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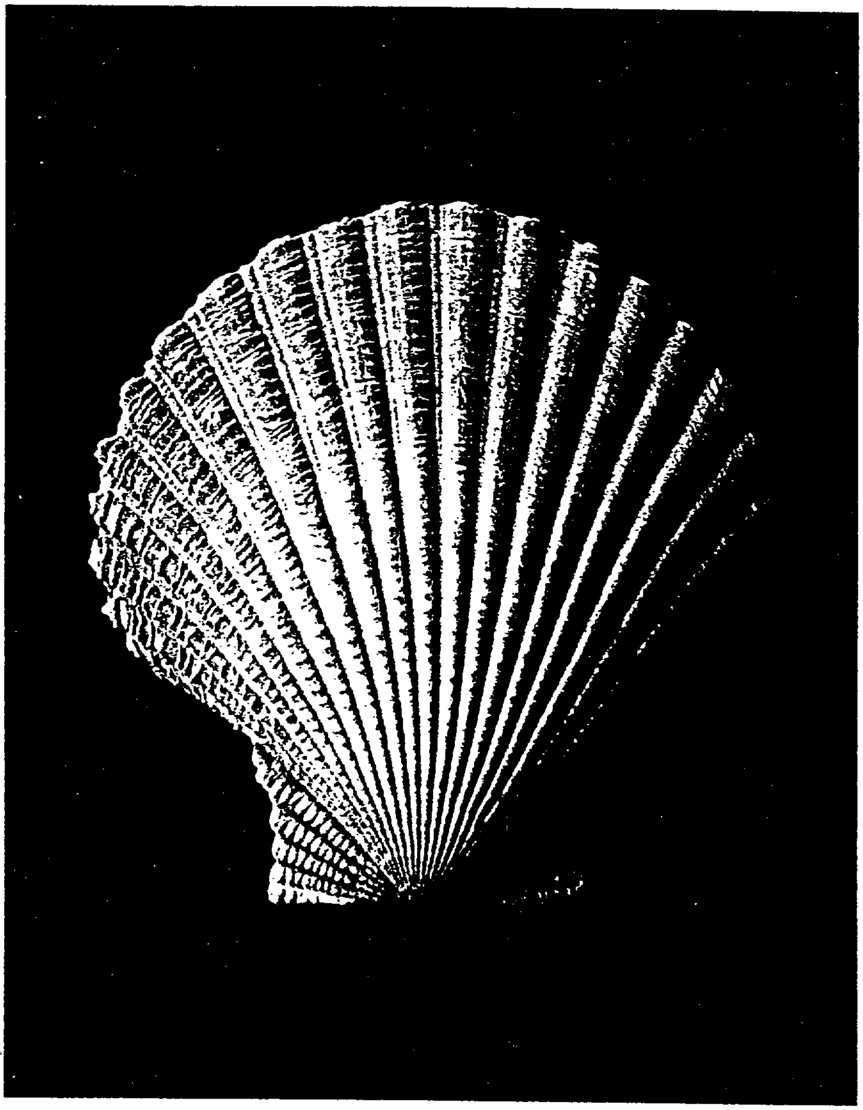
Shell Oil Company 1987 Annual Report



Contents

Shell Oil is a leading American oil, gas and petrochemical company, dedicated to excellence and to serving the needs of customers. Our record of success is based on the skills of our employees, strong financial resources, leadership in innovative technology and proven business strategies.

President's Letter

Highlights

- *Improved net income to $1.23 billion, up 39 percent over 1986.*

- *Maintained a strong cash flow, which enabled us to pursue strategic investments, build financial strength and maintain dividends.*

- *Increased total liquids and gas reserves 3.3 percent to an 18-year high, by replacing 40 percent more than we produced in 1987.*

- *Increased chemical earnings to $416 million, a record for the second year in a row.*

- *Continued our leadership position in domestic refining and marketing earnings, with net income of $224 million.*

- *Continued to reduce costs and improve productivity companywide.*

John F. Bookout

A Strong Performance

I am pleased to report that 1987 was a year of significant achievement and strong competitive performance for our company.

Shell Oil's average crude oil prices exceeded those of the previous year for the first time in six years, and led to a substantial recovery in exploration and production earnings. This, together with strong chemical results, more than offset a decline in refining and marketing earnings. We held oil and gas production almost level with the previous year and again more than replaced annual production with new reserves. Oil and Chemical Products continued to achieve sales volume gains, while all three major business functions generated substantial surplus cash beyond their immediate needs.

Staying on Course

Our progress and solid performance in 1987 reinforce my confidence that we chose the right course 10 years ago. We determined in 1978 that for the balance of the century, our future lay primarily in our three major businesses: a worldwide exploration and production business largely focused on domestic opportunities, a regionally centered domestic refining and marketing business, and a predominantly domestic chemical business. We adopted financial goals and strategic objectives, set guidelines for a maximum prudent investment program, and told shareholders where we were headed and why.

Since then, our goals and strategies have stood the tests of a tripling of oil prices and their subsequent collapse, requiring only fine-tuning.

Our focus remains primarily on areas of technological or market strength in our mainline businesses, where we believe returns will be the greatest.

Meeting Challenge

Our principal corporate goal remains to achieve the highest sustainable rate of growth in real (inflation adjusted) net income. From the time we set goals in 1978, we have met our long-term minimum target of 5 percent average annual increase in real net income, on a cumulative basis. Over the last 10 years, we have averaged a 15 percent return on equity, which is another long-term minimum financial target.

The business environment of the past several years has not been conducive to attaining these two goals on an annual basis, however, we have maintained highly competitive earnings. Ten years ago, Shell Oil ranked sixth in worldwide net income, compared with major U.S.-based domestic and international competitors. Over the last five years, our average earnings have ranked third among this group.

Our operations generated funds of $3.4 billion in 1987, once again enabling us to fund investments and dividends, while reducing debt and adding to borrowing power. Capital and exploration spending in 1987 totaled $2.6 billion, including $2.0 billion for exploration, development and acquisition of energy resources, mostly domestic oil and gas. In 1988, we are planning to spend about $3.3 billion, some $2.4 billion of it for exploration and production.

We also continue to strengthen our balance sheet. Long-term obligations as a percent of total capitalization decreased in 1987 for the eighth consecutive year, to 15.1 percent, the lowest level since 1964. That ratio peaked at 36.8 percent in 1979 with the purchase of Belridge Oil Company in California. Thus, with a strong cash flow and our borrowing capacity restored, we are in excellent financial condition to capitalize on attractive investment opportunities.

Progress Toward Objectives

We continue to make significant progress toward the *four principal operating objectives* that support our corporate financial goals.

Exploration and Production — In 1987 — for the seventh year in the past nine — we met our main operating objective of *more than replacing annual oil and gas production with new reserves, profitably*. We added proved domestic liquids and gas reserves equal to 133 percent of production for the year, at a cost of $3.77 per equivalent barrel. From 1978 through 1987, we replaced 133 percent of the domestic reserves we produced at a cost of $5.98 per barrel, remaining a leader in the domestic industry.

A decade ago, our domestic reserves stood at 2.96 billion barrels of crude oil equivalent. By yearend 1987, they had grown by 33 percent to 3.95 billion barrels, increasing during the past year alone by more than 100 million barrels. Over this same 10-year period, our domestic oil and gas production grew by 6 percent.

Based on available data, our reserve position over the 1978-86 period increased from 8 percent of the total for Shell Oil and its major competitors to 12 percent, while our production share rose from 10 percent to nearly 12 percent.

Our exploration and production business is based on three primary technological strengths, supported by highly focused research. We remain industry leaders in all of them. They are:

- ***Enhanced oil recovery, especially steam injection at Belridge and in other heavy oil fields of California, and carbon dioxide injection for light oil production in West Texas, Mississippi and Louisiana;***

- ***Seismic technology, particularly in the Gulf of Mexico, Michigan and selected major onshore and offshore frontier plays; and***

- ***Offshore engineering, concentrated in the Gulf of Mexico, and more recently at water depths greater than 1,500 feet.***

Focusing our program through these technologies has led to many competitive advantages. These include geographical concentration, improved productivity, and the acquisition of strategic producing properties where we can add value through the use of these technologies. In the past 10 years, more than 60 percent of Shell Oil's total exploration and production expenditures of $25.2 billion has been directly linked to these three technologies.

These technical strengths have guided our producing property acquisition and sales program over the past decade. During that period, we acquired 37 new fields and increased our working interest through 276 purchases, while selling interests in 620 fields. This netted us 1.2 billion barrels of proved reserves in strategic properties — either with enhanced oil recovery potential and/or located in fields we already operate. The net cost: $4.8 billion or $3.93 per barrel.

The Belridge purchase accounted for about 60 percent of our acquisition spending over the period, and is a good example of our technical strength in enhanced oil recovery. Since the purchase in 1979, we have more than tripled production there to some 130,000 barrels per day currently. Shell Oil is now the largest producer by thermal techniques, with over 36 percent of the U.S. total.

Our international subsidiary, Pecten, continued to grow in 1987, with a record net production of 58,000 equivalent barrels per day. A potentially commercial discovery in

Syria, along with initiation of an offshore natural gas development in Brazil, highlighted a successful year. Contributing to our international production are our Peace River tar sands project in Canada and conventional production from fields in Cameroon, Malaysia, New Zealand and Syria. We currently have active exploration programs in 10 countries.

Refining and Marketing — Our objective here is to *maintain leadership in financial performance, while producing surplus cash and contributing to the company's real net income growth.* In 1987, we continued our leadership in domestic earnings with $224 million. Shell Oil has ranked first or second in domestic refining and marketing net income in eight of the past 10 years. In 1987, this segment produced $176 million in surplus cash after funding capital expenditures. The business has generated $1.6 billion in surplus cash over the past 10 years.

Our basic strategies are:

- *Dedication to product quality, brand image and superior service to our customers;*

- *Achieving the most efficient utilization of our manufacturing facilities, with continued emphasis on lowering unit refining fixed and variable costs and improving return on investment; and*

- *Concentrating on strategic markets where we are advantaged. Basic to this strategy is the continued upgrading of our service station network through modernization and selective acquisitions.*

These strategies have been working well. Refined product sales volumes were up 15 percent in 1987, and have risen 60 percent since 1983. Shell owned and leased stations improved efficiency for the eighth consecutive year, reaching sales of 116,000 gallons per month per service station, while station count decreased 13 percent over this eight-year period. Gasoline sales volumes through service stations rose 8 percent in 1987, compared with an estimated 2 percent for the industry. Based on data through nine months, we were the nation's top gasoline marketer for the second year in a row.

Chemical — Another record year for net income and sales volumes in 1987 kept us on track toward our objective of *leading the chemical segment of the oil industry in financial performance, while generating surplus cash and providing real net income growth.* We had a strong competitive performance, and the segment generated $433 million in surplus cash above capital expenditures.

The strategies, which are the basis of this strong performance, are:

- *Emphasizing businesses which offer growth potential and sustainable competitive advantage built on technology, cost and market positions. These businesses include detergents, polymers, catalysts and advanced composites; and*

- *Restructuring or withdrawing from businesses in which we have no competitive advantage, in order to improve asset profitability.*

Through this strategic thrust, we are positioned to benefit from the improved business conditions in the chemical industry.

Over the past five years, we have concentrated on businesses with sustainable competitive advantage and have increased sales volumes by over 30 percent, while costs and expenses have decreased by more than 20 percent. Our restructuring continued in 1987 with the sale of vinyl chloride monomer production facilities and selected polypropylene assets. We will continue to examine businesses critically to ensure we have competitive advantage.

Research — Our Research organization has long been the principal source of proprietary technology. Tied closely to business strategies and opportunities, our research objective is *to improve profitability by maintaining our position at the leading edge of exploration and production technology; by discovering, developing and improving products and processes; and by creating long-term growth opportunities in areas where we have technological expertise.*

In our Products and Research organizations, the formal quality improvement process we began implementing four years ago has produced cost savings and productivity benefits, while enabling us to better meet customer requirements.

Deregulation

For more than a decade now, there has been a focus on deregulation throughout many areas of the U.S. economy, reflecting a clear change in attitudes towards government's involvement in trade and commerce.

Deregulation — most notably in the telephone, financial, transportation and energy industries — appears to have given consumers a broadly increased variety of goods and services at lower prices.

In our own industry, the long, but still incomplete, process of decontrolling natural gas began with passage of the Natural Gas Policy Act in 1978. Then, in 1981, President Reagan lifted price and allocation controls on crude oil and petroleum products. It is the interaction of producers and consumers responding to market incentives that has moved us a long way from the energy crisis of the 1970s.

It would be counterproductive for the industry and the country if this trend were reversed by increased government involvement in the form of trade barriers.

What we as a nation do need is to remove the self-imposed impediments to efficient development of our oil and gas production capacity. It makes no sense to have a Windfall Profits Tax diminishing the projected profitability of every oil play the industry considers. It makes even less sense that the Windfall Profits Tax be applied to enhanced oil recovery, considering that if this technology enabled industry to recover only 10 percent of the oil normally left in the ground, the nation's current oil reserves could be doubled.

Delays continue in the leasing of federal lands, which have the potential for slowing the rate of decline in U.S. oil production. Successful resolution of this issue would permit development of these national resources, which are so important to America's economic interest.

We also need to complete the deregulation of natural gas prices. Price levels in some natural gas fields are still below world energy price levels, reducing industry's economic incentive to maintain, much less develop these fields.

Many of these ideas were proposed by the Administration as long as seven years ago. They are not a prescription for energy self-sufficiency, nor should they be taken as an argument for special treatment for the oil industry. But the best response to any market adversities in the future will come from competitive market pricing, unencumbered by restrictive government policy.

Positioned For The Future

During the past 10 years, while our strategies have been in place, we have observed a continually changing competitive landscape. Over this period, the U.S. oil industry has experienced unprecedented price volatility, highly competitive markets, and substantial restructuring through acquisitions, joint ventures and other arrangements. Currently, there is speculation about further entry into the domestic market by producer countries looking for secure downstream outlets for their own production. With the continuing potential for excess crude supply worldwide, the likelihood for at least the near term is volatility at price levels lower than the first part of the decade.

We remain confident that Shell Oil Company will continue to be strongly positioned, both financially and operationally, in this highly competitive environment. Our innovative technology and adaptable strategies, coupled with a strong resource base, place us on a firm foundation as we move forward. The challenge in the years ahead is to continue to execute our successful strategies in a fashion that recognizes and meets these changing business conditions.

Since Shell Oil's beginnings in America three-quarters of a century ago, our mission has been to provide quality products and services at competitive prices, with the help of innovative technologies provided by our own research. In carrying out this role, we recognize an obligation to operate responsibly — providing safe workplaces, protecting the environment, promoting and adhering to nondiscriminatory employment practices, and participating in the affairs of communities where we have facilities and operations. We also maintain open communications with employees, governments, news media and the public, and take an active part in the public process that establishes laws and regulations.

We take pride in the dedication and accomplishments of Shell Oil employees , whose talents and perseverance over the years have brought us to a position of leadership and respect in our industry and nation. And we look forward to their achievements in a future that we believe will be as bright as our past.

John F. Bookout

John F. Bookout
President and
Chief Executive Officer

March 15, 1988

Exploration and Production

Shell's first major acquisition of producing properties in the U.S. was in California's Coalinga Field in 1913. Through enhanced recovery techniques we are applying today, the field is expected to produce well into the next century.

Segment Highlights

Millions of dollars, except where noted	1987	1986
Oil and Gas Exploration & Production		
Segment Net Income	$ 733	$ 427
Capital Expenditures	$1,491	$1,761
Exploratory Expenditures	$ 401	$ 493
Net Crude Oil and Natural Gas Liquids Produced (thousands of barrels daily)	612	622
Net Natural Gas Produced (millions of cubic feet daily)	1,821	1,816
Other		
Segment Net Income	$ 44	$ 24
Capital Expenditures	$ 93	$ 27
Coal Sales (millions of short tons)	16	9

Key Results

- ***Oil and gas exploration and production earnings recovered from the depressed levels of 1986, rising 71 percent to $733 million in 1987. The increase primarily reflected higher crude oil prices.***

- ***We continued our active exploration program, highlighted in 1987 by discoveries in Syria and Michigan.***

- ***For the fifth consecutive year, we increased our proved oil and gas reserves, replacing 140 percent of production on a crude oil equivalent basis in 1987.***

- ***Crude oil and condensate production declined slightly, following seven consecutive years of increase. Production from enhanced recovery operations continued to increase, accounting for 58 percent of our 1987 domestic crude oil and condensate production.***

- ***Natural gas production rose slightly, the fourth consecutive annual increase.***

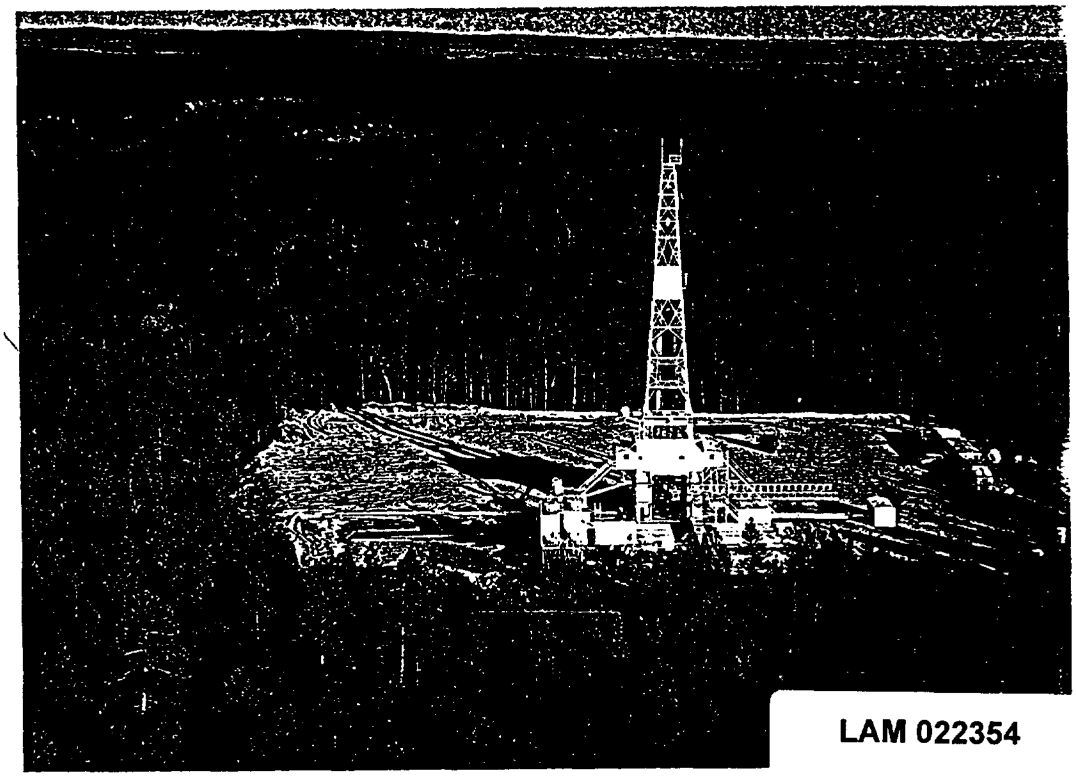
Shell Oil continued an active exploration and production program in 1987, spending $1.9 billion to find, acquire and develop oil and gas reserves, down from 1986 expenditures of $2.3 billion. The decrease was due partly to fewer property acquisition opportunities.

Our 1987 spending included $0.7 billion for oil and gas exploration, with about 51 percent in the lower 48 states offshore and 32 percent in the U.S. onshore. Development expenditures and producing property acquisitions totaled $1.2 billion, almost entirely in the U.S.

We remained among the industry leaders in seismic surveying activity, deploying an average of 18 seismic crews during the year, including 15 in the U.S. We also maintained one of the most active drilling programs in the U.S., participating in 72 net exploratory wells and 1,194 net development wells.

We had another outstanding year in reserve additions. Proved domestic reserve additions, including acquisitions, sales and exchanges, were 354 million barrels of crude oil, condensate and natural gas liq-

A large portion of our domestic onshore exploration is concentrated in Michigan, where we have been active since the 1960s. In 1987, our eight wildcats in central and western Michigan resulted in three discoveries.



uids and 409 billion cubic feet of natural gas, resulting in replacement of 133 percent of our 1987 U.S. production on a crude oil equivalent basis. Additions to proved foreign reserves were 13 million barrels of crude oil, condensate and natural gas liquids, and 150 billion cubic feet of natural gas, equal to 340 percent of 1987 foreign production on the same basis.

Our average cost of adding proved domestic oil and gas reserves, including property acquisitions and exchanges, was $3.77 per equivalent barrel. It has averaged $5.57 per barrel over the past five years.

