4	263.2	257.9	263.2	5,000
Fuel, Chemicals & Disposal	222.0	222.0	222.0	222.0	11,100
Surface Maintenance	270.0	282.5	280.0	282.5	11,300
Subsurface Maintenance	166.7	170.8	170.8	170.8	4,100
Total or Index	**230.1**	**236.8**	**235.3**	**236.8**	**31,500**
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	247.4	263.2	257.9	263.2	5,000
Fuel, Chemicals & Disposal	252.0	264.0	264.0	264.0	6,600
Surface Maintenance	268.6	282.9	280.0	282.9	9,900
Subsurface Maintenance	166.7	170.8	170.8	170.8	4,100
Total or Index	**236.9**	**248.5**	**246.6**	**248.5**	**25,600**
	1 Million Cubic Feet Per Day				
Direct Labor & Overhead	247.4	263.2	257.9	263.2	5,000
Fuel, Chemicals & Disposal	258.8	268.6	268.6	266.7	13,600
Surface Maintenance	256.4	269.2	261.5	261.5	10,200
Subsurface Maintenance	166.7	170.8	170.8	170.8	4,100
Total or Index	**239.8**	**250.4**	**247.4**	**247.4**	**32,900**

Table L10. Direct Annual Operating Costs and Indices for Gas Production in the Mid-Continent (1 Well Producing from 16,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	247.4	263.2	257.9	263.2	5,000
Fuel, Chemicals & Disposal	241.9	251.6	251.6	248.4	7,700
Surface Maintenance	256.4	269.2	261.5	261.5	10,200
Subsurface Maintenance	169.0	172.4	172.4	172.4	5,000
Total or Index	**229.7**	**239.8**	**236.4**	**236.4**	**27,900**
	1 Million Cubic Feet Per Day				
Direct Labor & Overhead	247.4	263.2	257.9	263.2	5,000
Fuel, Chemicals & Disposal	244.3	254.1	252.5	252.5	15,400
Surface Maintenance	256.4	269.2	261.5	261.5	10,200
Subsurface Maintenance	169.0	172.4	172.4	172.4	5,000
Total or Index	**233.1**	**243.2**	**239.9**	**240.5**	**35,600**
	5 Million Cubic Feet Per Day				
Direct Labor & Overhead	247.4	263.2	257.9	263.2	5,000
Fuel, Chemicals & Disposal	147.4	152.6	152.6	152.6	14,800
Surface Maintenance	265.3	275.5	269.4	273.5	13,400
Subsurface Maintenance	116.1	119.4	119.4	119.4	3,700
Total or Index	**181.6**	**188.8**	**186.7**	**188.3**	**36,900**

Table M1. Lease Equipment Costs and Indices for Gas Production in the Rocky Mountains (1 Well Producing from 2,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Flowlines and Connections	157.1	171.4	171.4	178.6	2,500
Production Package	140.5	145.2	150.0	150.0	6,300
Storage Tanks	182.1	191.1	173.2	183.9	10,300
Total or Index	**163.4**	**171.4**	**164.3**	**170.5**	**19,100**
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	157.1	171.4	171.4	178.6	2,500
Production Package	140.5	145.2	150.0	150.0	6,300
Storage Tanks	182.1	191.1	173.2	183.9	10,300
Total or Index	**163.4**	**171.4**	**164.3**	**170.5**	**19,100**

