SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D. C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 or 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 1982 — Commission File No. 1-580

THE STANDARD OIL COMPANY
(an Ohio corporation)
(Exact name of registrant as specified in its charter)

Ohio	34-0548300
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
Midland Building, Cleveland, Ohio	44115
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: (216) 575-4141

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock Without Par Value — 120,341,565 shares outstanding	New York Stock Exchange Midwest Stock Exchange
Preferred Stock — Series A, 3¾% Cumulative	New York Stock Exchange
Debentures, 7.6% — Due July 1, 1999	New York Stock Exchange
Debentures, 8½% — Due January 1, 2000	New York Stock Exchange
Notes, 7½% — Due December 1, 1986	New York Stock Exchange
Debentures, 8⅝% — Due March 15, 2007	New York Stock Exchange
Notes, 13⅝% — Due September 15, 1992	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months and (2) has been subject to the filing requirements for at least the past 90 days. Yes √. No __.

State the approximate aggregate market value of the voting stock held by non-affiliates of the registrant as of March 1, 1983.

Common Stock Without Par Value — $4,629,438,334.

Preferred Stock — Series A, 3¾% Cumulative — $4,678,545.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of The Standard Oil Company (Ohio) Annual Report 1982 are incorporated by reference into Parts I and II.

Portions of the Notice of Annual Meeting of Shareholders and Proxy Statement dated March 18, 1983 are incorporated by reference into Part III.

Regard File # 13

PART I

Item 1. Business

The Standard Oil Company and its subsidiaries ("Sohio" or the "Company") are engaged in all phases of the petroleum business primarily in the United States, including the exploration for and production of crude oil and natural gas and the transportation, refining and marketing of crude oil and petroleum products. In addition, Sohio is a major producer and marketer of copper, gold, silver and coal and a leading supplier of refractories, copper and brass mill products, blast cleaning equipment, process systems and equipment and glass-lined steel vessels. The Company also manufactures and markets certain chemical products and products produced from ilmenite. The Company was incorporated in Ohio in 1870 and has its principal offices in the Midland Building, Cleveland, Ohio 44115 (telephone (216) 575-4141). The Company is not affiliated with any of the other "Standard Oil" companies.

On January 1, 1970, Sohio acquired all of the outstanding capital stock of British Petroleum (Holdings) Inc. from a subsidiary of The British Petroleum Company p.l.c. ("BP"), in exchange for Special Stock of the Company. At December 31, 1982, the Special Stock, equivalent to 125,840,000 shares of Common Stock, and the 4,320,000 shares of Common Stock owned by BP represented approximately 53% of the voting rights of 246,182,000 shares of Common Stock and common stock equivalents. For information with respect to BP's interest in the net profits derived from production from the Company's Prudhoe Bay leases, see Note R of Notes to Financial Statements in The Standard Oil Company (Ohio) Annual Report 1982.

Sohio's principal refining, marketing, transportation, manufacturing and chemicals facilities are generally described below. Its oil and gas reserves and production facilities are located primarily in Alaska, Texas, Oklahoma, Louisiana, the Rocky Mountain area and the Gulf of Mexico; its principal copper reserves and facilities are located in Arizona, Nevada, New Mexico and Utah; its principal coal reserves and mines are located in Illinois, Indiana, Pennsylvania, Utah and West Virginia; and its ilmenite mine and processing facilities are located in Quebec, Canada. Sohio also has interests in oil shale and tar sands properties located in Colorado and Utah.

The acquisition of Kennecott Corporation in 1981 resulted in the Company having operations and sales outside the United States. In 1982 and 1981, sales outside the United States were approximately $495 million and $464 million, respectively, and operating profits outside the United States were $29 million and $43 million, respectively. At December 31, 1982 and 1981, the Company had identifiable assets outside the United States of approximately $709 million and $761 million, respectively. Export sales for 1982 and 1981 were approximately $322 million and $222 million, respectively. Sales, operating profit, identifiable assets and export sales for 1980 were insignificant.

When used in this Item 1. Business, the term "proved reserves" with respect to petroleum operations means those volumes of both developed and undeveloped reserves of crude oil, condensate, natural gas liquids or natural gas which geological and engineering data indicate with reasonable certainty to be recoverable from established reservoirs, using technically proved, commercially sound operating practices. Proved developed reserves include only those reserves expected to be produced through existing wells and facilities. Reserves which are capable of being produced through wells and facilities not yet drilled or installed (e.g. acceleration projects) are included in proved undeveloped reserves. With respect to the Prudhoe Bay field, proved undeveloped reserves also include oil which may be attributable to secondary recovery techniques which are planned for the future.

When used in this Item 1. Business, the term "proved reserves" with respect to non-petroleum operations means 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, and the term "probable reserves" means the estimated quantities of commercially recoverable reserves that are less well defined than proved reserves and may be estimated or indicated to exist on the basis of geological, geophysical and engineering data.