We continued our cost control programs that were initiated in 1986. Production expenses, excluding Windfall Profit Tax, were 24 percent less in 1987 than in 1985, on a per barrel equivalent basis.

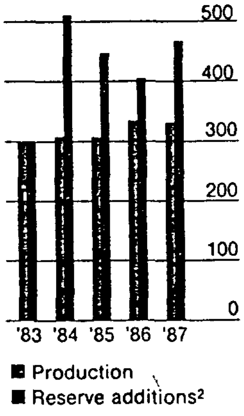
Shell Oil's average domestic crude oil price rose to $15.51 per barrel in 1987 from $13.20 in 1986. Natural gas prices averaged $1.87 per thousand cubic feet, down from $2.15.

With the continued deregulation of the natural gas industry, free-market forces are coming back into play. In 1987, Shell Oil responded to the resulting opportunities by strengthening its natural gas marketing organization and marketing essentially all available natural gas production during the year.

Our hallmarks in exploration and production include leading technological skills in seismic methods, enhanced oil recovery, and offshore exploration and production. During 1987, we continued to concentrate our activities in regions where we can employ these skills to competitive advantage, primarily in the Gulf of Mexico, California, Texas and Michigan.

Total Production and Reserve Additions

Millions of barrels crude oil equivalent[1]



[1] Gas converted to oil by using 5.6MCF per barrel

[2] Net additions to proved foreign and domestic reserves.

Domestic Offshore

Shell Oil's domestic offshore oil and condensate production averaged 136,000 barrels per day in 1987, compared with 141,000 barrels per day in the prior year. Domestic offshore natural gas production was 1,074 million cubic feet per day, up from 1,051 million in 1986. Most of our domestic offshore production was in the Gulf of Mexico.

Gulf of Mexico — Shell Oil continues to be a leading producer in the Gulf of Mexico. The Gulf accounted for about 49 percent of our 1987 exploration expenditures, as we focused on lease acquisition opportunities and extended our deep-water drilling program.

During the year, we acquired interests in 165 tracts in the Gulf, with our share of winning bids coming to $110 million. Our 1987 lease acquisitions represented the most acreage acquired by Shell Oil in the Gulf in any year since the open lease sale concept was introduced in 1983.

We drilled 23 exploratory wells in the Gulf during 1987, including two in water depths exceeding 1,500 feet. Five other deep-water wells were in progress or being evaluated at year-end. In June, we drilled a well on Atwater Valley Block 471 in 6,794 feet of water, a Gulf water depth record. Late in the year, at Mississippi Canyon Block 657, we extended our exploration program to even deeper waters when we began drilling in 7,520 feet, a world record. Results of our deep-water drilling program, which will continue in 1988, are currently being analyzed.

Development of project Bullwinkle, Green Canyon Block 65, continued on schedule toward the mid-1988 installation of a platform in 1,350 feet of water. This will be the world's tallest offshore fixed structure, surpassing Shell Oil's Cognac platform, also in the Gulf. Production from Bullwinkle is forecast to peak at about 44,000 barrels of oil and 100 million cubic feet of natural gas per day in 1992. This venture is 100 percent owned by Shell Oil.

Alaska — We continue to believe the Alaskan frontier holds potential for discovery of large, profitable oil accumulations. During 1987, we conducted extensive seismic programs and other studies in preparation for lease sales in the Beaufort and Chukchi Seas, scheduled for the first half of 1988.

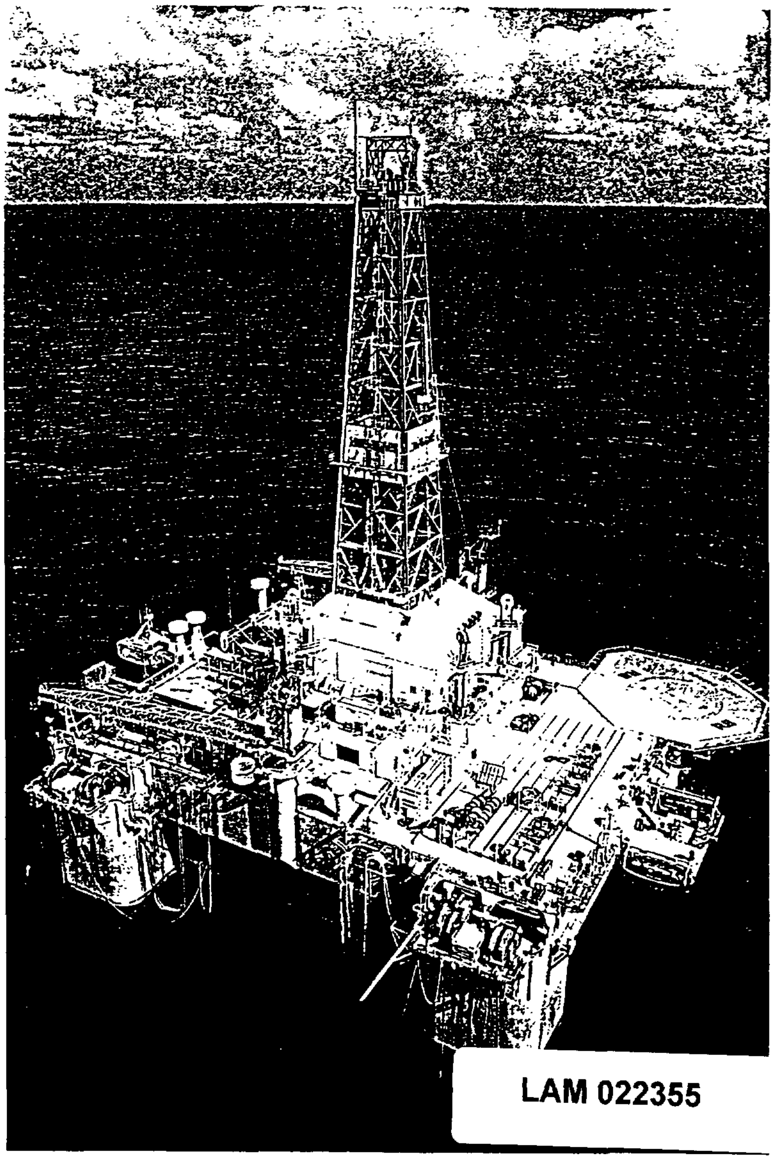
California — Our production off the Southern California coast averaged 17,000 barrels of crude oil per day, compared with 18,000 barrels per day in 1986. During the year we increased our interest in 10 tracts in the Santa Maria Basin and acquired one additional tract. We also became operator of four units involving 18 tracts in the basin.

Domestic Onshore

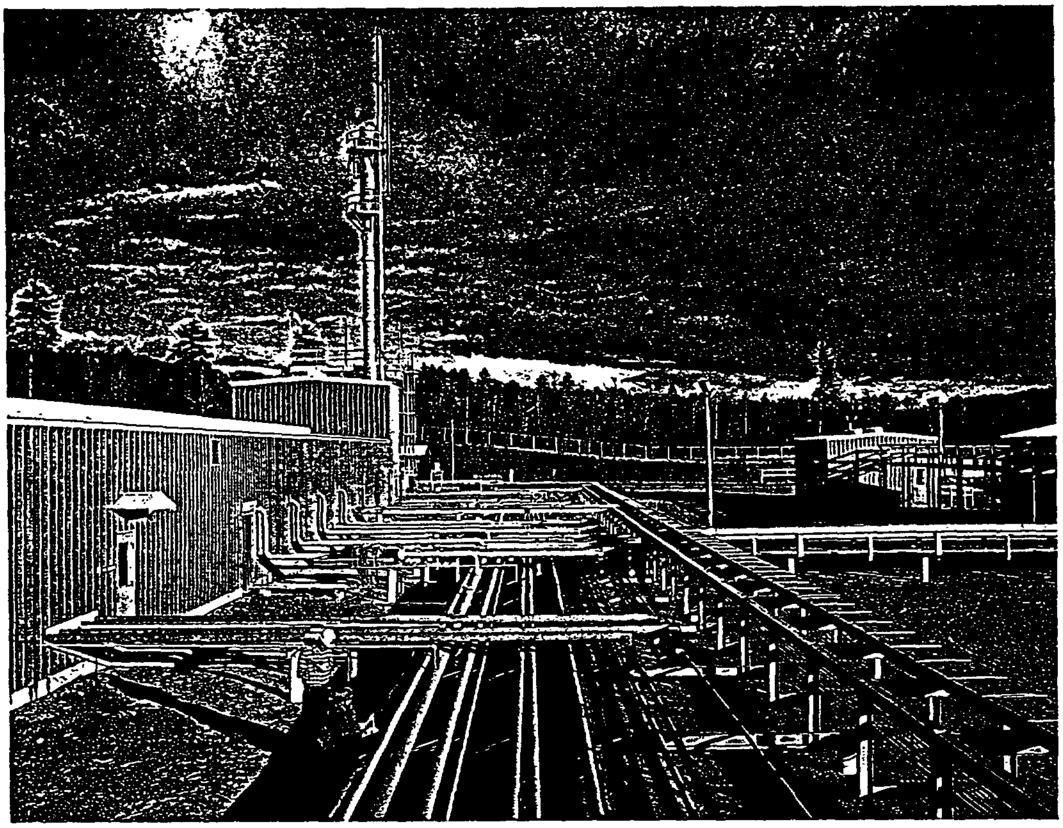
Shell Oil's domestic onshore oil and condensate production averaged 352,000 barrels per day in 1987, 72 percent of our domestic total. Major oil production was in California and West Texas and along the Gulf Coast. Onshore natural gas production was 722 million cubic feet per day, 40 percent of our domestic total. Major gas production areas were the Gulf Coast, South Texas and Michigan.

Onshore exploration activities are focused on areas where we believe we can apply our advanced seismic technology to competitive advantage in seeking large oil and gas discoveries. During 1987 we were active in 10 plays, primarily in Michigan, along the Gulf Coast, and in the Columbia Basin in Washington and the Mogollon Plateau in New Mexico.

Approximately 51 percent of our domestic onshore exploration program was devoted to two major opportunities in Michigan: the reef play in the northern and west-



Shell Oil has one-third of industry's leases in deep water in the Gulf of Mexico. The semi-submersible Zane Barnes, shown here, and the Discoverer Seven Seas drill ship, together enable us to explore this extensive leasehold.



This gas processing plant near Rose City, Michigan is the first in a new generation of modern, fully automated Shell Oil installations of its type. Operations can be monitored and controlled remotely by satellite communications.

ern part of the state and our newer deep gas play in central Michigan. In 1987, we drilled eight wildcats in central and western Michigan and made three discoveries, which are currently being evaluated. We also began our first production in the Michigan Central Basin, from the Rose City Field. Development of this field will continue in 1988.

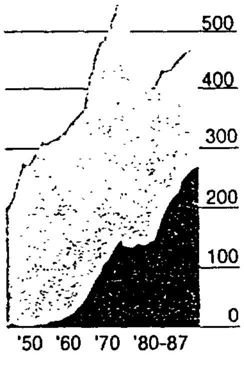
Enhanced Recovery

Enhanced oil recovery is a major Shell Oil success story, accounting for 58 percent of our domestic crude oil and condensate production in 1987, compared with 34 percent a decade earlier. We continue to invest heavily in projects employing these techniques, expanding their use and improving their effectiveness. About 22 percent of Shell Oil's $1.9 billion exploration and production program in 1987 was allocated to enhanced recovery operations, including steam injection, carbon dioxide (CO_2) flooding and water injection.

To improve the recovery of heavy oil, steam is injected into the reservoir, heating the crude which becomes less viscous and can be pumped to the surface. Steam injection techniques, employed primarily in California, accounted for 35 percent of Shell Oil's domestic crude oil and condensate production in 1987.

Domestic Crude Oil and Condensate Production

Thousands of barrels daily



☐ Primary recovery
■ Enhanced recovery

At our Belridge Field in California, the oil production rate averaged 126,000 barrels per day in 1987, up from 121,000 in 1986. The production rate at Belridge has more than tripled since we acquired these properties in 1979.

CO_2 injection accounted for over 9,0 net barrels per day of crude oil production in 1987 and is expected to play an increasing role in the future. Shell Oil is a leader in the use of CO_2 to increase the recovery of light crude, with projects in West Texas, Mississippi and Louisiana. CO_2 gas is injected into the reservoir, dissolving in and dislodging some of the remaining oil and driving it toward producing wells.

Early in 1988, we completed the extension of our CO_2 pipeline from Mississippi to the Weeks Island Field in South Louisiana. Injection of CO_2 at Weeks Island is scheduled to begin in mid-1988.

Upgrading Producing Properties

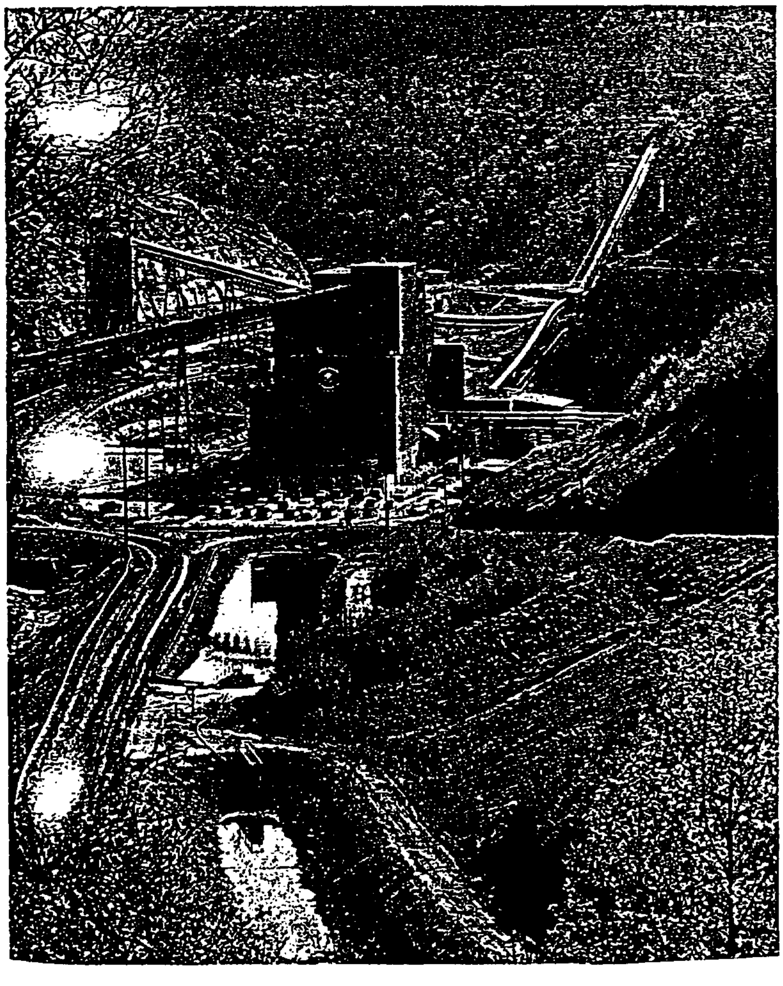
Shell Oil maintains an active program to upgrade its domestic producing properties through acquisitions, sales and exchanges. This effort is aimed at increasing operating efficiency and making more effective use of our resources. Purchases are focused primarily in fields where we can apply our technical skills in enhanced recovery or where we can increase our ownership share.

In 1987, we acquired our initial interest in two fields and increased our ownership position in 40 others. We invested $154 million to acquire properties and generated $113 million through the disposition of interests in 79 fields. The program, which in 1987 included a major property exchange resulted in a net addition to proved reserves of 106 million barrels on a crude oil equivalent basis.

Foreign

Shell Oil was active in 13 foreign countries in 1987 and had exploratory rights to about 91 million gross acres, including 61 million acres in the Middle Amazon Basin of Brazil. We participated in drilling 55 gross exploratory and development wells, compared with 42 in 1986.

The Marrowbone coal production and preparation complex in West Virginia produces more than 4 million tons of low-sulfur bituminous coal per year. The complex can load unit trains of up to 110 cars in four hours.



In Brazil, we reached agreement with the government oil company to develop a gas discovery in the Merluza Field, offshore Sao Paulo.

Discussions continued with the Chinese national oil company regarding commercial development of the 1985 South China Sea oil discovery.

In October, we resumed working-interest participation in Syria after the State Department rescinded its request that U.S. companies discontinue oil operations. Earlier in the year, we had resigned as operator there in response to the State Department's request. Production at the Deir Ez Zor region of eastern Syria reached 83,000 barrels per day at year-end 1987, of which Shell Oil's share was 12,000 barrels per day. A new central production facility was completed in December, and five new fields have been brought on stream. During the year, we also had other potentially commercial discoveries in both the Deir Ez Zor and Ash Sham permit areas.

Our net foreign crude oil production, including equity interest, averaged 54,000 barrels a day in 1987, up from 51,000 in 1986. Major oil production was in Cameroon, Malaysia and Syria. Net foreign natural gas production, primarily in New Zealand, averaged 24 million cubic feet a day, compared with 25 million in 1986.

At year-end, thermally enhanced production from the Peace River tar sands project in Canada was about 7,000 barrels of heavy crude oil per day. Production is expected to reach 10,000 barrels per day by the end of 1988. Shell Oil holds a 50-percent interest in this project.

Coal

Shell Oil has become one of the 10 largest producers of coal in the U.S. following the division of the assets of Massey Coal Company, in which a Shell Oil subsidiary was a partner. As a result of this transaction in July, we assumed direct ownership of mining facilities in Kentucky and West Virginia and two East Coast shipping terminals. These properties are currently producing at an annual rate of about 10 million tons. Sales from the balance of our coal properties, in Ohio, Illinois and Wyoming, were 11.4 million tons in 1987, a 31-percent increase from 1986.

Clean, modern, convenient service stations, with courteous attendants, are central to our highly successful retail marketing efforts.

Segment Highlights

Millions of dollars, except where noted	1987	1986
Products		
Segment Net Income		
Oil Products	$ 224	$ 319
Chemical Products	$ 416	$ 342
Capital Expenditures		
Oil Products	$ 351	$ 342
Chemical Products	$ 163	$ 95
Refinery Processing Intakes (thousands of barrels daily)	1,019	975
Refined Products Sold (thousands of barrels daily)		
Automotive Gasoline	693	620
Jet Fuel	167	135
All Other Products	492	418
Total	1,352	1,173
Refined Products Sold	$11,429	$ 9,109
Chemical Products Sold	$ 3,498	$ 3,216

Key Results

- *Chemical Products earnings increased 22 percent to a record $416 million, as we continued to rank as one of the top profit performers among our major chemical competitors. Results improved for most product lines.*

- *Chemical Products sales were a record $3,498 million.*

- *We continued our leadership position in domestic refining-marketing earnings with net income of $224 million.*

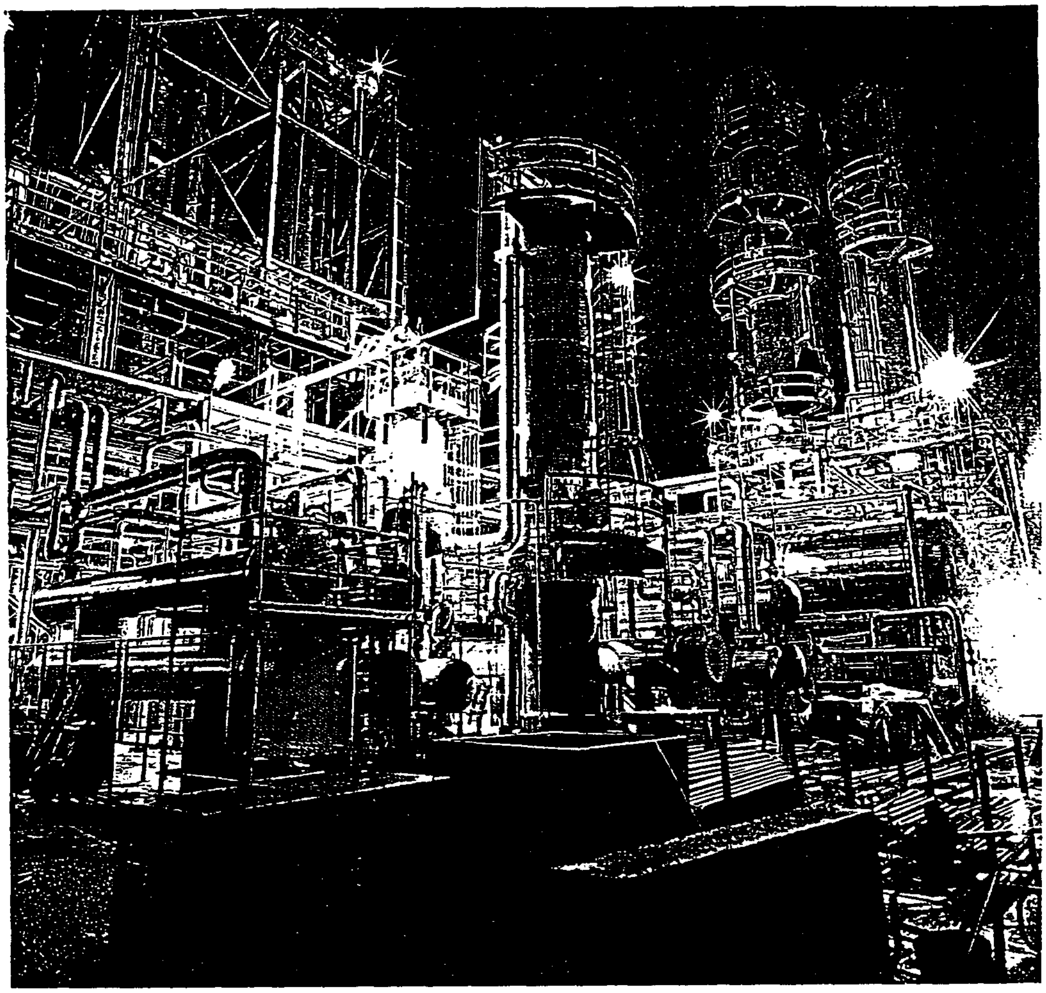
- *Oil Products sales volumes rose 15 percent, led by the fifth consecutive year of increased gasoline sales.*

- *Significant productivity improvements were achieved throughout our Products operations, as total Products sales increased 21 percent while fixed costs remained flat.*

Oil Products

For the refining-marketing industry, 1987 was a difficult year characterized by a continued worldwide excess of refining capacity and increased raw material costs, compared with 1986.