Table M2. Lease Equipment Costs and Indices for Gas Production in the Rocky Mountains (1 Well Producing from 4,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Flowlines and Connections	157.1	171.4	171.4	178.6	2,500
Production Package	140.5	145.2	150.0	150.0	6,300
Storage Tanks	182.1	191.1	173.2	183.9	10,300
Total or Index	**163.4**	**171.4**	**164.3**	**170.5**	**19,100**
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	208.7	215.2	184.8	197.8	9,100
Production Package	156.8	162.2	164.9	167.6	6,200
Dehydrators	178.1	182.3	157.3	156.3	15,000
Storage Tanks	182.1	191.1	173.2	183.9	10,300
Total or Index	**181.7**	**187.7**	**167.7**	**172.8**	**40,600**
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	223.5	226.5	185.3	200.0	6,800
Production Package	147.0	150.0	109.0	109.0	10,900
Dehydrators	178.1	182.3	157.3	156.3	15,000
Storage Tanks	182.1	191.1	173.2	183.9	10,300
Total or Index	**173.4**	**178.0**	**146.9**	**150.3**	**43,000**

Table M3. Lease Equipment Costs and Indices for Gas Production in the Rocky Mountains (1 Well Producing from 8,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	193.2	193.2	168.2	179.5	7,900
Production Package	147.0	150.0	109.0	109.0	10,900
Dehydrators	178.1	182.3	157.3	156.3	15,000
Storage Tanks	182.1	191.1	173.2	183.9	10,300
Total or Index	**170.6**	**174.7**	**145.6**	**149.0**	**44,100**
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections					
Production Package	216.7	219.4	186.1	200.0	7,200
Dehydrators	147.0	150.0	109.0	109.0	10,900
Storage Tanks	178.1	182.3	157.3	156.3	15,000
	182.1	191.1	173.2	183.9	10,300
Total or Index	**172.9**	**177.4**	**147.2**	**150.7**	**43,400**

Table M4. Lease Equipment Costs and Indices for Gas Production in the Rocky Mountains (1 Well Producing from 12,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Flowlines and Connections	290.0	290.0	291.7	313.3	18,800
Production Package	147.0	150.0	109.0	109.0	10,900
Dehydrators	178.1	182.3	157.3	156.3	15,000
Storage Tanks	182.1	191.1	173.2	183.9	10,300
Total or Index	**190.4**	**194.2**	**170.5**	**176.3**	**55,000**
	500 Thousand Cubic Feet Per Day				
Flowlines and Connections	321.2	323.1	323.1	348.1	18,100
Production Package	147.0	150.0	109.0	109.0	10,900
Dehydrators	178.1	182.3	157.3	156.3	15,000
Storage Tanks	182.1	191.1	173.2	183.9	10,300
Total or Index	**193.1**	**197.4**	**172.7**	**178.6**	**54,300**
	1 Million Cubic Feet Per Day				
Flowlines and Connections	321.2	323.1	323.1	348.1	18,100
Production Package	147.0	150.0	109.0	109.0	10,900
Dehydrators	178.1	182.3	157.3	156.3	15,000
Storage Tanks	182.1	191.1	173.2	183.9	10,300
Total or Index	**193.1**	**197.4**	**172.7**	**178.6**	**54,300**

Table M5. Direct Annual Operating Costs and Indices for Gas Production in the Rocky Mountains (1 Well Producing from 2,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	253.8	261.5	261.5	261.5	3,400
Fuel, Chemicals & Disposal	300.0	300.0	300.0	300.0	600
Surface Maintenance	203.7	207.4	207.4	207.4	5,600
Subsurface Maintenance	133.3	133.3	133.3	133.3	800
Total or Index	**212.5**	**216.7**	**216.7**	**216.7**	**10,400**
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	253.8	261.5	261.5	261.5	3,400
Fuel, Chemicals & Disposal	220.0	220.0	220.0	220.0	2,200
Surface Maintenance	203.7	207.4	207.4	207.4	5,600
Subsurface Maintenance	133.3	133.3	133.3	133.3	800
Total or Index	**210.7**	**214.3**	**214.3**	**214.3**	**12,000**