Petroleum

The petroleum industry is highly competitive in all of its phases. There is competition within the industry and also with other industries in supplying the energy and fuel needs of commerce, industry and individuals.

Exploration and Production

Sohio continues to accelerate its aggressive exploration program in onshore and offshore areas of the United States. At the end of 1982, Sohio held over 4.6 million net acres of undeveloped oil and gas acreage in the lower 48 states, up from 3.8 million net acres at the beginning of the year. Exploration costs, including undeveloped property acquisitions, were $1,042 million in 1982 compared with $716 million in 1981. Exploration costs expensed, including amortization of unproved property increased to $488 million in 1982 from $370 million in 1981.

Sohio holds substantial acreage in the Gulf Coast region. During 1982, Sohio acquired interests in four exploratory drilling tracts, totaling 18,048 net acres in the Gulf of Mexico, including a 50 percent interest in Eugene Island South Addition Block 315 and a 77.5 percent interest in Eugene Island South Addition Block 329 which adjoins Block 316 in which Sohio holds a 50 percent interest. These acquisitions brought its total acreage in the area to more than 80,000 net acres.

In 1982, Sohio announced an agreement with American Quasar Petroleum and Conquest Exploration Company, covering 2.2 million net acres in the Rocky Mountain Overthrust Belt, under which Sohio is obligated to spend a minimum of $100 million in a five-year seismic and drilling work program. A total of $350 million will be required to earn the maximum 50% interest in the acreage. Also during the year, Sohio acquired 23,322 net acres in the Anadarko Basin in western Oklahoma. During 1982, the Company also purchased a 70 percent working interest in 167,000 net acres in the Salinas-Cuyama Basin in central California. In the Delaware Basin of west Texas and southeast New Mexico, Sohio acquired leases amounting to 11,600 net acres, and Sohio obtained an exclusive option to lease and explore for oil and gas on 820,000 acres in the Ouachita Overthrust, a deep gas frontier in southeast Oklahoma.

In October 1982, Sohio was a major participant in Federal Outer Continental Shelf Lease Sale 71 ("OCS 71"). Bidding alone and in partnership, Sohio was awarded varying interests in 23 tracts in the Diapir field off of Alaska's north coast in the Beaufort Sea. Thirteen of the 23 tracts were in the Mukluk prospect 10 miles offshore. Sohio's share in the winning bids totaled approximately $400 million. In addition to the OCS 71 acreage, Sohio acquired 73,000 net acres at other smaller Alaskan lease sales held during the year.

Since 1977, Sohio has acquired an interest in 28 lease tracts in the Gulf of Mexico. Twenty-one of these tracts have been drilled, and six commercial discoveries have been made. During 1982 Sohio participated in the drilling of 22 gross and 12.7 net wells in the Gulf. A successful exploratory well was drilled on Eugene Island Block 316. The parties having an interest in the Eugene Island Blocks presently intend to drill approximately 21 wells over an 18 month period beginning in mid-1983 with production slated for early 1984. On Mississippi Canyon Block 20, 100% owned by Sohio, an oil and gas discovery was announced in early 1982; two confirmation wells were drilled in 1982, with a third being drilled in 1983. A platform is scheduled to be committed in Spring 1983, with production beginning in late 1984 or early 1985. In mid-1982, production began on Brazos Block 578, a 1981 gas discovery, owned 60% by Sohio. Late in 1982, a platform was set at High Island South Addition A Block 472 owned equally by Sohio and two other companies. Development drilling is in progress, with production possible as early as mid-1983.

In the Anadarko Basin, Sohio has completed 17 wells, and 11 of these are indicated discoveries. Nine wells are currently being drilled in the area. In the Rocky Mountain area, Sohio participated in 12 wells during 1982, and 16 are planned for 1983. Two small oil discoveries were made in the Powder River Basin of Wyoming during the year where at least three wells will be drilled in 1983. Seismic work in the Salinas-Cuyama Basin and the Delaware Basin began in 1982, and drilling is planned in 1983.

Sohio participated in five exploratory wells in Alaska during 1982. The Alaska Island No. 1 well was drilled into a lease block 96 percent owned by Sohio in the eastern Beaufort Sea, Point Thomson area. In 1983 Sohio will pay a third of the cost of drilling an exploratory well at the northern part of the Point Thomson area to evaluate the potential of leases Sohio acquired jointly with two other companies in the area in 1982. Sohio participated in two wells in the Kuparuk area, west of the Prudhoe Bay field, primarily to provide additional data bearing on the OCS 71 sale area. Also two additional wells were drilled from Endeavor Island in the Sag Delta area located northeast of the Prudhoe Bay field in the Beaufort Sea.