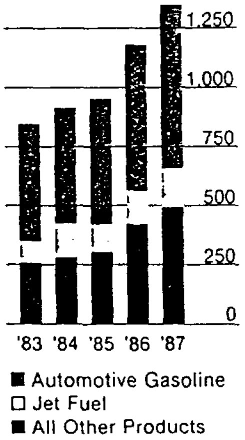
Our Oil Products organization maintained its strong financial performance relative to major competitors in 1987. Overall, our strategic approach continues to emphasize product quality, customer service and highly efficient operations. Our gasoline strategies focus on modern, high-volume service stations in those metropolitan areas where we have the greatest logistical and marketing strengths.



A high-efficiency de-waxing unit, being installed at our Wood River, Illinois Manufacturing Complex, will increase our production capacity and improve our competitive position in lubricating oils. The new unit is scheduled for startup in 1988.

Oil Product Sales

Thousands of barrels daily



Reflecting the success of this approach, Shell Oil became the leading gasoline marketer in the nation in 1986, and industry data through nine months indicate we maintained that position in 1987.

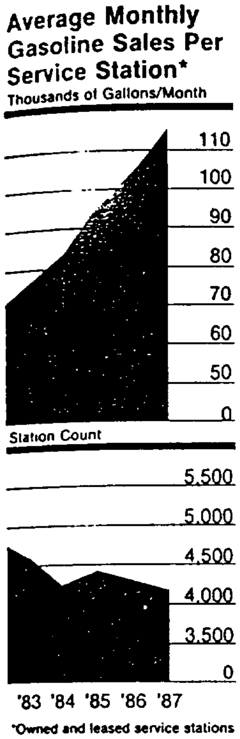
We once again achieved higher sales volumes and significant improvements in productivity and efficiency, partially offsetting the squeeze on profit margins.

Our gasoline sales volumes through all service stations were up 8 percent in 1987, compared to an estimated 2 percent for the industry. In owned and leased stations, average monthly sales per station were 116,000 gallons, also up 8 per cent — the eighth consecutive year of higher per-station sales.

Moreover, we continued to improve our product mix with increased sales of higher-octane, higher-margin gasolines. In most regions, we market 92 octane SU 2000® super unleaded, 87 octane RU 2000® regular unleaded and an 89 octane leaded gasoline. Late in 1987, in selected test markets we increased to 93 the octane level of SU 2000, introduced a new 89 octane SR 2000® super regular unleaded and discontinued the sale of leaded gasoline.

We place great emphasis on product quality as a centerpiece of our marketing programs. Shell unleaded gasolines contain a patented additive package that meets or exceeds the requirements of modern engines by reducing engine knock, unclogging fuel injectors and controlling deposits in the fuel inlet system.

We are stressing a premier relationship


Average Monthly Gasoline Sales Per Service Station*

*Owned and leased service stations

with customers. In 1987, we introduced a new nationwide program, "Experience the Difference"^{SM}, focused on assuring that the needs of every Shell Oil customer are met courteously and promptly by service station dealers, managers and employees.

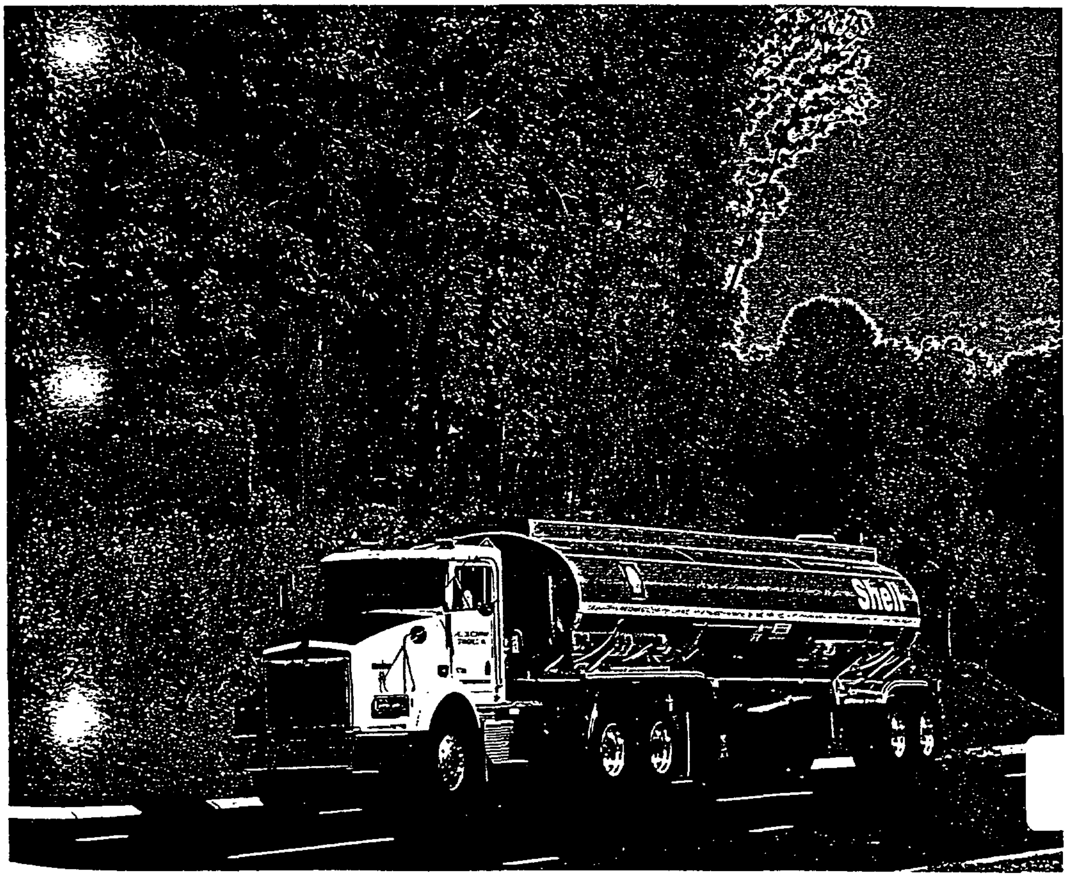
Our credit card program remains one of the largest and most active in the domestic petroleum industry, and we continue to distinguish ourselves from the competition by promoting gasoline sales at the same price, cash or credit. In 1987, we introduced a new Shell Oil credit card for commercial accounts, offering driver convenience, efficient vehicle expense management and a variety of billing options.

Another key Shell Oil strength is our strong relationship with dealers and jobbers — a relationship we value highly and work diligently to improve.

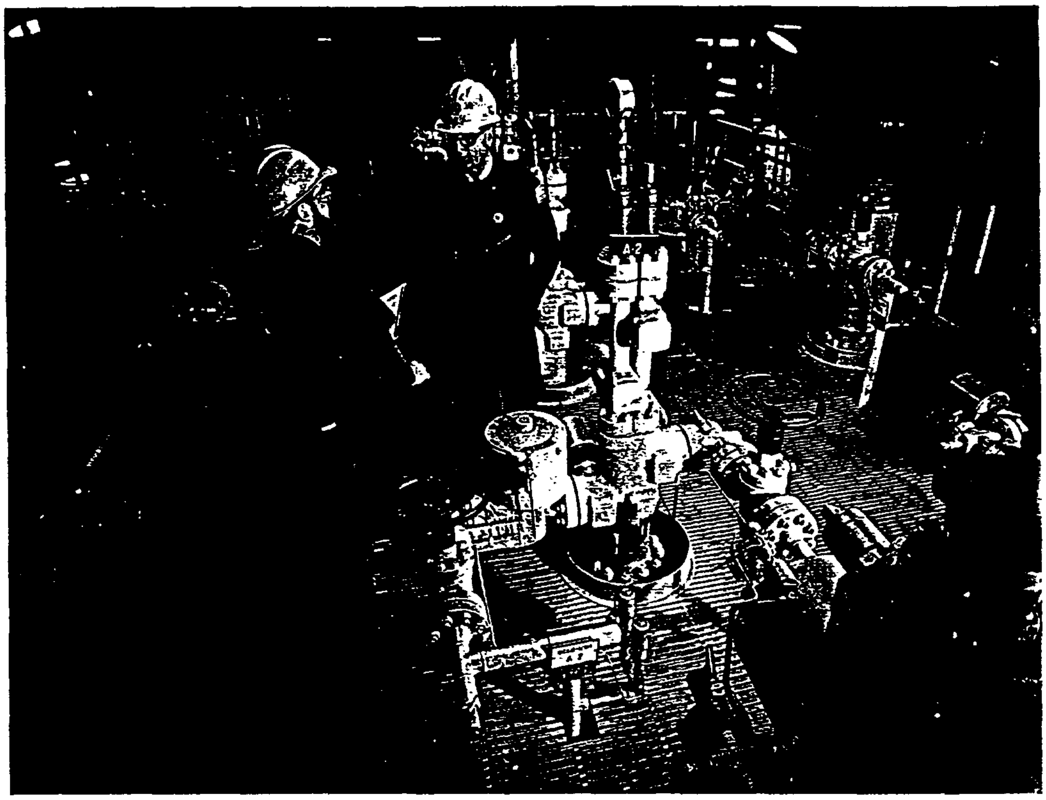
Sales in product categories other than gasoline continued to increase in 1987. Higher aviation fuel sales volumes primarily reflected increased sales to commercial airlines. Sales also increased for kerosene, heating and diesel oils as well as for heavy fuel oils.

Oil Products capital expenditures totaled $351 million, with a major focus on cost reduction, productivity improvement and environmental conservation. Included were funds for an ongoing program to upgrade process control systems in our refineries, thereby reducing costs and improving product yields.

Capital projects also included the installation of a new catalytic de-waxing unit at Wood River, Illinois. This high-efficiency unit, scheduled to come on stream in 1988, will significantly enhance our production capability and competitive position in lubricating oils.



This gasoline delivery truck incorporates the latest Shell Oil graphic design. Attractive, modern graphics are a key element in our efforts to attain maximum safety and customer satisfaction.



High-strength fiberglass composites for construction is one of the new business opportunities for our subsidiary, Morrison Molded Fiber Glass Company. Fiberglass is used increasingly, for instance, on offshore facilities, such as the deck of this well bay on a platform in the Gulf of Mexico. Fiberglass weighs 80 percent less than steel and resists salt water corrosion.

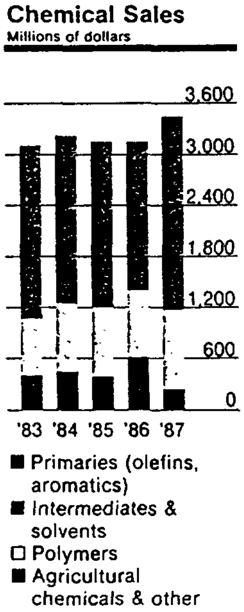
Chemical Products

Earnings of our Chemical Products segment were the best in its history, reflecting favorable market conditions as well as the successful implementation of our strategies. These strategies are aimed at obtaining maximum cash flow from commodity businesses and selectively expanding those businesses where we believe we have a sustainable competitive advantage.

Earnings were strong in our base chemicals business, primarily olefins and aromatics, as supply and demand for these chemicals came into balance for the first time in nearly a decade. We benefited from our position as a low-cost producer of ethylene and other base chemicals, which are building blocks used to manufacture a wide variety of industrial and consumer goods.

In addition, our catalysts and polymers segments achieved record results, the latter highlighted by record volumes in polypropylene, polybutylene, elastomers, resins and bisphenol-A.

Detergent and ethylene oxide products represent one of our most important chemical businesses, contributing to the stability of our overall chemical earnings. Shell Oil detergent alcohol derivatives are key components of many of today's household detergent powders and liquids. We entered this product area in the mid-1960s and have built a fully integrated business based on proprietary technologies.



To support our continued growth in detergent alcohols, we are building a major addition to our linear higher olefins unit at Geismar, Louisiana. Scheduled to come on stream in early 1989, the addition is based on the second generation of the Shell Higher Olefin Process (SHOP), an advanced proprietary technology that provides cost-effective, high-purity feedstocks for our detergent materials and olefins for other businesses.

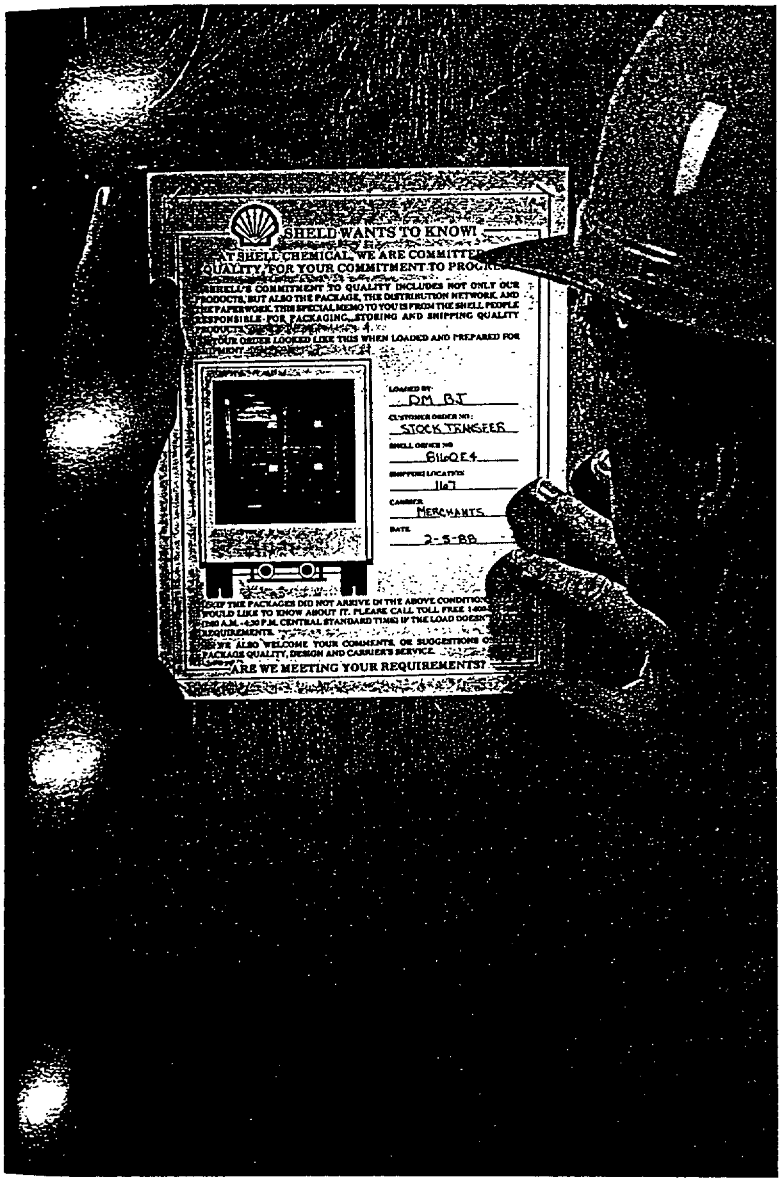
The performance of our Saudi Arabia petrochemical joint venture with Saudi Basic Industries improved substantially in 1987. This improvement was due to operating efficiences and a more favorable worldwide market for the facility's products — caustic soda, ethylene dichloride, styrene and crude industrial ethanol.

During 1987, we sold our vinyl chloride monomer production facilities in Deer Park, Texas, in line with our strategic thrust toward higher growth specialty areas where we have a competitive advantage.

Late in the year, we sold our Woodbury, New Jersey polypropylene plant. Shell Oil remains committed to the polypropylene business, with long-term strengths tied to our Norco, Louisiana polypropylene operation utilizing the proprietary SHAC® catalyst and to a highly successful polypropylene joint venture facility at Seadrift, Texas. Based on unique Shell Oil catalysis technology, the Seadrift joint venture concluded six licensing arrangements with other manufacturers in 1987. Advantages relating to this technology in terms of product quality and lower operating and capital costs indicate the potential for more licensing arrangements as the worldwide polypropylene industry modernizes and expands its capacity.

Chemical Products capital expenditures in 1987 were $163 million.

This placard attached to shipments from our Marietta, Ohio Chemical Plant asks if we are meeting customer requirements. It typifies the commitment to quality improvement in our Products organization.



SHELL WANTS TO KNOW!

AT SHELL CHEMICAL, WE ARE COMMITTE
QUALITY, FOR YOUR COMMITMENT TO PROC

SHELL'S COMMITMENT TO QUALITY INCLUDES NOT ONLY OUR PRODUCTS, BUT ALSO THE PACKAGE, THE DISTRIBUTION NETWORK AND THE PAPERWORK. THIS SPECIAL MEMO TO YOU IS FROM THE SHELL PEOPLE RESPONSIBLE FOR PACKAGING, STORING AND SHIPPING QUALITY PRODUCTS.

YOUR ORDER LOOKED LIKE THIS WHEN LOADED AND PREPARED FOR SHIPMENT

LOADED BY: DM BJ
CUSTOMER ORDER NO.: STOCK TRNSFER
SHELL ORDER NO: 8160E4
SHIPPING LOCATION: 1167
CARRIER: MERCHANTS
DATE: 2-5-88

IF THE PACKAGES DID NOT ARRIVE IN THE ABOVE CONDITION WOULD LIKE TO KNOW ABOUT IT. PLEASE CALL TOLL FREE 1-800 (8:00 A.M. - 4:30 P.M. CENTRAL STANDARD TIME) IF THE LOAD DOESN'T REQUIREMENTS.

WE ALSO WELCOME YOUR COMMENTS OR SUGGESTIONS O PACKAGE QUALITY, DESIGN AND CARRIER'S SERVICE.

ARE WE MEETING YOUR REQUIREMENTS?

New Business Opportunities

In pursuit of new profitable growth opportunities, we continue to invest in a number of ventures that are small and still in the development stage but offer significant long-term potential. These ventures are directed toward developing technologically innovative products that bring Shell Oil closer to end-users.

Included are ventures that are developing and marketing new polymeric products for food packaging, automotive, aerospace and construction applications, as well as ventures involved in catalyst products and services.