Table M6. Direct Annual Operating Costs and Indices for Gas Production in the Rocky Mountains (1 Well Producing from 4,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	50 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	246.7	253.3	260.0	260.0	3,900
Fuel, Chemicals & Disposal	220.0	220.0	220.0	220.0	1,100
Surface Maintenance	203.7	207.4	207.4	207.4	5,600
Subsurface Maintenance	155.6	155.6	155.6	166.7	1,500
Total or Index	**208.9**	**212.5**	**214.3**	**216.1**	**12,100**
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	246.7	253.3	260.0	260.0	3,900
Fuel, Chemicals & Disposal	220.0	225.0	225.0	225.0	4,500
Surface Maintenance	206.1	212.2	208.2	210.2	10,300
Subsurface Maintenance	155.6	155.6	155.6	166.7	1,500
Total or Index	**210.8**	**216.1**	**215.1**	**217.2**	**20,200**
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	246.7	253.3	260.0	260.0	3,900
Fuel, Chemicals & Disposal	216.0	232.0	236.0	236.0	5,900
Surface Maintenance	191.3	197.8	193.5	193.5	8,900
Subsurface Maintenance	155.6	155.6	155.6	166.7	1,500
Total or Index	**203.2**	**211.6**	**211.6**	**212.6**	**20,200**

Table M7. Direct Annual Operating Costs and Indices for Gas Production in the Rocky Mountains (1 Well Producing from 8,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	252.9	258.8	264.7	264.7	4,500
Fuel, Chemicals & Disposal	224.4	231.7	231.7	231.7	9,500
Surface Maintenance	201.9	207.5	200.0	200.0	10,600
Subsurface Maintenance	157.1	164.3	164.3	164.3	2,300
Total or Index	**211.2**	**217.6**	**215.2**	**215.2**	**26,900**
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	252.9	258.8	264.7	264.7	4,500
Fuel, Chemicals & Disposal	217.9	235.7	235.7	235.7	6,600
Surface Maintenance	204.3	208.7	200.0	202.2	9,300
Subsurface Maintenance	157.1	164.3	164.3	164.3	2,300
Total or Index	**209.5**	**218.1**	**215.2**	**216.2**	**22,700**

Table M8. Direct Annual Operating Costs and Indices for Gas Production in the Rocky Mountains (1 Well Producing from 12,000 Feet)

Component	Index (1976=100)				1995* Cost (dollars)
	1992	1993	1994	1995	
	250 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	260.0	265.0	270.0	270.0	5,400
Fuel, Chemicals & Disposal	225.5	231.4	231.4	231.4	11,800
Surface Maintenance	207.4	213.0	207.4	209.3	11,300
Subsurface Maintenance	158.6	158.6	162.1	165.5	4,800
Total or Index	**211.0**	**215.6**	**214.9**	**216.2**	**33,300**
	500 Thousand Cubic Feet Per Day				
Direct Labor & Overhead	260.0	265.0	270.0	270.0	5,400
Fuel, Chemicals & Disposal	219.4	235.5	238.7	238.7	7,400
Surface Maintenance	210.6	217.0	210.6	212.8	10,000
Subsurface Maintenance	158.6	158.6	162.1	165.5	4,800
Total or Index	**208.7**	**215.7**	**215.7**	**217.3**	**27,600**
	1 Million Cubic Feet Per Day				
Direct Labor & Overhead	260.0	265.0	270.0	270.0	5,400
Fuel, Chemicals & Disposal	221.7	236.7	238.3	238.3	14,300
Surface Maintenance	210.6	217.0	210.6	212.8	10,000
Subsurface Maintenance	158.6	158.6	162.1	165.5	4,800
Total or Index	**211.5**	**219.9**	**219.9**	**221.2**	**34,500**

Section III

Appendix N

Equipping and Operating Cost Indices and Other Economic Indicators

Appendix N

Equipping and Operating Cost Indices and Other Economic Indicators

Appendix N contains a general overview of oil and gas economics from 1976 through 1995.

Unweighted aggregates of equipping and operating costs from the summary tables were indexed with 1976 as the base year. The Gross Domestic Product (GDP) Implicit Price Deflator was used to deflate these indices and the Producer Price Indices (PPI). Each deflated index would equal 100 if the change in cost matched the change in the GDP for that index. The results appear in Tables N1 and N2, and are illustrated in Figures N1 and N2.