Discussions leading to the possible unitization of the Sag Delta-Duck Island field are proceeding. Sohio and BP are engaged in an arbitration proceeding in which BP is asserting that it is entitled to a significant working interest in certain of Sohio's leases in this area. Sohio is actively opposing BP's assertion. A ruling is expected before mid-1983.

For information about the Company's oil and gas reserves and production, see "Estimated Quantities of Proved Oil and Gas Reserves" on page 53 and "Additional Oil and Gas Information" on pages 54 and 55 of The Standard Oil Company (Ohio) Annual Report 1982. Substantially all of Sohio's current exploration and production activities take place in the United States. Minor amounts relating to Canadian properties are included in amounts for the lower 48 states where appropriate. Sohio has filed estimates of proved reserves as of December 31 1981 with the Department of Energy. Such estimates do not vary from those presented herein. No major discovery or other favorable or adverse event which would have caused a significant change in the estimated proved reserves has occurred since December 31, 1982.

Most of Sohio's Alaskan reserves are located in the Prudhoe Bay field on the North Slope of Alaska. These Prudhoe Bay reserves are subject to a preferred stock interest in a Sohio subsidiary which entitles BP to 75 percent of the net profits from oil and gas production from Sohio's Prudhoe Bay leases multiplied by a fraction, of which the numerator is the number of net barrels per day of crude oil production from Sohio's Prudhoe Bay leases between 600,000 net barrels per day and 1,050,000 net barrels per day, and the denominator is the total number of net barrels per day of crude oil production from such leases. BP received net profits of $92 million during 1982 in the form of dividends upon its preferred stock in the aforesaid Sohio subsidiary.

The main reservoir in the Prudhoe Bay field has been unitized under an agreement among the State of Alaska and the lessees of interests in the field. The unit operating agreement requires a final redetermination of participating interests, based upon improved technical knowledge of the reservoir as a result of field operations. The Company has reached an agreement with Atlantic Richfield Company and Exxon Corporation regarding final redetermination of participating interests in the Prudhoe Bay oil field. Under the agreement, Sohio's participating interest in the oil reservoir drops from 53.5 percent to 50.4 percent and its interest in the gas cap drops from 14.6 percent to 13.8 percent. Furthermore, Sohio is underlifting for a period of 24 months commencing October 1, 1982, to adjust its share of cumulative total production lifted since the commencement of commercial production in 1977.

This agreement is not binding on the other participants in the field. Arbitration proceedings with the remaining interest owners have commenced pursuant to the unit operating agreement. The effect of redetermination on the Company's net income is mitigated by reduced payments to BP for its net profits royalty interest referred to in the preceding paragraph.

At the current maximum allowable production rate of 1.5 million barrels of crude oil per day from the Prudhoe Bay field, Sohio's net share of production has dropped from about 695,200 barrels per day to about 661,700 barrels per day as a result of redetermination. In addition, the effect of this agreement is that the Company is underlifting about 76,300 net barrels per day for a 24-month period which commenced October 1, 1982. These underlift barrels represent Sohio's excess liftings since commercial production began in 1977, and they are being lifted by participants whose participating interests are increased as a result of redetermination. Thus, Sohio's net crude oil production from the Prudhoe Bay field is expected to average about 585,400 barrels per day for the

24-month period. On October 1, 1984, the Company's net crude oil production will return to about 661,700 barrels per day, assuming field production rates remain at 1,500,000 barrels per day. The Company also has about 3,000 net barrels per day of natural gas liquids production in addition to its crude oil production.

The redetermination also results in Sohio's having made excess contributions to field development expenditures and operating costs since the beginning of development and operations. Excess field development expenditures of approximately $335 million and excess operating costs of about $70 million are being recovered by bearing a reduced share of ongoing field development expenditures and operating costs. Unrecovered expenditures of approximately $120 million at December 31, 1982 have been recovered in early 1983.

Sohio's net production of crude oil and condensate from the Prudhoe Bay field averaged 676,642 barrels per day in 1982 compared with 698,150 barrels per day in 1981. The rate of flow from the Prudhoe Bay field is expected to remain at approximately the current level through the mid-1980's, providing an estimated average gross production of 1.5 million barrels per day. After that time, increasing gas and water production combined with falling pressure will result in natural decline in production for the balance of the life of the field.

The current emphasis at the Prudhoe Bay field continues to be ongoing development of additional producing wells and other production facilities, such as well manifolds, low pressure production facilities and water injection facilities in order to sustain current production levels and to recover optimum reserves. In 1982, $977 million was invested by Sohio for the maintenance of current production levels and facilities for secondary recovery. Approximately 545 wells have been drilled out of an eventual 788 planned to facilitate oil recovery from the reservoir.