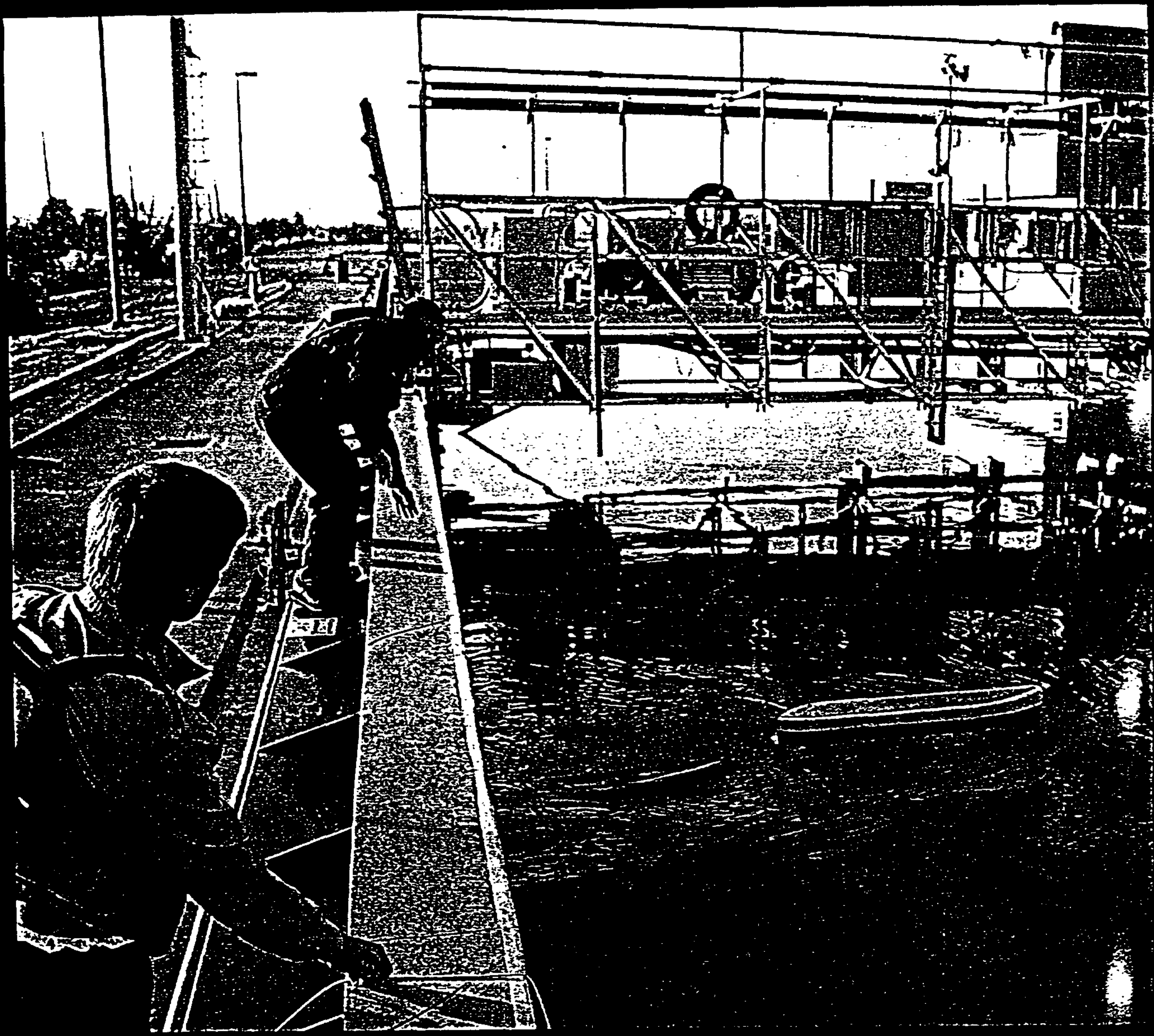
In 1987, we completed and successfully started up a Shell Coal Gasification Process demonstration plant at Deer Park, Texas. We will test various grades of coal for use in the process.

Shell Oil's biotechnology subsidiary, Triton Biosciences, Inc., is focused on products for the treatment and diagnosis of cancer and serious viral diseases. Limited clinical trials of Betaseron®, a patented form of interferon made through recombinant DNA techniques, continue to show promise. In the diagnostics segment, through a joint venture, Triton is developing systems which will automate diagnostic tests performed in hospital laboratories.

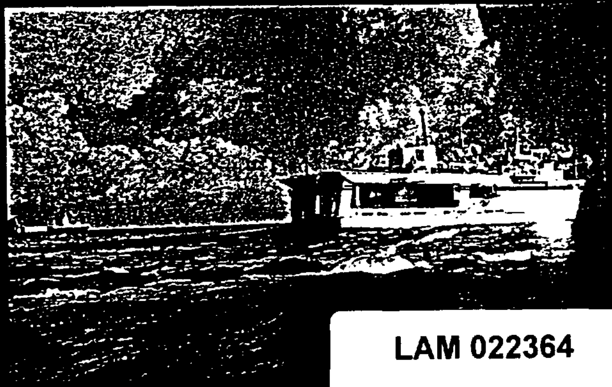
Quality Improvement Process

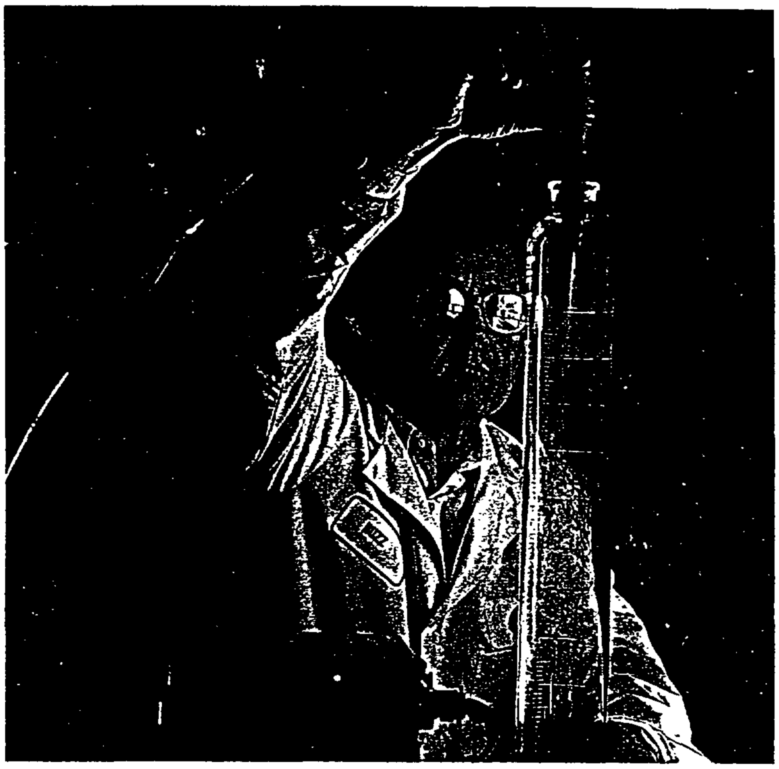
Throughout our Products organizations, Shell Oil's Quality Improvement Process is the cornerstone of our ongoing efforts to assure that the requirements of customers, both internal and external, are met. This process was introduced in 1984 and, by mid-1988, every employee in our Products businesses will have undergone training in the fundamentals of quality improvement.

The quality improvement process stresses a philosophy of doing each job right the first time, encouraging employees to find ways to perform their work better and eliminate waste and inefficiency. Among its many benefits, the quality process has already resulted in significant cost reductions by improving productivity and reducing off-specification product.



Our constant search for improved seismic techniques has led to unique designs, such as the float being tested here. As shown at right, it allows our Shell America to deploy seismic sensors wider than typical seismic vessels.





This researcher is measuring the flow of gasoline through an automobile engine injector. This is typical of the continued testing of our products to improve their performance and make sure they meet the needs of our customers.

In close cooperation with Shell Oil operating units, our research staff continually seeks new ways to apply technology in support of business objectives.

Research programs are directed toward four major goals: maintaining Shell Oil's position at the leading edge of exploration and production technology; discovering, developing and improving oil and chemical products; improving Shell Oil's manufacturing and conversion processes; and identifying and developing new long-term opportunities for Shell Oil in areas related to its technological skills.

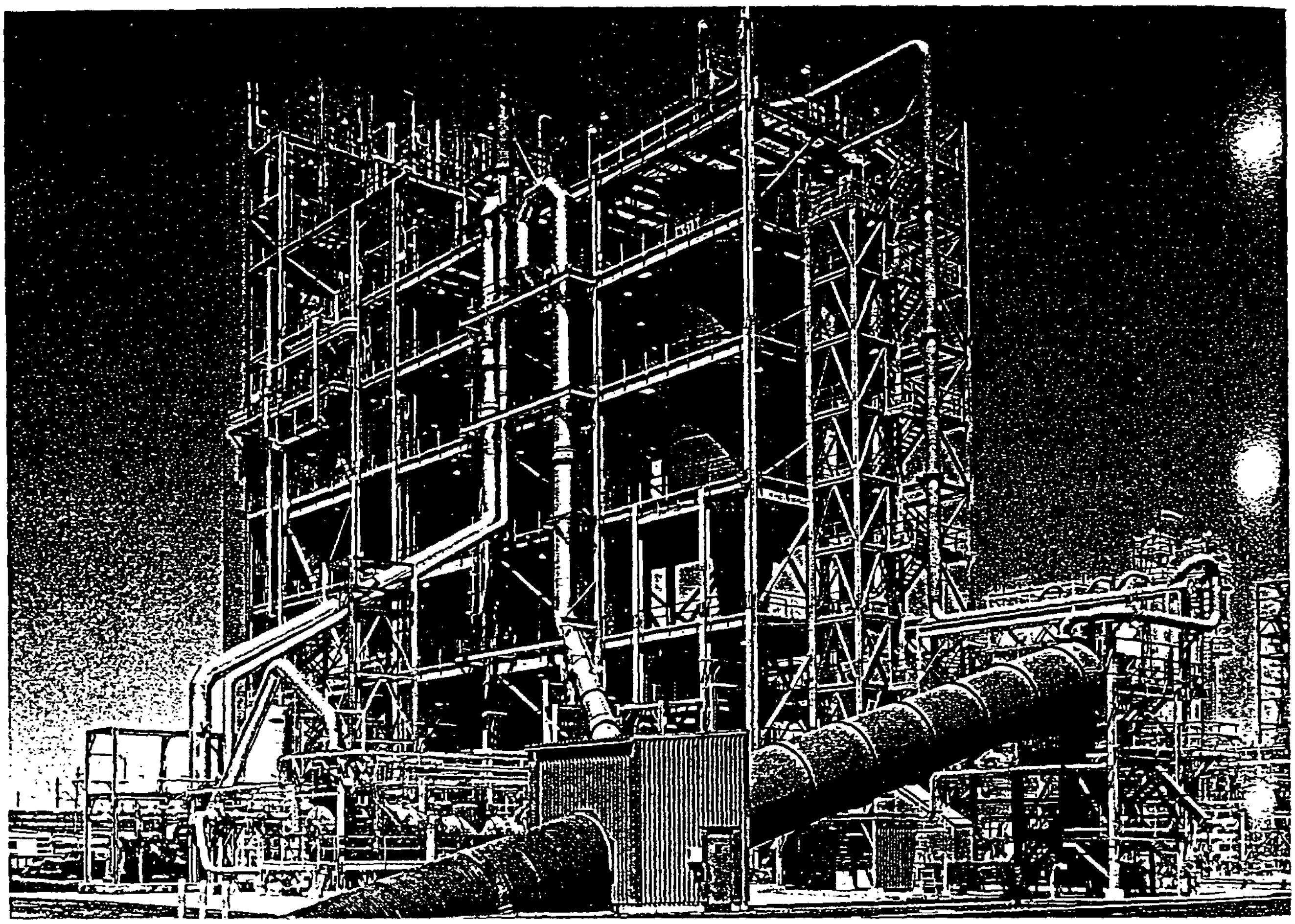
In 1987, we spent $232 million on research activities. In addition to our own research programs, Shell Oil and a company affiliated with the Royal Dutch/Shell Group of Companies have an arrangement whereby each can share in the costs and results of certain research performed by the other.

We continue to emphasize research productivity to obtain more benefit for each dollar spent. A significant effort is devoted to adapting Shell Oil's Quality Improvement Process to many activities in our research organization. This has resulted in such improvements as (1) significantly increased output of market development products from pilot plants, and (2) reduced time and effort for the development of certain performance products based on customer requirements. Finally, we continue to invest in state-of-the-art instrumentation and information technology.

Exploration and Production

Exploration research is focused primarily on developing improved concepts and tools for evaluating unproven areas with oil and gas potential. A major effort is directed to new seismic methods and data processing techniques to better analyze and interpret data from greater subsurface depths, from complex geological structures and from frontier areas. New analytical techniques and tools continue to provide better geologic information about how oil and gas are trapped in rock formations.

The major thrusts of production research are to develop effective, economical methods for recovering more oil and gas from known reservoirs and to find ways to reduce drilling and production costs. We continue to improve our enhanced recovery techniques, including steam injection and carbon dioxide flooding, while also pursuing the development of new enhanced recovery methods. As promising methods evolve,



they are field tested to determine commercial opportunities. Additionally, we are pursuing advanced technology, including production and transportation systems, that would be needed for economic development of deep-water discoveries in the Gulf of Mexico.

Products

We have focused our research funding in promising areas of Shell Oil's chemical businesses, where research and technology are critical to new product development. Results of this effort in 1987 included a new series of high-performance epoxy resins for making advanced aircraft components and a new series of resins for laminating computer circuit boards. Another major focus is the development of improved catalysts.

In Oil Products, we maintain an active program of developing proprietary additives to improve the performance of Shell Oil gasolines and motor oils. An improved additive package was introduced during 1987 to enhance the effectiveness of Shell unleaded gasolines in maintaining fuel injector performance. Shell's premium quality motor oil, Fire & Ice 2000 High Performance 10W30, was improved in 1987 to meet the most stringent American Petroleum Institute requirements for use in modern automotive engines. Key attributes are low temperature startability, high temperature wear protection, fuel economy and engine cleanliness.

We continue to develop the Shell Coal Gasification Process, and during the past year completed a demonstration plant at Deer Park, Texas. The process offers a commercially promising and environmentally sound method to convert a variety of coals into gas for fuel to generate electric power or for use as a feedstock to manufacture hydrocarbon or petrochemical products.

We are also seeking reductions in Oil Products manufacturing and logistical costs. The first phase of a new logistics and process control system, to optimize the scheduling of feedstock inputs and refined products manufacture, was installed in Shell Oil's eastern U.S. refining network.

Emerging Businesses and Exploratory Research

These programs, aimed at leading Shell Oil into new business opportunities, cover such areas as coal gasification, biotechnology and exploratory chemistry.

Financial Section

Financial Review

Management's Discussion and Analysis of Financial Condition and Results of Operations.

Key Financial Results

—Earnings for 1987 were $1,230 million, compared with $883 million in 1986 and $1,650 million in 1985.

—Net income as a percent of shareholder's equity was 8.6 percent in 1987, compared with 6.2 percent in 1986 and 13.2 percent in 1985.

—Funds provided from operations (net income plus depreciation, deferred taxes and other non-cash items) were $3,407 million, compared with $3,531 million in 1986 and $3,927 million in 1985.

—Revenues for 1987 were $21.2 billion, an increase of 22 percent over 1986, and 4 percent over 1985.

—Shareholder's equity at the end of 1987 increased to $14.8 billion from $14.3 billion a year earlier and $14.1 billion at the end of 1985.

—Long-term obligations as a percent of capitalization declined to 15.1 percent at the end of 1987, down from 16.0 percent at year-end 1986 and 17.9 percent at the end of 1985. These obligations were reduced by $113 million in 1987.

Oil and Gas Exploration and Production

Oil and Gas Exploration and Production earnings were $733 million in 1987. This represented a $306 million increase over 1986 earnings of $427 million but was $697 million less than 1985 earnings of $1,430 million. Funds provided from operations in 1987 were $2,366 million, $91 million higher than in 1986 but $589 million lower than in 1985. The improvement in funds provided from operations in 1987 was relatively smaller when compared with the improvement in earnings, as earnings reflected lower non-cash charges for write-offs and deferred taxes. In addition, dividends from equity companies were lower.

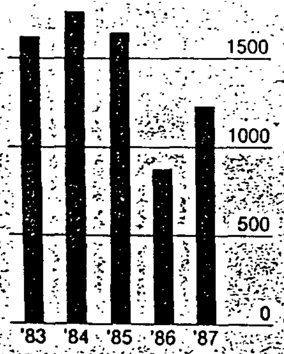
The improvement in 1987 earnings over 1986 was due mainly to higher average crude oil prices. Domestic crude oil prices for 1987 averaged $15.51 per barrel, compared with $13.20 per barrel in 1986. However, year-end 1987 average crude oil prices had declined about $3.00 per barrel from the peak reached at mid-year. At the end of 1987, average prices remained above 1986 levels, but were significantly below levels which existed prior to the sharp declines in early 1986. Domestic crude oil prices in 1985 averaged $24.55 per barrel.

The benefit to 1987 earnings of higher crude oil prices was partly offset by lower natural gas prices. Natural gas prices in 1987 averaged $1.87 per thousand cubic feet, a decline from $2.15 per thousand cubic feet in 1986 and $2.80 per thousand cubic feet in 1985. Production during 1987 for both crude oil and natural gas remained at essentially the 1986 levels which were about 9 percent higher than 1985 production.

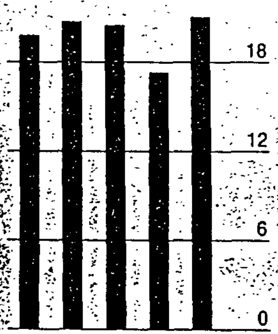
Operating, exploration and dry hole costs in 1987 declined compared with 1986, and were significantly below 1985 costs. Although write-offs were lower in 1987 when compared with 1986, both years were higher than 1985 due to increased production levels and a greater asset base. Gains on property sales in 1987 were $45 million, $92 million in 1986 and $88 million in 1985.

Earnings in 1986 also included a gain of $62 million from the sale of certain Canadian interests to Shell Canada Limited, while 1985 included a $108 million benefit from settlements associated with renegotiations of certain natural gas contracts.

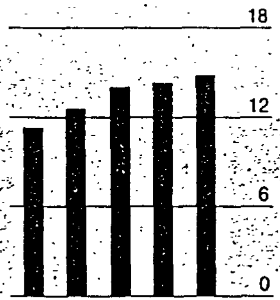
Consolidated Net Income
(Millions of dollars)



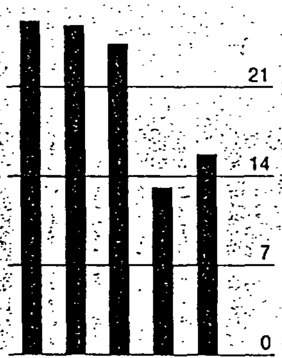
Consolidated Revenues
(Billions of dollars)



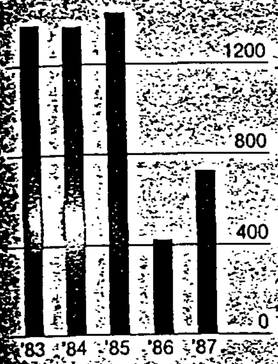
Shareholder's Equity
(Billions of dollars)



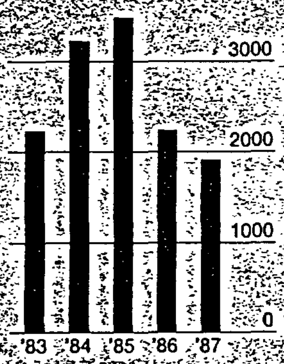
Average Prices of Domestic Crude Oil Production
(Dollars per barrel)



Oil and Gas Exploration and Production Net Income
(Millions of dollars)



Oil and Gas Exploration and Production Capital and Exploratory Expenditures
(Millions of dollars)



Crude Oil Production — Total net crude oil production in 1987 of 542,000 barrels per day, including equity production, was down 8,000 barrels per day from 1986 but was up 40,000 barrels per day over 1985.

Domestic net production averaged 488,000 barrels per day in 1987, a 2 percent decrease from 1986 levels, but 5 percent higher than in 1985. In 1987, normal production declines in various fields were partially offset by increased production in California. Most of the increases for both years over 1985 production were from fields in California and Texas.

Foreign net crude oil production, including our share of equity production, was 54,000 barrels per day in 1987, up 3,000 barrels per day from 1986 and 15,000 barrels per day over 1985 levels.

Gas Production — Average net natural gas production of 1,821 million cubic feet per day in 1987 increased marginally from the 1986 level of 1,816 million cubic feet per day. Sales levels in 1987 were maintained in a weak market through an active marketing program. Production in both years increased 9 percent over 1985.

Natural Gas Liquids — Net natural gas liquids production in 1987 was 70,000 barrels per day, down 2,000 barrels per day from 1986, but 3,000 barrels per day higher than in 1985. The 1987 average natural gas liquids price of $11.26 per barrel was 4 percent higher than in 1986, but 33 percent less than in 1985.

Costs and Expenses — Production costs, exclusive of Windfall Profit Tax, for both 1987 and 1986 were down 19 percent and 16 percent, respectively, from 1985, although production volumes for both periods were higher than in 1985. Lower energy costs for enhanced recovery projects, lower oil field service costs and the continuing benefits from cost reduction programs initiated in 1986 were major factors contributing to the reduction from 1985. Windfall Profit Tax declined significantly in both 1986 and 1987 as crude oil prices generally were below the base prices used to calculate the tax.