Although the aggregate average costs may not be the average costs for all oil and gas wells in the United States, it is possible to make some meaningful observations.

The deflated indices for oil lease equipment peaked in 1981 at 120.5 and continued in a general decline to a low of 70 in 1994. New equipment for oil leases is competing with used equipment which explains why new equipment costs are still more than 25 percent below the deflated costs of 1976. Volatile tubing prices have been the largest part of the changing equipment costs for much of the time, but are less so than non-tubing equipment costs in the period, 1992-1995. Gas well equipment prices, as shown in Figure N1, changed less than oil equipment prices, but only slightly. Equipment price trends are not easily described as "upward" in spite of the increase from 1994 to 1995.

The deflated indices for operating costs for both oil and gas leases peaked in 1982 at 142.5 and 120.6, respectively, and declined 28 percent for oil leases and 27 percent for gas leases by 1995. This decline was primarily a reflection of the decrease in drilling activity and workovers which caused the service companies to cut prices and their own costs drastically to stay in business. Prices are expected to stabilize in 1996 for both drilling and workover activity, and may increase more rapidly than was true for other oil related activities in the 1992-1995 period.

Table N1. Indices and Gross Domestic Product Deflated Indices of the Aggregate Average Equipping Costs for Oil and Gas Fields and the Producer Price Index (PPI) (Capital Equipment)

	Indices				Gross Domestic Product Deflated Indices		
Year	Oil	Gas	PPI[a]	Deflator[b]	Oil	Gas	PPI
1976	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1977	110.2	116.1	106.4	106.5	103.5	109.0	99.9
1978	120.7	127.3	114.8	114.1	105.8	111.5	100.6
1979	133.0	142.2	124.8	124.0	107.3	114.7	100.7
1980	154.4	161.4	138.2	135.4	114.0	119.2	102.0
1981	181.8	176.7	152.3	148.2	122.7	119.2	102.8
1982	191.6	183.4	161.0	157.4	121.7	116.5	102.3
1983	170.2	168.9	165.5	164.1	103.7	102.9	100.8
1984	190.0	160.5	169.4	170.2	111.6	94.3	99.5
1985	165.4	159.3	173.1	176.2	93.9	90.4	98.2
1986	147.1	153.0	176.7	180.7	81.4	84.7	97.8
1987	170.9	162.4	179.9	186.3	91.7	87.2	96.6
1988	169.6	172.6	184.1	193.0	87.9	89.4	95.4
1989	178.0	176.1	191.3	201.1	88.5	87.6	95.1
1990	170.9	189.3	197.9	209.9	81.4	90.2	94.3
1991	169.6	192.3	204.0	218.2	77.7	88.1	93.5
1992	178.0	200.9	207.9	224.2	79.4	89.6	92.7
1993	169.9	206.4	211.3	230.0	73.9	89.7	91.9
1994	169.3	187.2	215.9	235.4	71.9	79.5	91.7
1995	180.0	193.6	220.1	241.0	74.7	80.3	91.3

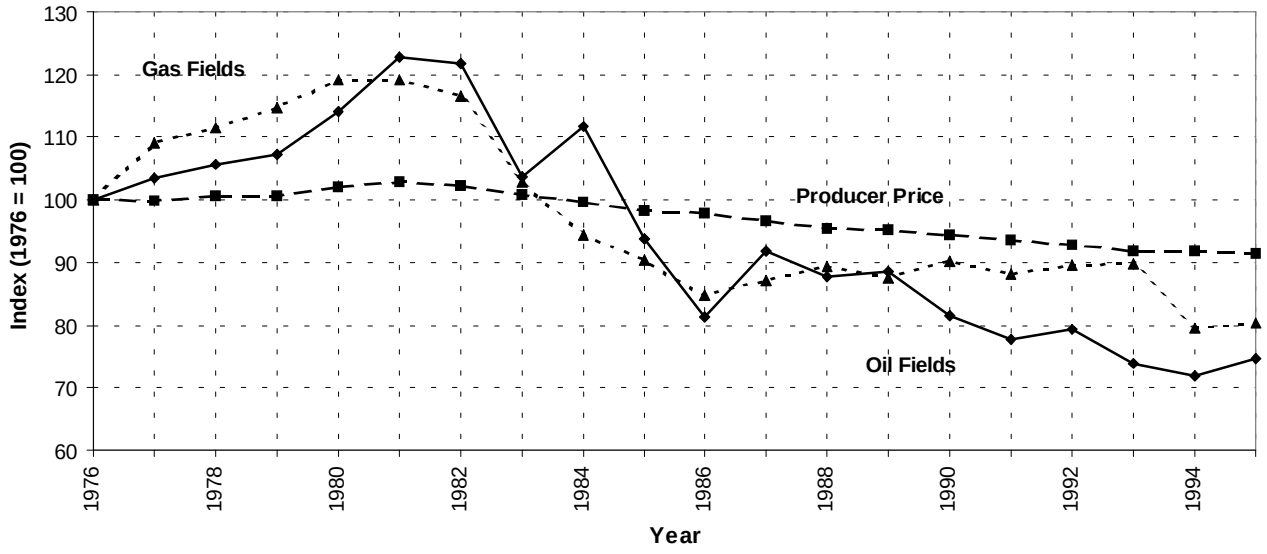
[a]Producer Price Index (Capital Equipment) obtained from the Bureau of Labor Statistics, U.S. Department of Labor.
[b]Gross Domestic Implicit Price Deflators were obtained from the Bureau of Economic Analysis, U.S. Department of Commerce.
Notes: The aggregate average costs are the average of the costs from summary Tables 1 and 6 and do not represent the average costs of all wells in the United States.
Source: Energy Information Administration, Office of Oil and Gas.

Table N2. The Gross Domestic Product Implicit Price Deflator and the Gross Domestic Product Deflated Indices of Operating Costs for Oil and Gas Fields

		Indices		Gross Domestic Product Deflated Indices	
Year	GDP Implicit Price Deflator[a]	Oil	Gas	Oil	Gas
1976	100.0	100.0	100.0	100.0	100.0
1977	106.5	117.5	114.6	110.3	107.6
1978	114.1	130.3	121.8	114.2	106.7
1979	124.0	144.0	135.8	116.1	109.5
1980	135.4	174.2	156.4	128.6	115.5
1981	148.2	204.2	181.5	137.8	122.5
1982	157.4	228.4	193.2	145.1	122.7
1983	164.1	226.2	190.8	137.8	116.3
1984	170.2	230.1	192.0	135.2	112.8
1985	176.2	232.2	190.7	131.8	108.2
1986	180.7	212.9	182.1	117.8	100.8
1987	186.3	210.5	172.9	113.0	92.8
1988	193.0	220.1	181.4	114.0	94.0
1989	201.1	229.1	186.4	113.9	92.7
1990	209.9	243.4	201.9	116.0	96.2
1991	218.2	228.4	204.7	104.7	93.8
1992	224.2	233.3	208.5	104.0	93.0
1993	230.0	242.4	216.0	105.4	93.9
1994	235.4	256.2	216.0	108.8	91.8
1995	241.0	254.6	217.9	105.6	90.4