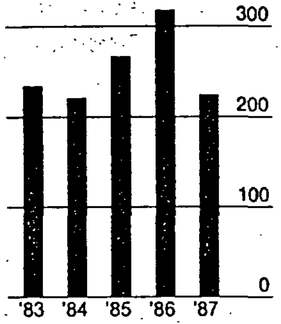
Exploration costs, including dry hole write-offs, were down 19 percent from 1986 and 40 percent from 1985. Reduced seismic activities and lower dry hole costs were the major contributors to the decline from 1986, while these same factors, as well as lower costs, contributed to the reduction from 1985.

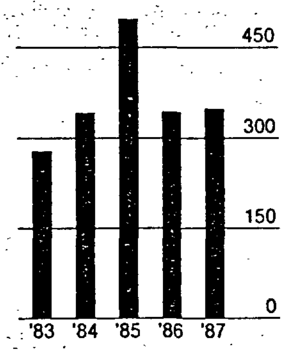
Depreciation, depletion and amortization costs were $1,491 million in 1987, slightly below 1986. These costs in 1987 were $216 million more than in 1985, primarily due to the higher production level and a greater asset base.

Capital Expenditures — Capital spending for Oil and Gas Exploration and Production was $1,491 million in 1987, compared with $1,761 million in 1986 and $2,815 million in 1985. The decrease from 1986 reflected lower spending for producing property acquisitions, lower capitalized interest and generally lower drilling costs, partially offset by increased spending for new leases, primarily in the Gulf of Mexico. These same factors were the main reasons for the decrease from the 1985 level and, in addition, expenditures for new leases were less than in 1985 due to a lower average cost per acre.

A program of upgrading our domestic oil and gas assets through selective purchases and sales of properties was continued for the fourth year. Acquisitions continued to be concentrated in areas having enhanced recovery potential and fields where Shell Oil already owns an interest. This program, which in 1987 also included a major property exchange, resulted in a net increase in proved reserves in 1987 of 106 million barrels of crude oil equivalent. Capital expenditures for producing property purchases in 1987 were $154 million, compared with $353 million and $975 million in the prior two years. Property sales totaled $113 million in 1987 compared with $186 million in 1986 and $233 million in 1985.

Hydrocarbon Reserves — Shell Oil's replacement of hydrocarbon reserves through discoveries, extensions, improved recovery techniques, net property purchases/sales/exchanges, and revisions to prior estimates in 1987 was 140 percent of production for the year. This was up from the 120 percent in 1986 and about the same as 1985's 143 percent. We drilled 1,291 net wells in 1987, compared with 1,514 in 1986 and 1,067 in 1985. The increases in 1987 and 1986 over 1985 drilling were primarily for supplemental recovery projects in California.


Oil Products Net Income
(Millions of dollars)


Oil Products Capital Expenditures
(Millions of dollars)

Oil Products

Oil Products segment earnings of $224 million in 1987 decreased $95 million from 1986 earnings of $319 million and $45 million from 1985 earnings of $269 million. Funds provided from operations of $527 million in 1987 decreased $158 million from 1986's $685 million and $95 million from 1985's $622 million.

In 1987, the benefits of increased refined product sales volumes and higher selling prices were more than offset by higher raw material costs. Lower margins, particularly during the first half of 1987, impaired earnings as increasing crude oil prices were not fully recovered in the marketplace.

Refined Product Sales Volumes — Total 1987 refined product sales volumes increased 179,000 barrels per day to 1,352,000 barrels per day, an increase of 15 percent over 1986 and 42 percent over 1985. Volumes were up in most product lines, including automotive gasoline, jet fuel, and kerosene, heating and diesel oils.

Automotive gasoline sales volumes in 1987 increased 12 percent over 1986 and 35 percent over 1985, reflecting, in part, continued favorable customer response to SU 2000® super unleaded and RU 2000® regular unleaded gasolines, which were introduced in 1984. Volumes through service stations in 1987 were up 8 percent over 1986 and 23 percent over 1985. Sales in the inter-refiner market accounted for most of the remaining increases.

Sales volumes of jet fuel were up 24 percent over both 1986 and 1985. Shell Oil continues to be a leading supplier to the commercial aviation industry and an active supplier to the military.

Kerosene, heating and diesel oils sales volumes were up 30 percent over 1986 as a result of increased sales from Gulf Coast and West Coast refineries, while lubricants sales volumes increased 2 percent in 1987 compared with 1986 and 4 percent from 1985.

Refined Product Prices — Average refined products selling prices increased 4 cents per gallon from 1986 but were significantly below levels experienced in 1985. Price increases over 1986 occurred in most refined product categories. Average automotive gasoline prices for 1987 were up 5 cents from 1986, but down 25 cents from 1985.

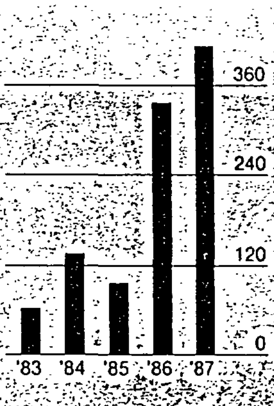
Jet fuel prices for 1987 were up 3 cents per gallon from 1986, but down 25 cents from 1985. Kerosene, heating and diesel oils prices increased 8 cents and decreased 24 cents in the comparative periods.

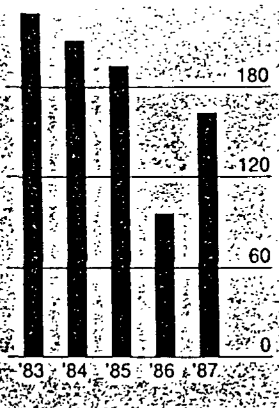
Capital Expenditures — Capital spending for Oil Products was $351 million in 1987, $342 million in 1986, and $496 million in 1985. The high level of 1985 expenditures included service station acquisitions, principally in the Northeast.

Chemical Products

Chemical Products net income for 1987 was a record $416 million, compared with $342 million in 1986 and $96 million in 1985. Funds provided from operations in 1987 were $596 million, compared with $671 million in 1986 and $352 million in 1985. Earnings in 1987 benefited from improvements in non-cash items, mainly higher equity income and lower write-offs, which did not have a similar effect on funds provided from operations.

The 1987 earnings resulted from improved margins, primarily in the second half of the year, and substantial volume gains. The 1986 period benefited from a $120 million gain from the sale of Shell Oil's agricultural chemical business, while a tax adjustment, which was substantially smaller, benefited 1987.


Chemical Products Net Income
(Millions of dollars)


Chemical Products Capital Expenditures
(Millions of dollars)

For the year 1987, margin improvements occurred primarily in commodity chemicals as increased sales prices, due primarily to strong markets, more than offset higher feedstock costs.

Results of our Saudi Arabian petrochemical venture improved over 1986. This performance reflected strong margins and high operating rates.

Sales Volumes — Total volumes increased about 8 percent in 1987, with improvements in essentially all business lines more than offsetting loss of volume related to the sales of our agricultural chemicals and vinyl chloride monomer businesses. This was the fourth consecutive year of volume increases, mainly reflecting improved market conditions.

Capital Expenditures — Capital spending for Chemical Products was $163 million in 1987, compared with $95 million in 1986 and $195 million in 1985. Capital programs in 1987 continued to focus on domestic production efficiency projects and an expansion at our Geismar, Louisiana plant for detergent products. Expenditures in 1985 included outlays for our equity investment in the Saudi Arabian petrochemical venture.

Non-Allocated Corporate Costs

Corporate costs not allocated to the segments reduced earnings $148 million in 1987, compared with $194 million in 1986 and $134 million in 1985. Costs were lower in 1987, mainly because the prior year was impaired by $70 million, reflecting a settlement with the Department of Energy. In addition, interest expense in 1987 was lower due to a reduction in the average level of debt and lower interest rates, which more than offset costs associated with the redemption of certain debentures.

The impairment from 1985 to 1986 was primarily the result of the Department of Energy settlement, and interest expense also increased in 1986 due to a higher average level of debt during that year.

Capital Resources and Liquidity

Shell Oil's balance sheet strengthened in 1987 as assets and shareholder's equity increased and debt declined.

Funds Provided from Operations — In 1987, funds provided from operations continued to be the primary source of funding for Shell Oil's capital investment program, dividends, debt reduction, and other needs. In 1987, such funds amounted to $3,407 million, compared with $3,531 million in 1986 and $3,927 million in 1985.

Debt Obligations — In 1987, Shell Oil reduced its total debt obligations by $293 million, compared with a decrease of $298 million in 1986 and an increase of $765 million in 1985. The 1987 decline consisted of $113 million of long-term obligations, and $180 million in short-term obligations.

Shell Oil's ratio of long-term obligations as a percent of capitalization declined to 15.1 percent at the end of 1987, compared with 16.0 percent at the end of 1986 and 17.9 percent in 1985.

Shareholder's Equity — Shareholder's equity increased $530 million in 1987, and $183 million in 1986. In 1985, it increased $1,617 million, of which $1,011 million came from reinvested earnings. The remainder of the 1985 increase was a capital contribution from Shell Oil's parent company of 100 percent of the capital stock of the Scallop companies.

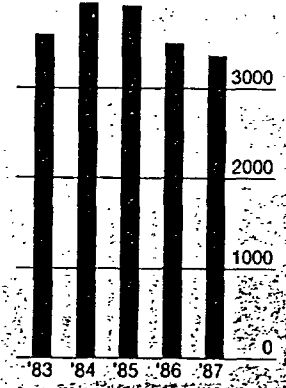
In 1987, net income was 8.6 percent of shareholder's equity, compared with 6.2 percent in 1986 and 13.2 percent in 1985. The increase in 1987 was the result of higher earnings.

Capital Spending — The major use of funds was for capital expenditures, which amounted to $2,220 million in 1987, $2,343 million in 1986 and $3,779 million in 1985. The slight decrease in 1987 was partly because of fewer property acquisition opportunities than expected and generally lower drilling costs.

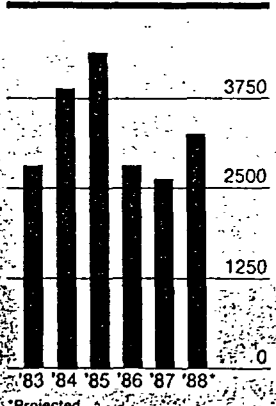
Shell Oil's capital spending program continues to emphasize the exploration for, and the acquisition and development of, crude oil and natural gas reserves. In 1987, these activities accounted for 67 percent of total capital spending, compared with 75 percent in 1986 and 74 percent in 1985. These outlays were primarily in the United States. Oil and Chemical Products accounted for 23 percent of total spending in 1987, compared with 19 percent in 1986 and 18 percent in 1985.

Capital expenditures of $2.8 billion are projected for 1988, with $1.9 billion, or about 70 percent of the total, designated for exploration, acquisition and development of energy resources, principally domestic oil and natural gas. Capital expenditures of

Consolidated Funds Provided from Operations
(Millions of dollars)



Consolidated Capital and Exploratory Expenditures
(Millions of dollars)



*Projected

about $400 million are planned for Oil Products and $250 million for Chemical Products. It is anticipated that such expenditures will continue to be funded predominantly with internally generated funds.

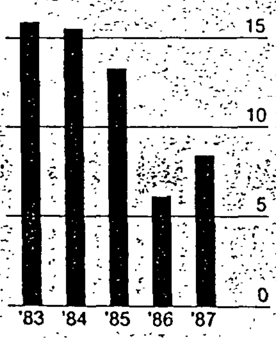
Dividends — Dividends in both 1987 and 1986 were $700 million and $639 million in 1985.

Liquidity — Cash and short-term securities amounted to $535 million at year-end 1987, a decrease of $453 million from 1986 and an increase of $51 million over 1985. A portion of the increase in 1986 represented the proceeds from the sale of Shell Oil's agricultural chemical business. Some of those proceeds were used in February 1987 to redeem all outstanding 14¼ percent debentures due in 2011.

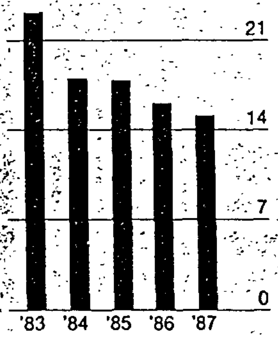
Internally generated funds, access to outside financing based on strong credit ratings, and prudent management of minimum working capital are the essential components of Shell Oil's liquidity position.

Shell Oil's strategy continues to rely mainly on internally generated funds to finance routine operating requirements and capital spending. Short-term borrowings will generally be used to fund interim working capital needs and unusual requirements. Shell Oil and its finance subsidiary, Shell Credit, Inc., had a total of $2,020 million of unused back-up credit facilities available for general corporate purposes, including support of commercial paper, as of December 31, 1987. Under certain conditions, the Company would consider utilizing its existing shelf registration to issue up to $500 million of debt securities.

Net Income as a Percent of Shareholder's Equity
(Percent)



Long-Term Obligations as a Percent of Capitalization
(Percent)



Working capital amounted to $529 million at the end of 1987 compared with $598 million at the end of 1986, and $100 million in 1985. Shell Oil's liquidity position is considerably stronger than indicated by these working capital levels because of relatively low historical costs assigned to inventories under LIFO accounting procedures. The year-end inventory values included in working capital were below their current costs by $911 million in 1987, $857 million in 1986, and $1,398 million in 1985.

Other Matters

During the fourth quarter of 1987, the Financial Accounting Standards Board (FASB) issued three new Statements of Financial Accounting Standards (SFAS), which will affect the Company's financial statements upon their planned adoption in 1988.

SFAS No. 94 requires the consolidation of all majority owned subsidiaries except in circumstances where a question of control exists. Although Shell Oil's consolidated net income and shareholder's equity will not change as a result of adopting this standard, various asset and liability categories will be restated as further described in Note 4 of the Notes to Consolidated Financial Statements.

In addition, SFAS No. 95 requires that a statement of cash flows replace the existing Statement of Changes in Financial Position. This new standard redefines cash flow activities into investing, financing, or operating categories. The Company intends to present earlier years on a basis consistent with the new standard. This statement will not affect the consolidated balance sheet or income statement.

The FASB also issued SFAS No. 96 which requires that the liability method be used for accounting for income taxes. Shell Oil plans to adopt the standard in 1988 without restating prior years. The cumulative effect of adopting SFAS No. 96, primarily resulting from the lower income tax rates provided in the Tax Reform Act of 1986, will be a reduction in deferred tax balances and a corresponding increase in net income currently estimated to be approximately $975 million. Under the new method of accounting for income taxes, future results will also be impacted by the effect of changes in income tax rates on cumulative deferred tax balances.

In addition to the various economic conditions affecting Shell Oil, other matters which could affect its operations, earnings, and financial condition are discussed in Note 15 of the Notes to Consolidated Financial Statements.

Company Report on Responsibility for Financial Reporting

The Company prepared, and is responsible for, its consolidated financial statements and the other information appearing in this annual report. The Company believes that the consolidated financial statements fairly present its financial position in conformity with generally accepted accounting principles. In preparing its consolidated financial statements, the Company includes amounts that are based on estimates and judgments which the Company believes are reasonable under the circumstances.

The Company maintains a system of internal accounting control which it believes is sufficient to provide reasonable assurance that the Company meets its responsibilities in the preparation of its consolidated financial statements and maintains reasonable accountability for its assets. In establishing and maintaining any system of internal accounting control, estimates and judgments are required to assess the relative costs and expected benefits. Also, the Company maintains an internal auditing program that assesses the effectiveness of the internal accounting control system and performs other internal audit functions.

The independent accountants provide an objective, independent review of reported operating results and financial position.

The Audit Committee of the Board of Directors, composed entirely of non-employee directors, oversees the Company's financial reporting process on behalf of the Board of Directors. Its functions include: reviewing and recommending to the Board the selection of the independent accountants, and reviewing the scope and discharge of the responsibilities of management, internal auditing and the independent accountants during periodic meetings with representatives of these groups.

On behalf of the Company:

J. C. Jacobsen
Vice President Finance and
Chief Financial Officer

February 9, 1988

Report of Independent Accountants

To the Board of Directors and Shareholder of Shell Oil Company:

In our opinion, the accompanying consolidated balance sheet and the related consolidated statements of income and earnings reinvested and of changes in financial position present fairly the financial position of Shell Oil Company and its subsidiaries at December 31, 1987 and 1986, and the results of their operations and the changes in their financial position for each of the three years in the period ended December 31, 1987, in conformity with generally accepted accounting principles consistently applied. Our examinations of these statements were made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

Price Waterhouse

Houston, Texas
February 9, 1988

Consolidated Statement of Income and Earnings Reinvested

Millions of dollars

	Years ended December 31	1987	1986	1985
Revenues	Sales and other operating revenue	$22,373	$18,222	$21,560
	Less: Consumer excise and sales taxes	1,521	1,389	1,251
		20,852	16,833	20,309
	Equity earnings, interest and other income	370	520	168
	Total	21,222	17,353	20,477
Costs and Expenses	Purchases and operating expenses	15,262	11,528	13,519
	Selling, general and administrative expenses	772	829	663
	Exploration, including exploratory dry holes	394	487	659
	Research expenses	186	202	213
	Depreciation, depletion, amortization and retirements	2,002	2,096	1,717
	Interest and discount amortization	234	279	198
	Income and operating taxes			
	Operating taxes	591	575	776
	Federal and other income taxes	551	474	1,082
	Total	19,992	16,470	18,827
Net Income	Net income	$ 1,230	$ 883	$ 1,650

Earnings Reinvested	Balance at beginning of year	$12,267	$12,084	$11,073
	Net income	1,230	883	1,650
	Cash dividends declared	(700)	(700)	(639)
	Balance at end of year	$12,797	$12,267	$12,084

The accompanying Notes to Consolidated Financial Statements are an integral part of these statements.

Consolidated Balance Sheet

Millions of dollars, except per share amounts

	As of December 31	1987	1986
Assets	Current Assets		
	Cash	$ 167	$ 149
	Short-term securities, at cost, which approximates market	368	839
	Receivables and prepayments, less allowance for doubtful accounts	2,388	1,913
	Owing by related parties	124	202
	Inventories of oils and chemicals	696	675
	Inventories of materials and supplies	279	303
	Total Current Assets	4,022	4,081
	Investments, Long-Term Receivables and Deferred Charges	1,826	1,613
	Property, Plant and Equipment at cost, less accumulated depreciation, depletion and amortization	21,089	20,520
	Total	$26,937	$26,214
Liabilities and Shareholder's Equity	Current Liabilities		
	Accounts payable—trade	$ 1,609	$ 1,272
	Commercial notes	622	674
	Other payables and accruals	516	582
	Income, operating and consumer taxes	319	481
	Owing to related parties	169	88
	Long-term obligations due within one year	258	386
	Total Current Liabilities	3,493	3,483
	Long-Term Obligations		
	Long-term debt	3,305	3,355
	Owing to related parties	22	46
	Other long-term obligations	203	242
	Total Long-Term Obligations	3,530	3,643
	Deferred Credits—Income Taxes	5,072	4,776
	Shareholder's Equity		
	Common stock — 1,000 shares of $10 per share par value authorized and outstanding	—	—
	Capital in excess of par value	2,045	2,045
	Earnings reinvested	12,797	12,267
	Total Shareholder's Equity	14,842	14,312
	Total	$26,937	$26,214

The accompanying Notes to Consolidated Financial Statements are an integral part of these statements.

Consolidated Statement of Changes in Financial Position

Millions of dollars

	Years ended December 31	1987	1986	1985
Funds Provided from Operations	Net income	$1,230	$ 883	$1,650
	Depreciation, depletion, amortization and retirements	2,002	2,096	1,717
	Deferred credits—income taxes	296	494	547
	Dividends in excess of (less than) equity income	(121)	58	13
	Funds provided from operations	3,407	3,531	3,927
Other Sources (Uses) of Funds	Property sales and salvage	203	288	241
	Other non-current items	(646)	94	(156)
	Current receivables and prepayments	(397)	546	9
	Inventories	3	79	(218)
	Current payables and accruals	190	(693)	(130)
	Other sources (uses) of funds	(647)	314	(254)
Funds Provided by (Used for) Financing Transactions	Increase in long-term debt	252	1,020	1,378
	Decrease in long-term debt	(302)	(1,375)	(890)
	Decrease in production payment	—	—	(203)
	Increase in other long-term obligations	—	60	158
	Decrease in other long-term obligations	(63)	(77)	(29)
	Increase (decrease) in short-term obligations	(180)	74	351
	Funds provided by (used for) financing transactions	(293)	(298)	765
Funds Used for Capital Expenditures	Capital expenditures	2,220	2,343	3,779
Funds Used for Dividends	Dividends	700	700	639
Increase (Decrease) in Cash and Short-Term Securities	Cash and short-term securities	$ (453)	$ 504	$ 20

The accompanying Notes to Consolidated Financial Statements are an integral part of these statements.