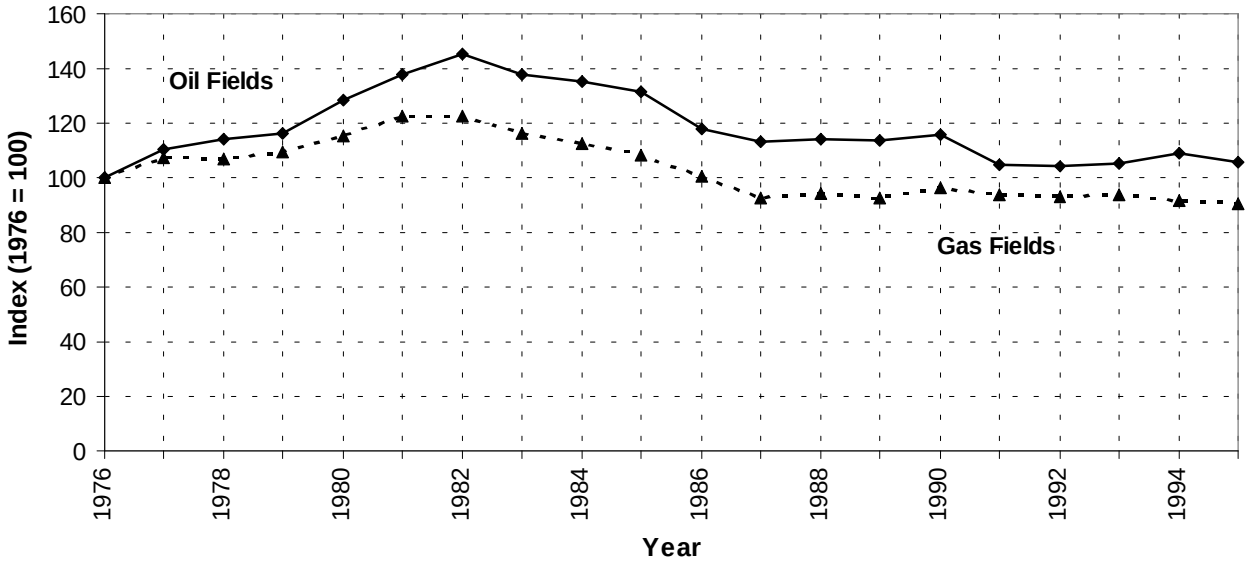
[a]Gross Domestic Product Implicit Price Deflators were obtained from the Bureau of Economic Analysis, U.S. Department of Commerce.
Notes: The aggregate average costs are the average of the costs from summary Tables 3 and 14 and do not represent the average costs of all wells in the United States.
Source: Energy Information Administration, Office of Oil and Gas.

Figure N1. Gross Domestic Product Deflated Producer Price Indices, and Oil and Gas Field Equipping Cost Indices



Source: Table N1.

Figure N2. Gross Domestic Product Deflated Operating Cost Indices for Oil and Gas Fields



Source: Table N2.

Glossary

Additional oil recovery: Recovery which follows primary, or natural depletion recovery, and is usually based on the application of processes which involve capital expenditures.

***ad valorem*:** The basis for taxation of oil and gas operating properties, usually computed by expert assessment of current value.

API: American Petroleum Institute.

EIA: Energy Information Administration.

IPAA: Independent Petroleum Association of America.

JAS: Joint Association Survey, a survey of the cost of drilling wells in the U.S., conducted by the API, IPAA and MCOGA.

LACT: Lease automatic custody transfer, generally refers to unattended metering of oil sales from leases.

Mcf: One thouand (standard) cubic feet.

MCOGA: Mid-Continent Oil and Gas Association, one of a number of regional associations of independent oil and gas operators.

Natural depletion: Means of recovering oil or gas relying on natural pressure in the reservoir rocks to expel substances to surface facilities for treatment and sale.

Secondary recovery: See additional recovery. One common type is by means of water injection (waterflood).

Stripper well: A well that produces 90 Mcf per day or less of gas-well gas for a period of three consecutive months while producing at its maximum rate of flow or an oil well which produces less than 15 barrels of oil per day at its maximum rate of production for a period of three consecutive months.

WSU: Well service unit. Equipment used to maintain oil and gas wells. Usually mounted on vehicles for movement over roads.