Notes to Consolidated Financial Statements

1. Accounting Policies

Shell Oil Company (the Company) is wholly owned by Shell Petroleum Inc., a Delaware corporation, whose shares are directly or indirectly owned 60% by Royal Dutch Petroleum Company, The Hague, The Netherlands, and 40% by The "Shell" Transport and Trading Company, Public Limited Company, London, England.

This summary of the major accounting policies of Shell Oil Company and its consolidated subsidiaries (Shell Oil) is presented to assist the reader in evaluating Shell Oil's financial statements and other data contained in this report.

Principles of Consolidation — The financial statements include the accounts of Shell Oil Company and its majority-owned subsidiaries, except for a finance subsidiary, an insurance subsidiary, and a foreign operating oil and gas subsidiary which are carried on an equity basis. Investments in companies in which Shell Oil has a voting stock interest of 20%, but not more than 50%, are carried at equity in underlying net assets. Investments in less than 20% owned companies are carried at cost with dividends recorded in income as received.

Inventories — Inventories of oils and chemicals are valued at cost predominantly on a last-in, first-out (LIFO) basis which is lower than market. Materials and supplies are carried at average cost or less.

Exploration and Development — Exploration and development expenditures are accounted for according to the "successful efforts" method of accounting.

Property Acquisition Costs — Direct costs of acquiring developed or undeveloped leasehold acreage including lease bonus, brokerage and other fees are capitalized. The cost of undeveloped properties which become productive is transferred to a producing property account.

Exploratory Costs — Exploratory expenses, including geological and geophysical expenses and annual delay rentals on oil and gas leases, are charged to income as incurred. Exploratory drilling costs are initially capitalized, but should the efforts be determined to be unsuccessful, they are then charged to income.

Development Costs — Costs incurred to drill and equip development wells, including dry holes, platform costs, well equipment costs, and attendant production facilities costs are capitalized.

Depreciation, Depletion and Amortization — Depreciation, depletion and amortization of the capitalized cost of producing properties, both tangible and intangible, are provided for on a unit of production basis. Developed reserves are used in computing unit rates for drilling and development costs, and total proved reserves are used for depletion of leasehold costs. In all cases the unit determination is by field. Amortization of unprover lease costs from date of acquisition is based primarily upon experience in establishing rates to fully amortize over the holdinc period those leases that may be unproductive. Estimated dismantlement, restoration, and abandonment costs and estimated residual salvage values are taken into account in determining amortization and depreciation provisions.

Other plant and equipment are depreciated on a straight-line basis over their estimated useful lives. On a cycle basis, asset lives are reviewed for propriety of estimated useful life. Changes in depreciation rates, if any, are applied prospectively.

Deferred Income Taxes — Transactions which affect book income and taxable income in different periods are adjusted by inter-period tax allocation to eliminate the effect of such timing differences. Tax allocation for differences pertaining to capitalized costs and associated write-offs, including intangible drilling and other costs associated with the exploration for and development of oil and gas reserves, is reflected in Deferred Credits — Income Taxes in the Consolidated Balance Sheet. For other differences, the net cumulative effect is reflected in Receivables and prepayments or Other payables and accruals in the Consolidated Balance Sheet.

Investment Tax Credit — Investment tax credits are applied to reduce federal income taxes in the year realized.

Capitalization of Interest — The capitalization of interest is limited to projects where construction or development of the asset takes considerable time, entails substantial expenditures and involves a significant amount of interest cost.

2. Transactions with Related Parties

Shell Oil had transactions, including the purchase, sale and transportation of crude oil, petroleum and chemical products in the ordinary course of business with related parties, including companies affiliated with the Royal Dutch Petroleum Company and The "Shell" Transport and Trading Company, Public Limited Company. Such transactions were as follows:

Millions of dollars	1987	1986	1985
Sales and other operating revenue	$ 521	$359	$243
Purchases and transportation	1,223	733	464

The revenues and costs related to these transactions are commingled with other revenues and costs and the amount of profit thereon is not accurately determinable without effort and expense disproportionate to the relative importance of such amount. In addition, a Canadian subsidiary was sold in 1986 for $80 million, with a gain of $62 million, to Shell Canada Limited.

Transactions with related companies also include certain foreign venture arrangements with respect to the exploration for and development and production of crude oil and natural gas, and arrangements whereby the Company and a company affiliated with the Royal Dutch/Shell Group of companies each perform for, and exchange with the other, research services related to petroleum technology, chemicals and other fields.

3. Inventories of Oils and Chemicals

Inventories are carried predominantly on a LIFO basis which was lower than current cost by $911 million at December 31, 1987, $857 million at December 31, 1986 and $1,398 million at December 31, 1985. Partial liquidation of inventories valued on a LIFO basis was minimal in 1987 and 1986 and increased net income by $67 million in 1985.

4. Investments

Investments in unconsolidated subsidiaries accounted for by the equity method include PICO Limited, a wholly owned Bermuda insurance subsidiary; Shell Credit, Inc., a wholly owned domestic finance subsidiary and Pecten Cameroon Company, a majority owned foreign operating oil and gas subsidiary.

In 1987, the Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standards (SFAS) No. 94 which requires that the accounts of these insurance and finance subsidiaries be consolidated in the Company's 1988 financial statements. The effect of applying the provisions of that standard on the December 31, 1987 Consolidated Balance Sheet will be to increase the reported balances of total assets by $647 million, current liabilities by $287 million, and long-term obligations by $99 million. There will be no effect on net income or shareholder's equity and the impact on debt ratios will not be material.

Investments in companies in which Shell Oil has a voting stock interest of 20 percent, but not more than 50 percent, are also accounted for on an equity basis. These include Saudi Petrochemical Company, a petrochemical company in Saudi Arabia, and investments in several pipeline companies. Shell Oil previously accounted for its investment in A. T. Massey Coal Co., Inc. on an equity basis, but following a division of partnership properties in July 1987, the companies received were fully consolidated.

The equity investment in these companies amounted to $857 million, $1,149 million and $1,296 million at December 31, 1987, 1986 and 1985, respectively. Summarized financial information of the companies and Shell Oil's equity share thereof is as follows:

		1987		1986		1985	
	Millions of dollars	Total	Equity Share	Total	Equity Share	Total	Equity Share
Unconsolidated Subsidiaries	Current assets	$ 685	$ 655	$ 821	$ 776	$ 604	$ 539
	Noncurrent assets	794	722	787	694	860	737
	Current liabilities	537	504	589	545	623	572
	Noncurrent liabilities*	234	216	432	405	329	272
	Deferred credits	318	318	247	247	159	159
	Revenues	281	235	251	214	450	371
	Net income	101	97	88	86	95	82
Twenty to Fifty Percent Owned Companies	Current assets	$ 372	$ 174	$ 491	$ 233	$ 614	$ 290
	Noncurrent assets	2,810	1,316	4,426	2,127	4,616	2,222
	Current liabilities	189	81	297	134	404	189
	Noncurrent liabilities	2,028	957	2,971	1,425	2,892	1,382
	Deferred credits	54	15	54	16	48	13
	Revenues	1,459	642	1,841	854	634	252
	Net income (Loss)	186	78	69	14	(56)	(37)

*Includes a $45 million long-term note payable by Shell Credit, Inc. to the Company at the end of each of the three years.

5. Long-Term Debt

Long-term debt due after one year from December 31 consisted of the following:

Millions of dollars	1987	1986
Shell Oil Company		
4½% Notes Due 1990	$ 55	$ 60
5% Debentures Due 1991	10	15
5.3% Debentures Due 1992	8	8
8½% Debentures Due 2000	35	36
7¼% Debentures Due 2002	35	44
8¾% Debentures Due 2005	122	134
8% Debentures Due 2007	58	78
7¼% Notes Due 1991	250	250
7⅝% Notes Due 1993	250	250
8⅜% Notes Due 1996	250	250
9½% Notes Due 1990	250	250
13⅞% Notes Due 1991	200	200
15½% Notes Due 1988	—	50
7.3% to 8.7% Notes Due 1989-1996	188	250
Commercial paper and bank loans	1,270	1,300
6.3% to 12% Pollution control obligations	116	116
Other obligations at various interest rates	26	21
Consolidated subsidiaries		
Industrial Development Revenue Bonds	148	—
Notes and Debentures Due through 1999	37	46
	3,308	3,358
Less unamortized discount	3	3
Long-term debt, less unamortized discount	$3,305	$ 3,355

Commercial paper, bank loans and certain Industrial Development Revenue Bonds of $1,400 million, with interest averaging 7.3% as of December 31, 1987, are reported as long term since Shell Oil intends to finance that amount on a long-term basis by either rolling over the short-term obligations as they become due or by replacing them with long-term obligations. Shell Oil has available commitments for long-term financing consisting of $2,000 million under variable rate revolving credit agreements as further described in Note 6.

In previous years, the Company purchased U.S. government securities and deposited them in irrevocable trusts to be used to fund the scheduled principal and interest payments on certain portions of the Company's long-term debt. These government securities and long-term debt issues were removed from the balance sheet, and at December 31, 1987, $389 million of such debt remained outstanding.

The amounts of long-term debt and capitalized lease obligations maturing during the next five years are $258 million in 1988, $76 million in 1989, $324 million in 1990, $566 million in 1991 and $10 million in 1992. The commercial paper and certain other short-term obligations reported as long-term debt have been excluded from the above amounts because the nature and timing of future extinguishments and refinancings cannot be reasonably determined.

6. Lines of Credit

Shell Oil had $2,020 million of unused back-up credit facilities available for general corporate purposes, including support of commercial paper, as of December 31, 1987. These facilities included long-term variable rate revolving credit agreements totaling $2,000 million available to the Company, of which $1,050 million was also available to a financing subsidiary. The remaining facilities consisted of $20 million of unused short-term confirmed lines available to a pipeline subsidiary.

Customary commitment fees were paid for $1,650 million of these facilities with the remainder supported by compensating bank balances resulting from operating funds flowing through banks. None of these balances are restricted as to withdrawal nor are they material in relation to Shell Oil's liquidity position.

7. Receivables and Prepayments

Receivables, prepayments, and allowance for doubtful accounts as of December 31, 1987 and 1986, and the provisions for those years consist of the following:

Millions of dollars	1987	1986
Trade receivables	$1,674	$1,234
Other receivables	556	406
Prepayments	184	297
	2,414	1,937
Less Allowance for Doubtful Accounts		
Balance beginning of year	24	25
Provision	26	28
Net write-offs	(24)	(29)
Balance end of year	26	24
Total	$2,388	$1,913

8. Capital in Excess of Par Value

Changes in capital in excess of par value were as follows:

Millions of dollars	1987	1986	1985
Balance at beginning of year	$2,045	$2,045	$1,143
Transfer from Common Stock of par value in connection with acquisition of all shares by Shell Petroleum Inc. (formerly SPNV Holdings, Inc.)	—	—	309
Transfer from Treasury Stock of carrying value of treasury shares cancelled in connection with such acquisition	—	—	(14)
Capital contribution from Shell Petroleum Inc.*	—	—	606
Excess over par value for shares issued	—	—	1
Balance at end of year	$2,045	$2,045	$2,045

*In 1985, Shell Oil Company received as a capital contribution, 100% of the capital stock of Scallop Holding Incorporated, Scallop Coal Corporation and Scallop Development Inc.

9. Pension Plans and Provident Fund

Accounting for pension plans is in accordance with SFAS No. 87, Employers' Accounting for Pensions, which sets forth specific rules for determining expense, irrespective of amounts funded.

The Shell Pension Plan covers employees of the Company and certain subsidiaries. Benefits are based on years of service and the employee's average final compensation. Contributions to the Shell Pension Trust of $78 million for 1987 were based on utilization of the projected unit credit actuarial method, on rates determined by an independent actuary to be reasonable, and a methodology that meets the requirements of the Employee Retirement Income Security Act.

The plan's funded status at December 31 was as follows:

Millions of dollars	1987	1986
Actuarial present value:		
Accumulated benefit obligation including vested benefits of $1,978 and $1,883 for 1987 and 1986, respectively	$2,195	$2,111
Projected benefit obligation	$2,534	$2,471
Plan assets at fair value, primarily common stocks and fixed income investments	2,888	2,853
Plan assets in excess of projected benefit obligation	354	382
Remaining unrecognized net asset existing at date of initial application of SFAS No. 87	(138)	(150)
Unrecognized net (gain) loss from past experience different from that assumed and effects of changes in assumptions	(61)	(120)
Prior service cost not yet recognized in net periodic pension cost	47	23
Net prepaid pension expense	$ 202	$ 135

Shell Oil also has a Benefit Restoration Plan and a Senior Staff Plan. The Benefit Restoration Plan generally provides for payments of amounts in excess of limits imposed by federal tax law on benefit payments under the Shell Pension Plan. The Senior Staff Plan provides for defined monthly supplemental pension payments to members of the senior staff (consisting of certain officers and other high ranking employees). Both of these plans are unfunded. The accumulated benefit obligation for these plans totaled $86 million and $40 million at December 31, 1987 and 1986, respectively. The projected benefit obligation for these plans totaled $104 million and $63 million at December 31, 1987 and 1986, respectively. Of the 1987 projected benefit obligation amount, $65 million will be expensed in the future and $39 million of unfunded accrued pension cost is included in Other long-term obligations on the Consolidated Balance Sheet.

The components of net pension expense for the Shell Pension Plan, Benefit Restoration Plan and Senior Staff Plan were:

Millions of dollars	1987	1986
Service cost—benefits earned during the period	$ 70	$ 69
Interest cost on projected benefit obligation	214	204
Actual return on plan assets*	(136)	(371)
Net amortization and deferral*	(124)	136
Net pension expense	$ 24	$ 38

*An estimated long-term rate of return on plan assets of 10% was used in 1987 and 1986 in determining pension expense for the period. The difference between actual return and estimated return is included in Net amortization and deferral.

Current year pension expense is based on measurements of the projected benefit obligation and the market-related value of plan assets as of the end of the previous year. The projected benefit obligation as of December 31, 1987 and 1986 was based on discount rates of 9% and 8½%, respectively, and an average long-term rate of compensation growth of 5% for both years.

The Shell Provident Fund covers employees of the Company and certain subsidiaries after stated periods of service, and provides for contributions into the Fund by the employing company of a stated percentage of the employees' salaries and wages. Employees may contribute amounts up to the stated percentage.

Total cost of these plans was as follows:

Millions of dollars	1987	1986	1985
Pension Plans	$ 24	$ 38	$ 24
Provident Fund	90	88	87
Total	$114	$126	$111

In addition, several subsidiary companies have separate pension plans using actuarial rates and assumptions determined to be appropriate to these companies. These plans are relatively small and have not been included above.

10. Postretirement Benefits

The Company and certain of its subsidiaries currently provide certain medical care benefits for retired employees. These benefits are arranged through insurance companies and the premiums are generally based on benefits paid during the year. Shell Oil recognizes the cost of these benefits by expensing its portion of the insurance premiums, which was $17 million in 1987, $15 million in 1986 and $13 million in 1985.

Shell Oil's life insurance plan includes postretirement benefits; however, the cost of these benefits is funded by employees.

11. Property, Plant and Equipment

The investments in property, plant and equipment, including capitalized lease assets, were as follows:

		Investment					
		December 31, 1987			December 31, 1986		
	Millions of dollars	Cost	Reserve*	Net	Cost	Reserve*	Net
Property, Plant and Equipment	Exploration and Production						
	Oil and gas	$22,639	$ 8,711	$13,928	$21,825	$ 7,819	$14,006
	Other energy	1,373	183	1,190	665	147	518
	Oil and Chemical manufacturing facilities	6,917	2,962	3,955	6,765	2,755	4,010
	Marketing facilities	1,672	488	1,184	1,559	461	1,098
	Transportation facilities	860	493	367	857	470	387
	Other	940	475	465	926	425	501
	Total	$34,401	$13,312	$21,089	$32,597	$12,077	$20,520

*Accumulated depreciation, depletion and amortization.

12. Taxes

Operating and income taxes incurred by Shell Oil were as follows:

Millions of dollars	1987	1986	1985
Operating Taxes			
Real and personal property	$175	$188	$ 160
Oil and gas production			
Windfall profit tax	1	17	155
Other	116	104	172
Sales and use	132	90	126
Payroll	90	88	91
Import and export duties	29	26	25
Other	48	62	47
Total	$591	$575	$ 776
Federal and Other Income Taxes			
U.S. Federal			
Current	$ 81	$ 34	$ 366
Less investment tax credit	20	51	129
	61	(17)	237
Deferred	441	419	777
	502	402	1,014
Foreign-current	4	12	20
State and local	45	60	48
Total	$551	$474	$1,082

The tax effects of book/tax timing differences giving rise to the above deferred income taxes were as follows:

Millions of dollars	1987	1986	1985
Items associated with capitalized costs and write-offs	$296	$494	$ 547
Operating taxes	123	—	165
Department of Energy settlement	83	(60)	—
Other	(61)	(15)	65
Total	$441	$419	$ 777

Total income tax expense for the years 1987, 1986 and 1985 was equivalent to an effective tax rate of 30.9%, 34.9% and 39.6%, respectively, of earnings before income taxes. These rates are reconciled to the U.S. statutory rates as follows:

	1987	1986	1985
U.S. statutory tax rate	40.0%	46.0%	46.0%
Investment tax credit	(1.1)	(3.8)	(4.7)
Capital gains benefits	(0.3)	(6.1)	(0.7)
Benefit of tax losses	(4.5)	—	—
Other	(3.2)	(1.2)	(1.0)
Total	30.9%	34.9%	39.6%

In addition to the operating and income taxes above, Shell Oil is also responsible for collecting various excise taxes on the sale of products to its customers and for remitting these taxes to the various federal, state and local government agencies. A summary of these taxes, along with the operating and income taxes incurred by Shell Oil, is shown below:

Millions of dollars	1987	1986	1985
Operating taxes	$ 591	$ 575	$ 776
Federal and other income taxes	551	474	1,082
Consumer excise and sales taxes	1,521	1,389	1,251

In December 1987, the FASB issued SFAS No. 96 which requires that the liability method be used for accounting for income taxes. Shell Oil plans to adopt the standard in 1988 without restating prior years. The cumulative effect of adopting SFAS No. 96, primarily resulting from the lower income tax rates provided in the Tax Reform Act of 1986, will be a reduction in deferred tax balances and a corresponding increase in net income currently estimated to be approximately $975 million. Under the new method of accounting for income taxes, future results will also be impacted by the effect of changes in income tax rates on cumulative deferred tax balances.

13. Interest

Interest costs were as follows:

Millions of dollars	1987	1986	1985
Interest expensed	$234	$279	$198
Interest capitalized	75	112	172
Total Interest Incurred	$309	$391	$370

14. Foreign Currency Transactions

The U.S. Dollar is the functional currency for each of Shell Oil's foreign operations. The net after-tax effect of foreign currency transactions was a loss of $1 million in 1987, a gain of $1 million in 1986 and a loss of $1 million in 1985.

15. Contingencies and Other Matters

Shell Oil and certain other petroleum companies have been named as defendants in certain civil antitrust actions brought by state or local agencies which allege violations of federal and state monopoly and restraint of trade statutes. The relief sought in such actions is trebled monetary damages. The trial judge has granted the defendants' motion for summary judgment on the antitrust issues in the two most significant cases. Appeals by the plaintiffs in those cases are pending. Final judicial determination of all of these actions is expected to take a number of years.

In December 1983, the United States filed a civil action against the Company alleging environmental damage and other liabilities based primarily upon the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and upon alleged breaches of lease obligations and other common law claims resulting from the Company's operations at the U.S. Army's Rocky Mountain Arsenal near Denver, Colorado, which operations ceased in 1982. The State of Colorado has also filed an action under CERCLA against the United States, the U.S. Army and the Company alleging in part that, under CERCLA, the State is trustee of the natural resources in question. The lawsuits seek expenditures and damages that greatly exceed those the Army determined in a conceptual strategy dated October 22, 1984 to be necessary to ensure compliance with CERCLA and other environmental statutes. Further, the Company's position is that the Army, in view of its responsibilities, including the construction and operation of the waste disposal system, should be required to bear a major share of all contamination control costs and expenditures and any realistic assessment of natural resource damages. On February 1, 1988, the United States and the Company filed a proposed consent decree which, if approved by the court, would settle the action filed by the United States. The proposed consent decree provides for the development of a remedial action plan; however, the cost of implementing such plan cannot be determined at this time. Under the proposed consent decree, the Company would pay 50% of any amount expended for remedial costs and natural resource damages up to $500 million. The Company would also pay 35% for such expenditures between $500 million and $700 million and 20% of any amount expended in excess of $700 million. Further, the Company has had liability insurance in force over the period of operations with a number of insurance companies. Since the Company and such insurance companies have not been able to reach agreement with respect to the coverage of the policies, the Company is seeking a declaratory judgment that coverage exists for cleanup and contamination control expenses and damages to natural resources which may be imposed on the Company arising out of its operations at the Rocky Mountain Arsenal and a site in Southern California. Trial in that action commenced on October 12, 1987 and is proceeding.

In addition, in the course of ordinary business and operations, Shell Oil is subject to a number of other possible loss contingencies including certain product liability actions concerning certain agricultural and other chemicals, actions involving the calculation of gas royalties, and certain environmental and other issues relating to possible obligations pertaining to the disposal or release of certain chemical and petroleum substances. Also, numerous federal, state and local income, property and excise tax returns of Shell Oil (including most significantly Windfall Profit Tax) are being examined by the respective taxing authorities, and certain interpretations by Shell Oil of the complex tax statutes, regulations and practices are being challenged in administrative proceedings and in federal and state actions.

While the ultimate effect of the foregoing contingencies cannot be ascertained at this time, based on developments to date, management does not anticipate that any of the foregoing contingencies will materially adversely affect Shell Oil's financial position.

The operations and earnings of Shell Oil continue to be affected by domestic and foreign political developments; legislation and regulations and other actions taken by the United States and foreign countries pertaining to energy production and use and related matters; natural gas regulation; tax changes; and legislation, regulations and litigation concerning pollution control, environmental conservation and hazardous substances. Shell Oil may, from time to time, also be affected by, among other things, legislative actions pertaining to petroleum marketing practices; divestiture of certain segments of Shell Oil's operations; incentives and deterrents to discovery or development of new or additional sources of oil, gas and other raw materials, including regulation of prices and changes in pipeline regulation; restrictions on production; governmental restrictions including eligibility to acquire realty and oil and gas or mineral leases, based in some instances on the nationality of applicants or on alien ownership; and changes in conditions under which crude oil and petroleum products may be imported into the United States. In addition, operations and earnings may be affected by current and future developments in the law in the United States and in foreign countries in which Shell Oil has business interests, including legislation which could result in Shell Oil being subject to litigation and claims which would not have been considered in the past. Shell Oil is unable to measure the overall effect on its future operations and earnings of these matters, including existing and future legislation and regulations which have been and may be issued thereunder.

At December 31, 1987, Shell Oil, as a direct or indirect guarantor, had contingent liabilities of $122 million for loan guarantees of equity investees and others.

16. Commitments

Shell Oil conducts a portion of its operations using leased facilities which include service stations, barges and tankers, and other facilities. Future minimum payments under operating and capital leases with initial or remaining terms of one year or more consisted of the following at December 31, 1987:

Millions of dollars	Operating Leases	Capitalized Leases
1988	$ 202	$ 14
1989	176	13
1990	171	13
1991	143	12
1992	112	13
Thereafter	797	18
Total minimum lease payments*	$1,601	83
Estimated executory costs (such as taxes, maintenance, insurance, operating costs)		(34)
Net minimum lease payments		49
Imputed interest		(14)
Present value of net minimum lease payments**		$ 35

*Minimum lease payments have not been reduced by minimum sublease rentals of $205 and $15 million due in the future under noncancelable subleases for operating and capitalized leases, respectively. There were no contingent rentals applicable to capital leases.

**Of the amount shown, the current portion of $4 million is reflected in Long-term obligations due within one year and $31 million in Other long-term obligations on the Consolidated Balance Sheet.

The present (discounted) value of these operating leases in the aggregate to the earliest cancellation date, including penalties and excluding executory costs, approximated $569 million at December 31, 1987.

The composition of total rental expense for all operating leases, except those with terms of a month or less that were not renewed, was as follows:

Millions of dollars	1987	1986	1985
Minimum rentals	$276	$283	$264
Contingent rentals (Based on sales volumes)	5	5	6
Less sublease rentals	(55)	(51)	(42)
Total	$226	$237	$228

Under long-term agreements with an offshore port and certain pipeline companies in which stock interests are held, Shell Oil may be required to advance funds against future transportation charges in the event such companies are unable to meet their financial obligations. Under operating leases on four tankers, the Company is required to indemnify the equity owner in the event expected tax benefits are not realized. In addition, at December 31, 1987, Shell Oil had substantial commitments including those related to agreements for the purchase of materials and services, and to the acquisition and building of facilities, all made in the normal course of business.

17. Operating Segments Information

Operating segments information for the years 1987, 1986 and 1985 is presented below. Income taxes are allocated to segments on the basis of contributions to taxable income reduced by investment tax credits based on qualified capital expenditures for each segment. Shell Oil's activity outside the U.S. has not reached a level warranting separate geographical reporting.

		Oil and Gas Exploration and Production	Products		Other	Total
	Millions of dollars		Oil	Chemical		
1987 Summary Statement of Income	Sales and other operating revenue	$ 1,467	$15,082	$ 3,578	$ 711	$20,838
	Other revenue	79	5	42	12	138
	Inter-segment transfers	3,301	742	80	—	—
	Total Revenue	4,847	15,829	3,700	723	20,976†
	Costs and operating expenses	2,257	15,247	2,910	675	16,966†
	Depreciation, amortization, etc.	1,491	264	190	49	1,994
	Operating Profit (Loss)	1,099	318	600	(1)	2,016
	Interest expense—capitalized leases	3	—	—	—	3
	Corporate expense—allocated	62	46	23	3	134
	Income tax expense—allocated	363	72	210	(10)	635
	Equity in net (income) loss of others	(62)	(24)	(49)	1	(134)
	Segment Net Income††	$ 733	$ 224	$ 416	$ 5	1,378
	Non-allocated costs					148
	Net Income					$ 1,230
1987 Capital Expenditures		$ 1,491	$ 351	$ 163	$ 132	$ 2,220*
Identifiable Assets Dec. 31, 1987		$15,654	$ 5,236	$ 3,681	$1,464	$26,937**

See footnotes following the remainder of the segment report on next page.

17. Operating Segments Information (continued)

		Oil and Gas Exploration and Production	Products			
	Millions of dollars		Oil	Chemical	Other	Total
1986 Summary Statement of Income	Sales and other operating revenue	$ 1,573	$11,463	$3,292	$ 505	$16,833
	Other revenue	113	25	244	7	389
	Inter-segment transfers	2,868	591	104	—	—
	Total Revenue	4,554	12,079	3,640	512	17,222†
	Costs and operating expenses	2,335	11,268	2,721	526	13,287†
	Depreciation, amortization, etc.	1,529	239	271	51	2,090
	Operating Profit (Loss)	690	572	648	(65)	1,845
	Interest expense—capitalized leases	3	1	—	—	4
	Corporate expense—allocated	70	42	24	4	140
	Income tax expense—allocated	224	234	248	(40)	666
	Equity in net (income) loss of others	(34)	(24)	34	(18)	(42)
	Segment Net Income (Loss)	$ 427	$ 319	$ 342†††	$ (11)	1,077
	Non-allocated costs					194
	Net Income					$ 883
1986 Capital Expenditures		$ 1,761	$ 342	$ 95	$ 60	$ 2,343*
Identifiable Assets Dec. 31, 1986		$15,433	$ 4,766	$3,447	$1,220	$26,214**
1985 Summary Statement of Income	Sales and other operating revenue	$ 1,825	$14,870	$3,318	$ 296	$20,309
	Other revenue	9	4	2	10	25
	Inter-segment transfers	4,792	1,034	124	—	—
	Total Revenue	6,626	15,908	3,444	306	20,334†
	Costs and operating expenses	2,825	15,182	3,077	318	15,452†
	Depreciation, amortization, etc.	1,275	214	202	21	1,712
	Operating Profit (Loss)	2,526	512	165	(33)	3,170
	Interest expense—capitalized leases	—	1	—	—	1
	Corporate expense—allocated	63	39	25	3	130
	Income tax expense—allocated	1,078	198	36	(37)	1,275
	Equity in net (income) loss of others	(45)	5	8	12	(20)
	Segment Net Income (Loss)	$ 1,430	$ 269	$ 96	$ (11)	1,784
	Non-allocated costs					134
	Net Income					$ 1,650
1985 Capital Expenditures		$ 2,815	$ 496	$ 195	$ 57	$ 3,779*
Identifiable Assets Dec. 31, 1985		$15,416	$ 5,049	$3,891	$ 663	$26,528**

†After elimination of inter-segment transfers of $4,123 million in 1987, $3,563 million in 1986 and $5,950 million in 1985, which are based on estimated market related values.

††Includes a tax benefit of $60 million for Oil and Gas Exploration and Production, and benefits of tax losses of $37 million for Oil Products and $43 million for Chemical Products, realized in fourth quarter of 1987.

†††Includes gain of approximately $120 million from the sale of the agricultural chemical business in fourth quarter of 1986.

*Includes non-segment capital expenditures of $83 million in 1987, $85 million in 1986 and $216 million in 1985.

**Includes non-segment assets of $902 million in 1987, $1,348 million in 1986 and $1,509 million in 1985.

Supplementary Oil and Gas Information

Results of operations for oil and gas producing activities are shown below. These results exclude related activities, such as the purchase and resale of natural gas, and revenues and expenses associated with certain non-hydrocarbon products, such as sulfur and carbon dioxide, which are included in the Oil and Gas Exploration and Production segment data presented in Note 17 — Operating Segments Information.

		1987			1986			1985		
		U.S.	Foreign	Total	U.S.	Foreign	Total	U.S.	Foreign	Tota
Results of Operations (millions of dollars)	Sales	$1,161	$ 11	$1,172	$1,260	$ 9	$1,269	$1,289	$ 7	$1,296
	Transfers	2,883	182	3,065	2,561	113	2,674	4,514	123	4,637
	Total Revenues	4,044	193	4,237	3,821	122	3,943	5,803	130	5,933
	Production costs	1,396	86	1,482	1,462	76	1,538	1,870	68	1,938
	Own consumed fuel	(160)	—	(160)	(186)	—	(186)	(275)	—	(275
	Exploration expenses	337	64	401	406	87	493	558	112	670
	Depreciation, depletion, and amortization	1,440	39	1,479	1,491	26	1,517	1,248	21	1,269
	Income tax expense	379	2	381	255	(31)	224	1,036	(12)	1,024
	Results of Operations*	$ 652	$ 2	$ 654	$ 393	$(36)	$ 357	$1,366	$(59)	$1,307
	Shell Oil's interest in results of operations of equity companies	—	$ 52	$ 52	—	$ 38	$ 38	—	$ 59	$ 59

*Excludes research, corporate overhead and interest costs.

Capitalized costs related to oil and gas producing activities at year-end, and costs incurred in oil and gas property acquisition, exploration and development activities for each year, were as follows:

		1987			1986			1985		
		U.S.	Foreign	Total	U.S.	Foreign	Total	U.S.	Foreign	Total
Capitalized Costs (millions of dollars)	Proved properties	$19,732	$576	$20,308	$18,978	$458	$19,436	$18,037	$384	$18,421
	Unproved properties	1,613	32	1,645	1,663	59	1,722	1,720	65	1,785
	Support equipment and facilities	671	15	686	653	14	667	581	9	590
	Total Capitalized Costs	22,016	623	22,639	21,294	531	21,825	20,338	458	20,796
	Accumulated depreciation, depletion and amortization	8,495	216	8,711	7,641	178	7,819	6,719	153	6,872
	Net Capitalized Costs	$13,521	$407	$13,928	$13,653	$353	$14,006	$13,619	$305	$13,924
	Shell Oil's interest in net capitalized costs of equity companies	—	$154	$ 154	$ —	$182	$ 182	—	$219	$ 219
Costs Incurred in Property Acquisition, Exploration, and Development Activities* (millions of dollars)	Acquisition of properties									
	Proved	$ 154	$ 4	$ 158	$ 353	$ 2	$ 355	$ 975	$ —	$ 975
	Other	169	4	173	143	—	143	302	3	305
	Exploration costs	438	73	511	458	83	541	716	116	832
	Development costs	924	78	1,002	1,060	71	1,131	1,213	61	1,274
	Shell Oil's share of costs incurred by equity companies	—	$ 5	$ 5	—	$ 6	$ 6	—	$ 41	$ 41

*Costs have been categorized on the basis of Financial Accounting Standards Board definitions which include costs of oil and gas producing activities whether capitalized or charged to expense as incurred.

The weighted average price per unit of production of crude oil and condensate, natural gas liquids and natural gas available for market, as well as selected expenses and results of operations for oil and gas producing activities on a per barrel of equivalent net hydrocarbon production basis, for each of the past three years were as follows:

		1987			1986			1985		
		U.S.	Foreign	Total	U.S.	Foreign	Total	U.S.	Foreign	Total
Unit Statistics	Weighted average price per barrel of net production									
	Crude oil and condensate	$15.51	$18.14	$15.66	$13.20	$15.11	$13.28	$24.55	$24.83	$24.56
	Natural gas liquids	11.24	20.33	11.26	10.82	11.75	10.82	16.83	10.30	16.82
	Weighted average price per thousand cubic feet of net marketable natural gas produced	1.85	1.03	1.84	2.17	.91	2.15	2.74	.86	2.71
	Expenses (dollars per barrel of equivalent net hydrocarbon production)									
	Production	4.35	7.38	4.46	4.50	8.30	4.60	6.22	10.85	6.31
	Exploration*	1.05	5.46	1.21	1.25	9.48	1.47	1.85	17.80	2.18
	Depreciation, depletion and amortization									
	Producing properties	3.71	3.13	3.69	3.89	2.59	3.86	3.42	2.66	3.41
	Non-producing leases	.64	.11	.62	.69	.14	.68	.84	.62	.83
	Other	.14	.07	.14	—	.15	.01	(.11)	.07	(.11)
	Allocated income taxes	1.18	.13	1.15	.78	(3.37)	.67	3.44	(1.93)	3.33
	Results of Operations (dollars per barrel of equivalent net hydrocarbon production)	$ 2.03	$ .20	$ 1.97	$ 1.21	$(3.95)	$ 1.07	$ 4.54	$(9.41)	$ 4.26

*Exploration expense typically precedes the discovery of hydrocarbons which will be produced in future periods. While current exploration expense is not directly related to current production, it does represent a charge against current period income.

Windfall Profit Tax on domestic crude oil and condensate averaged $.01 per barrel in 1987, $.09 per barrel in 1986 and $.92 per barrel in 1985.

Shell Oil's oil and gas exploration and development drilling, and the wells which were producing or capable of producing, were as follows:

		1987			1986			1985		
		U.S.	Foreign	Total	U.S.	Foreign	Total	U.S.	Foreign	Total
Net Wells Drilled	Exploratory									
	Oil and gas wells	18	9	27	29	1	30	21	3	24
	Dry holes	54	5	59	71	8	79	82	9	91
	Development									
	Oil and gas wells	1,179	11	1,190	1,356	8	1,364	821	82	903
	Dry holes	15	—	15	41	—	41	49	—	49
Oil and Gas Wells Producing or Capable of Producing	Gross Wells									
	Oil	29,853	354	30,207	28,959	315	29,274	31,847	292	32,139
	Gas	1,933	16	1,949	2,123	16	2,139	2,567	16	2,583
	Net Wells									
	Oil	18,898	171	19,069	18,196	156	18,352	17,500	139	17,639
	Gas	1,310	2	1,312	1,359	2	1,361	1,433	1	1,434
	Number of net oil and gas wells above completed in more than one producing formation	649	43	692	691	49	740	739	42	781

Shell Oil's net production (after deducting royalty and operating interests of others) was as follows:

		1987	1986	1985	1984	1983
Net Crude Oil and Condensate Produced (thousands of barrels daily)	United States					
	Offshore Gulf of Mexico	117	121	117	130	126
	California	221	216	200	181	171
	Louisiana	19	22	20	19	16
	Michigan	19	21	23	26	31
	Texas	67	72	64	63	63
	Other	45	47	39	45	46
	Total United States	488	499	463	464	453
	Foreign	28	21	14	12	15
	Total Consolidated Companies	516	520	477	476	468
	Shell Oil's interest in production of equity companies	26	30	25	21	15
Natural Gas Liquids Produced (thousands of barrels daily)	Predominantly domestic	70	72	67	70	71
	Total Liquids Produced	612	622	569	567	554
Net Natural Gas Produced* (millions of cubic feet daily)	United States					
	Offshore Gulf of Mexico	1,072	1,045	878	789	721
	Louisiana	58	57	64	71	68
	Michigan	132	140	150	159	152
	Oklahoma	30	36	42	54	53
	Texas	315	307	320	332	282
	Other	190	206	195	210	201
	Foreign	24	25	19	15	12
	Total Gas Produced	1,821	1,816	1,668	1,630	1,489
	Net natural gas available for market, excluding consumed in operations	1,553	1,547	1,424	1,305	1,249

*Natural gas is reported on the basis of actual or calculated volumes which remain after removal of liquefiable hydrocarbons by lease or field separation facilities and of non-hydrocarbons where they occur in sufficient quantities to render the gas unmarketable.

Reserve Estimates

Oil and gas reserves cannot be measured exactly. Reserve estimates are based on many factors related to reservoir performance which require evaluation by the engineers interpreting the available data, as well as price and other economic factors. The reliability of these estimates at any point in time depends on both the quality and quantity of the technical and economic data, the production performance of the reservoirs as well as extensive engineering judgment. Consequently, reserve estimates are subject to revision as additional data become available during the producing life of a reservoir. When a commercial reservoir is discovered, proved reserves are initially determined based on limited data from the first well or wells. Later, further drilling may better define the extent of the reservoir and additional production performance, well tests and engineering studies will likely improve the reliability of the reserve estimate. The evolution of technology may also result in the application of improved recovery techniques such as supplemental or enhanced recovery projects, or both, which have the potential to increase reserves beyond those envisioned during the early years of a reservoir's producing life.

Shell Oil reports its reserve position annually. Revisions to reserves are based on engineering analyses of individual reservoirs at the field level. Prior to finalizing the annual reserve report, a team of senior technical employees of Shell Oil reviews the reserve estimates, procedures and explanation of revisions for proven reservoirs.

Proved reserves are those quantities which, upon analysis of geological and engineering data, appear with reasonable certainty to be recoverable in the future from known oil and gas reservoirs under economic and operating conditions existing as of the date the estimate is made. Proved developed reserves are those reserves which can be expected to be recovered through existing wells with existing equipment and operating methods. Proved undeveloped reserves are those reserves which are expected to be recovered from new wells on undrilled acreage or from existing wells where a relatively major expenditure is required.

Net proved reserves represent the estimated volume after deducting from gross proved reserves the portion due land owners or others as royalty or operating interests.

Estimated quantities of net proved oil, natural gas liquids and natural gas reserves and of changes in net quantities of proved developed and undeveloped reserves were as follows:

		1987			1986			1985		
		U.S.	Foreign	Total	U.S.	Foreign	Total	U.S.	Foreign	Total
Oil Reserves (millions of barrels of crude oil and condensate)	Proved Developed and Undeveloped									
	Beginning of year	2,347	130	2,477	2,242	117	2,359	2,042	115	2,157
	Revisions of previous estimates	149	(3)	146	—	1	1	29	7	36
	Improved recovery	51	—	51	84	4	88	174	—	174
	Purchases of reserves*	106	—	106	180	—	180	155	—	155
	Extensions and discoveries	36	15	51	43	15	58	28	—	28
	Sales of reserves	(8)	—	(8)	(19)	—	(19)	(17)	—	(17)
	Production	(178)	(10)	(188)	(183)	(7)	(190)	(169)	(5)	(174)
	End of year	2,503	132	2,635	2,347	130	2,477	2,242	117	2,359
	Net changes for year	156	2	158	105	13	118	200	2	202
	Shell Oil's interest in proved reserves of equity companies									
	End of year	—	46	46	—	55	55	—	55	55
	Proved Developed									
	Beginning of year	1,401	65	1,466	1,363	51	1,414	1,270	36	1,306
	End of year	1,517	65	1,582	1,401	65	1,466	1,363	51	1,414
Natural Gas Liquids Reserves (millions of barrels)	Proved Developed and Undeveloped									
	Beginning of year	285	—	285	286	—	286	279	—	279
	Revisions of previous estimates	(3)	—	(3)	(6)	—	(6)	(5)	—	(5)
	Purchases of reserves*	—	—	—	1	—	1	3	—	3
	Extensions and discoveries	24	1	25	33	—	33	34	—	34
	Sales of reserves	(1)	—	(1)	(3)	—	(3)	(1)	—	(1)
	Production	(26)	—	(26)	(26)	—	(26)	(24)	—	(24)
	End of year	279	1	280	285	—	285	286	—	286
	Net changes for year	(6)	1	(5)	(1)	—	(1)	7	—	7
	Proved Developed									
	Beginning of year	223	—	223	234	—	234	234	—	234
	End of year	220	—	220	223	—	223	234	—	234
Gas Reserves (billions of cubic feet of natural gas)**	Proved Developed and Undeveloped									
	Beginning of year	6,788	232	7,020	7,051	241	7,292	7,455	248	7,703
	Revisions of previous estimates	(68)	—	(68)	(250)	—	(250)	(100)	—	(100)
	Improved recovery	9	—	9	7	—	7	25	—	25
	Purchases of reserves*	110	—	110	95	—	95	112	—	112
	Extensions and discoveries	423	150	573	650	—	650	324	—	324
	Sales of reserves	(65)	—	(65)	(112)	—	(112)	(163)	—	(163)
	Production	(656)	(9)	(665)	(653)	(9)	(662)	(602)	(7)	(609)
	End of year	6,541	373	6,914	6,788	232	7,020	7,051	241	7,292
	Net changes for year	(247)	141	(106)	(263)	(9)	(272)	(404)	(7)	(411)
	Proved Developed									
	Beginning of year	5,131	101	5,232	5,371	109	5,480	5,439	116	5,555
	End of year	4,977	92	5,069	5,131	101	5,232	5,371	109	5,480

*Includes the net effect of exchanges of reserves with other companies.

**Natural gas is reported on the basis of actual or calculated volumes which remain after removal of liquefiable hydrocarbons by lease or field separation facilities and of non-hydrocarbons where they occur in sufficient quantities to render the gas unmarketable. Natural gas reserve volumes include liquefiable hydrocarbons approximating five percent of total gas reserves which are recoverable at natural gas processing plants downstream from the lease or field separation facilities. Such recoverable liquids also have been included in natural gas liquids reserve volumes.

Standardized Measure

The following disclosures concerning the standardized measure of future cash flows from proved oil and gas reserves are presented in accordance with Statement of Financial Accounting Standards No. 69. As prescribed by this statement, the amounts shown are based on prices and costs at the end of each period, currently enacted tax rates and a 10 percent annual discount factor. Since prices and costs do not remain static, and no price or cost changes have been considered, the results are not necessarily indicative of the fair market value of estimated proved reserves, but they do provide a common benchmark which may enhance the users' ability to project future cash flows.

For this purpose, individual estimates of production quantities, revenues and costs were developed for major fields and combinations of smaller, closely related fields. These fields contained approximately 80 percent of Shell Oil's total estimated proved reserves. Estimates for the remaining fields were developed in the aggregate by major geographic regions. Extensive judgments are involved in estimating the timing of production and the costs that will be incurred throughout the remaining lives of these fields. Therefore, the results may not be comparable to estimates submitted by other oil and gas producers.

The standardized measure of discounted future net cash flows related to proved oil and gas reserves at year-end was as follows:

Standardized Measure of Discounted Future Net Cash Flows
(millions of dollars)

	1987			1986		
	U.S.	Foreign	Total	U.S.	Foreign	Total
Future cash inflows*	$49,244	$2,553	$51,797	$44,023	$ 1,895	$45,918
Future production and development costs*	26,666	1,395	28,061	24,904	1,368	26,272
Future income tax expenses*	6,259	622	6,881	4,858	242	5,100
Future net cash flows	16,319	536	16,855	14,261	285	14,546
10% annual discount for estimated timing of cash flows	8,137	380	8,517	6,943	218	7,161
Standardized measure of discounted future net cash flows	$ 8,182	$ 156	$ 8,338	$ 7,318	$ 67	$ 7,385
Shell Oil's share of standardized measure of discounted future net cash flows of equity companies	—	$ 156	$ 156	—	$ 169	$ 169

*Future net cash flows were estimated using year-end prices and costs, and currently enacted tax rates. Shell Oil's domestic and foreign weighted average crude oil prices at year-end 1987 were $13.93 per barrel and $15.72 per barrel, compared to year-end 1986 prices of $12.69 and $12.77 per barrel, respectively.

The aggregate change in the standardized measure of discounted future net cash flows was an increase of $953 million in 1987, a decrease of $6,385 million in 1986, and an increase of $112 million in 1985. The principal sources of change were as follows:

Changes in Standardized Measure of Discounted Future Net Cash Flows
(millions of dollars)

	1987	1986	1985
Sales and transfers of oil and gas produced, net of production costs	$(2,915)	$ (2,591)	$(4,270)
Net changes in prices and costs	1,548	(10,800)	(565)
Extensions, discoveries, additions, and improved recovery, less related costs	689	774	1,340
Net purchases and sales of reserves	313	327	684
Development costs incurred during the period	1,002	1,131	1,274
Revisions of previous reserve estimates	481	(156)	66
Accretion of discount	1,008	2,059	2,074
Net change in income taxes	(917)	4,132	258

Seismic activity for each of the past five years and acreage in which Shell Oil had an interest at the end of each of the periods indicated was as follows:

		1987	1986	1985	1984	1983
Seismic Activity	United States Offshore (boat months)	24	30	45	36	36
	United States Onshore (crew months)	129	158	154	151	138
	Foreign (crew months)	36	44	38	31	29
Undeveloped Acreage (thousands of acres)	Gross					
	United States					
	Onshore	9,899	10,186	13,290	13,632	14,405
	Offshore	4,060	2,916	3,174	3,210	2,070
	Foreign	90,511	137,089	173,801	181,854	104,591
	Total	104,470	150,191	190,265	198,696	121,066
	Net					
	United States					
	Onshore	8,146	8,197	10,517	10,597	11,029
	Offshore	3,371	2,261	2,424	2,294	1,583
	Foreign	52,767	66,077	88,206	96,832	67,259
	Total	64,284	76,535	101,147	109,723	79,871
Producing Oil and Gas Acreage (thousands of acres)	Gross					
	United States	1,569	1,609	1,731	1,265	1,556
	Foreign	34	34	31	30	30
	Total	1,603	1,643	1,762	1,295	1,586
	Net					
	United States	1,180	1,113	1,126	1,006	1,118
	Foreign	6	7	6	5	5
	Total	1,186	1,120	1,132	1,011	1,123

Information relating to other resources of the Exploration and Production business is summarized as follows:

		1987	1986	1985	1984	1983
Coal (millions of short tons)	Estimated proved reserves*	1,548	929	933	1,149	1,141
	Estimated probable reserves**	692	967	974	1,537	1,580
	Shell Oil's interest in reserves of equity companies:					
	Estimated proved reserves*	—	444	460	—	—
	Estimated probable reserves**	—	92	95	—	—
	Purchases	2	6	6	11	6
	Production (salable coal)	15	9	8	8	6
	Average sales price per ton	$25.08	$ 22.55	$ 24.71	$ 26.68	$ 30.06
Sulfur (thousands of long tons)	Estimated proved reserves	7,877	8,293	9,144	9,527	10,982
	Production	448	447	424	501	551
	Recovered in refinery operations	217	228	213	207	205
	Average price per ton	$93.41	$109.08	$107.49	$ 91.42	$ 91.31
Carbon Dioxide (billions of cubic feet)	Estimated proved reserves	6,563	7,253	7,345	6,913	6,919
	Production	93	92	60	20	3

*Proved reserves are the estimated quantities of commercially recoverable reserves that, on the basis of geological, geophysical, and engineering data, can be demonstrated with a reasonably high degree of certainty to be recoverable in the future from known mineral deposits by either primary or improved recovery methods. Proved reserves are used for cost amortization purposes.

**Probable reserves are the estimated quantities of commercially recoverable reserves that are less well defined than proved reserves and that may be estimated or indicated to exist on the basis of geological, geophysical, and engineering data.

Supplementary Products Information

		1987	1986	1985	1984	1983
Net Sources of Crude Oil (thousands of barrels daily)	United States	726	714	698	680	626
	Foreign	279	258	166	173	202
	Total	1,005	972	864	853	828
Oil Products Supply and Distribution (thousands of barrels daily)	Supply					
	Net crude oil produced	516	520	477	476	468
	Natural gas liquids produced	70	72	67	70	71
	Crude oil purchased	1,001	822	697	757	713
	Crude oil sold	(512)	(370)	(310)	(380)	(353)
	Crude oil inventory change	(4)	(7)	10	8	5
	Oil products purchased	403	271	144	114	69
	Total Supply	1,474	1,308	1,085	1,045	973
	Distribution					
	Refined products sold	1,352	1,173	953	903	846
	Used in chemical manufactures	103	100	93	103	102
	Product inventory change	—	5	(2)	(8)	(12)
	Own consumption, etc.	19	30	41	47	37
	Total Distribution	1,474	1,308	1,085	1,045	973
Oil Products Inventories (millions of barrels at end of year)	Crude oil	20	18	16	20	23
	Refined products	39	38	36	37	40
Refinery Processing Intakes (thousands of barrels daily)	Anacortes, Washington	83	74	65	68	56
	Deer Park, Texas	202	203	198	204	197
	Martinez, California	129	131	97	108	92
	Norco, Louisiana	210	194	180	207	193
	Odessa, Texas	27	25	28	23	24
	Wilmington, California	116	115	111	97	102
	Wood River, Illinois	252	233	211	190	210
	Total	1,019	975	890	897	874
Refined Product Manufacture (thousands of barrels daily)	Automotive gasoline	523	511	427	437	448
	Jet fuel	141	130	127	129	114
	Kerosene, heating and diesel oils	58	59	59	42	34
	Heavy fuel oils	117	107	91	108	74
	Propane and other LPG	21	19	19	12	17
	Petrochemical feedstocks	80	62	67	80	89
	Asphalt	35	32	32	26	30
	Petroleum coke	32	33	31	30	28
	Lubricants, grease, process oils, and wax	13	12	13	17	17
	All other products	47	44	38	33	43
	Total	1,067	1,009	904	914	894
Other Refinery Statistics	Operable capacity of crude oil distillation units at end of year (thousands of barrels daily)	1,066	1,046	1,021	1,005	1,005
	Refinery intakes to crude oil distillation units (thousands of barrels daily)	969	925	853	838	822
	Refinery crude oil distillation unit intakes as a % of year-end operable capacity	90.9	88.4	83.5	83.4	81.8
	Own net produced crude and natural gas liquids as a % of intakes to crude oil distillation units	60.5	64.0	63.8	65.2	65.6

		1987	1986	1985	1984	1983
Bulk Distributing Plants	Leased and Owned	83	83	84	85	87
Number of Service Stations	Owned	2,600	2,600	2,700	2,400	2,500
	Leased	1,600	1,700	1,800	1,800	2,000
	Jobber and other	6,700	6,600	6,700	6,800	7,600
	Total	10,900	10,900	11,200	11,000	12,100
Refined Product Sales (thousands of barrels daily)	Automotive gasoline	693	620	515	477	465
	Jet fuel	167	135	134	130	116
	Kerosene, heating and diesel oils	95	73	56	50	41
	Heavy fuel oils	205	174	77	91	69
	Propane and other LPG	79	77	69	70	67
	Asphalt	35	32	32	29	30
	Lubricants, grease, process oils, and wax	17	17	17	18	17
	Coke	14	16	15	13	12
	All other products	47	29	38	25	29
	Total	1,352	1,173	953	903	846
Refined Product Sales (millions of dollars)	Automotive gasoline	$ 6,665	$ 5,477	$ 6,958	$ 6,457	$ 6,565
	Jet fuel	1,371	1,060	1,633	1,654	1,541
	Kerosene, heating and diesel oils	757	500	655	597	505
	Heavy fuel oils	1,247	819	650	884	630
	Propane and other LPG	300	299	398	444	459
	Asphalt	228	221	348	306	290
	Lubricants, grease, process oils, and wax	497	507	510	559	528
	Coke	33	36	52	36	34
	All other products	331	190	377	245	283
	Total	$11,429	$ 9,109	$11,581	$11,182	$10,835
Refined Product Sales (dollars per gallon)	Automotive gasoline	$ .63	$ .58	$ .88	$ .88	$ .92
	Jet fuel	.54	.51	.79	.83	.87
	Kerosene, heating and diesel oils	.52	.44	.76	.78	.79
	Heavy fuel oils	.40	.31	.55	.63	.60
	Propane and other LPG	.25	.25	.37	.41	.45
	Asphalt	.43	.44	.72	.70	.63
	Lubricants, grease, process oils, and wax	1.87	1.95	1.99	1.98	1.99
	Coke	.15	.15	.23	.18	.19
	All other products	.46	.43	.65	.64	.65
	Average-Total Refined Products	$ .55	$ .51	$ .79	$ .81	$ .84
Chemical Sales (millions of dollars)	Olefins	$ 598	$ 397	$ 588	$ 683	$ 618
	Aromatics	447	234	270	235	345
	Chemical intermediates	380	320	250	231	252
	Detergent and ethylene oxide products	512	460	455	463	430
	Solvents	345	383	419	412	408
	Plastics and elastomers	580	488	442	424	417
	Resins	364	310	353	372	299
	Agricultural chemicals*	—	372	244	294	199
	Other	272	252	196	177	167
	Total	$ 3,498	$ 3,216	$ 3,217	$ 3,291	$ 3,135
Chemical Trends**	Price index (1977 = 100)	135	130	149	158	158
	Costs and expenses index (1977 = 100)	130	132	158	165	169
	Sales volume index (1977 = 100)	156	144	129	125	119
	Capacity utilization (percentage)	78	73	69	73	66

*Business sold in October 1986.

**Data is based on internally developed indices which we believe to be reasonably representative of directional trends.

Other Financial Information

		1987	1986	1985	1984	1983
Statement of Income Data (millions of dollars)	Revenues	$21,222	$17,353	$20,477	$20,898	$19,883
	Costs and expenses	19,992	16,470	18,827	19,126	18,250
	Net income	$ 1,230	$ 883	$ 1,650	$ 1,772	$ 1,633
Balance Sheet Data (millions of dollars)	Total assets	$26,937	$26,214	$26,528	$23,729	$22,169
	Gross investment*	36,756	34,808	33,260	29,721	27,872
	Long-term obligations	3,530	3,643	4,015	3,601	4,442
	Deferred credits—income taxes	5,072	4,776	4,282	3,735	3,173
	Shareholder's equity	14,842	14,312	14,129	12,512	11,359
	Capitalization**	23,444	22,731	22,426	19,848	18,974
Changes in Financial Position Data (millions of dollars)	Funds provided from operations	$ 3,407	$ 3,531	$ 3,927	$ 3,978	$ 3,617
	Capital expenditures	2,220	2,343	3,779	3,365	2,253
	Cash dividends declared	700	700	639	618	572
Other Statistics	Net income as a % of shareholder's equity at the beginning of the year	8.6	6.2	13.2	15.6	15.9
	Net income as a % of capitalization at the beginning of the year***	6.0	4.6	8.9	9.8	9.7
	Net income as a % of revenue	5.8	5.1	8.1	8.5	8.2
	Cumulative depreciation, depletion and amortization as a % of gross property, plant and equipment	38.7	37.0	34.5	34.3	33.6
	Long-term obligations as a % of capitalization	15.1	16.0	17.9	18.1	23.4
	Funds provided from operations as a % of gross investment at beginning of year***	10.2	11.1	13.6	14.6	14.4
	Capital expenditures as a % of funds provided from operations	65.2	66.4	96.2	84.6	62.3
Personnel Count	Number of employees at year-end	33,184	32,641	35,167	34,699	35,185

*Gross Investment consists of Gross Assets, less Current Liabilities.

**Capitalization consists of Long-Term Obligations, Deferred Credits—Income Taxes, and Shareholder's Equity.

***Interest expense, after related income taxes, has been added back to the numerator.

		1987	1986	1985	1984	1983
Capital Expenditures (millions of dollars)	Exploration and Production					
	Oil and gas	$1,491	$1,761	$2,815	$2,649	$1,621
	Other energy	93	27	32	34	19
	Oil Products	351	342	496	344	282
	Chemical Products	163	95	195	211	230
	Other	122	118	241	127	101
	Total	2,220	2,343	3,779	3,365	2,253
Exploratory Expenditures (millions of dollars)	Oil and gas					
	Geological, geophysical and land expense	253	275	336	323	335
	Lease rentals	16	18	33	26	22
	Dry holes	132	200	301	220	227
	Other	3	6	4	5	13
	Total	404	499	674	574	597
	Total Capital and Exploratory Expenditures	$2,624	$2,842	$4,453	$3,939	$2,850
Research Expense* (millions of dollars)	Exploration and Production					
	Oil and gas	$ 65	$ 67	$ 74	$ 78	$ 74
	Other Energy	1	1	1	1	1
	Oil Products	32	27	26	26	23
	Chemical Products	90	109	97	90	80
	Other	44	42	56	22	25
	Total	$ 232	$ 246	$ 254	$ 217	$ 203

*Includes operating taxes and depreciation.

		1987				1986			
		First	Second	Third	Fourth	First	Second	Third	Fourth
Quarterly Results of Operations (millions of dollars)	Sales and other operating revenue	$4,435	$5,109	$5,564	$5,744	$4,606	$4,092	$3,974	$4,160
	Revenues, less purchases and operating expenses	1,235	1,472	1,647	1,606	1,623	1,449	1,289	1,463
	Income before income taxes	173	432	647	530	457	384	223	292
	Net income	108	266	420	436	276	219	133	254

Directors and Management

Board of Directors

L. C. van Wachem
Chairman
President and a Managing Director, Royal Dutch Petroleum Company

Robert E. Allen
President and Chief Operating Officer, American Telephone & Telegraph Co.

Rand V. Araskog
Chairman and Chief Executive Officer, ITT Corporation

John F. Bookout
President and Chief Executive Officer

Robert F. Daniell
Chairman and Chief Executive Officer, United Technologies Corporation

Peter F. Holmes
Chairman and a Managing Director, The "Shell" Transport and Trading Company, p.l.c.

Lewis W. Lehr
Retired Chairman and Chief Executive Officer, 3M Company

Jack E. Little
Executive Vice President

William A. Marquard
Chairman of Executive Committee, American Standard Inc.

John H. Platts
Retired Chairman and Chief Executive Officer, Whirlpool Corporation

William B. Renner
Retired Vice Chairman, Aluminum Company of America

Frank H. Richardson
Executive Vice President

Committees of the Board

The Audit Committee, composed entirely of non-employee directors, reviews and recommends selection of the independent accountants, reviews the scope and results of the independent accountants' audit, and reviews the adequacy of the Company's internal accounting controls, internal audit program and compliance with accounting and reporting standards having substantial authoritative support.

The Executive Committee, composed of three employee directors and one non-employee director, may exercise certain of the powers of the Board in the management of business and affairs of the Company. It meets only when the full Board is unavailable and immediate board action is required.

The Executive Development and Compensation Committee, composed entirely of non-employee directors, reviews management resources and development, considers and recommends to the Board succession plans for senior management, and reviews executive compensation plans, benefit programs and compensation of senior staff.

The Nominating Committee, composed of two non-employee directors and one employee director, conducts continuing studies of the size and composition of the Board of Directors, recommends candidates for membership on the Board and reports to the Board any questions with respect to director qualifications.

The Employees Benefits Committee, composed entirely of non-employee directors, reviews and recommends appointment and removal of trustees or committee members of the various qualified employee pension, Provident Fund and stock ownership benefit plans. It monitors the administrators' performance and reports to the Board with respect to each of the plans.

Officers

John F. Bookout
President and Chief Executive Officer

Jack E. Little
Executive Vice President

Frank H. Richardson
Executive Vice President

Philip J. Carroll
Senior Vice President

James R. Street
President
Shell Development Company, a division of Shell Oil Company

Vice Presidents

Exploration and Production

Thomas F. Hart
Senior Vice President
Exploration

L. L. Smith
Production

Products

R. Lopez
Manufacturing and Technical

C. W. Wilson
Refining and Marketing

Davis B. Richardson
Chemical Products

Administration

L. E. Sloan
Corporate Planning

V. G. Whittington
Employee Relations

J. C. Jacobsen
Finance

M. K. Seggerman
Government Relations

Klaus L. Mai
Health, Safety and Environment

L. L. Drury
Information and Computer Services

R. G. Dillard, Jr.
Public Affairs

James H. DeNike
Purchasing and Administrative Services

Steven C. Stryker
General Tax Counsel

Legal

S. A. Lackey
General Counsel

Michael F. Sullivan
Controller

D. E. Cannon
Treasurer

Thomas E. Baker
Corporate Secretary

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