Sohio owns approximately 23% of the natural gas at Prudhoe Bay with estimated field reserves of 26 trillion cubic feet. Currently a portion of the gas, which is produced along with the crude oil, is being used in the operation of the field and the Trans Alaska Pipeline System ("TAPS"). The balance is being reinjected into the gas cap to preserve it for sale until such time as a means of transporting North Slope gas to market is available.

The four major working interest owners, representing over 98% ownership of the Kuparuk field located west of Prudhoe Bay on the North Slope, signed a unitization agreement in late 1981 relating to that field. Sohio holds a 9.6% interest in the unit, but its production share is limited to approximately 4.5% of net production until March 1985. Production of crude oil from the Kuparuk field averaged 87,760 barrels a day in 1982. As the field is developed, production rates will increase with a planned recovery rate of up to 250,000 barrels a day by 1986. The field is estimated to have about 1.2 billion barrels of recoverable oil if improved recovery plans can be justified.

In the lower 48 states, Sohio produced 18,200 net barrels a day of crude oil and liquids and 76.3 million cubic feet a day of natural gas in 1982 compared with 19,100 net barrels of crude oil and liquids and 70.7 million cubic feet of natural gas a day in 1981.

Disposition of Alaskan Crude Oil

Sohio disposes of its crude oil produced in the Prudhoe Bay and Kuparuk fields principally by sale or exchange to other refiners on the West, Gulf and East Coasts of the United States and in the Caribbean. Sales and exchanges are made under contractual arrangements which typically provide that either party may reopen the contract to renegotiate price at periodic intervals. During 1982, about 40% of the production was disposed of by Sohio in Alaska or on the West Coast, compared with 63% to such locations in 1981, and the balance was shipped primarily to Gulf Coast and Caribbean locations.

Transportation

The Trans Alaska Pipeline System

TAPS consists of a 48-inch crude oil pipeline, running approximately 800 miles from Prudhoe Bay to the ice-free port of Valdez on Alaska's southern coast, and a tank farm and marine terminal at Valdez.

TAPS is owned by Sohio Pipe Line Company ("Sohio Pipe Line"), a wholly owned subsidiary of Sohio, and seven other companies which have varying interests in the Prudhoe Bay field. Sohio Pipe Line currently has a 33.34 percent undivided interest in TAPS. Each TAPS owner is utilizing its share of TAPS as an independent common carrier, separately publishing tariffs and receiving tenders of shipments through its portion of the capacity of the pipeline and paying its respective share of operating costs.

The mechanical capacity of the pipeline is approximately 1.4 million barrels per day, and with the use of drag reduction additives, TAPS is able to accommodate the current production rates from the Prudhoe Bay field as well as the additional volumes coming from the Kuparuk field.

Sohio and BP are parties to an agreement providing that whenever the interests of their pipeline subsidiaries in TAPS are operating at less than design capacity the crude oil produced by Sohio or BP from certain North Slope leases will be shipped through such ownership interests in the approximate proportions that such interests bear to one another, so long as the pipeline subsidiary requesting such throughput protection maintains a competitive tariff rate.

The State of Alaska and others are contesting the tariffs filed by Sohio Pipe Line and other TAPS owners for transportation of crude oil from Prudhoe Bay to Valdez. The Federal Energy Regulatory Commission ("FERC") and Alaska Public Utilities Commission are conducting administrative proceedings to determine the permissible level of tariffs which may be charged by the TAPS owners. At present, Sohio Pipe Line has filed a tariff of $6.16 per barrel. In 1980 a FERC administrative law judge issued a finding that the rates charged by all TAPS owners in 1979 and by all but two TAPS owners in 1978 were excessive and that the excess should be refunded. The finding was appealed to the FERC which remanded the matter to an administrative law judge to determine whether TAPS tariffs should be governed by the same principle that the FERC applied to most other oil pipelines in an order issued on November 30, 1982. While the Company is unable to predict the outcome of the proceedings, the Company believes that a reduction in the filed tariffs for the transportation of oil through TAPS would not have a material impact on its consolidated financial position.

Kuparuk Pipeline

In order to transport expected increased oil production from the Kuparuk field to TAPS, Sohio and two other companies have formed a partnership to construct, own and operate a 24-inch pipeline to replace the existing 16-inch pipeline, in which Sohio has no ownership interest. Sohio has a 10% interest in the partnership, and its share of the pipeline construction cost is estimated to be approximately $15 million. The pipeline is expected to be completed late in 1984.

Proposed Alaska Natural Gas Transportation System

In 1980, Sohio and two other Prudhoe Bay producers became participants in the design, engineering and cost estimation phase for the conditioning plant and the 731 mile Alaska portion of the proposed Alaska Natural Gas Transportation System. Through 1982, Sohio had spent approximately $50 million as its portion of the cost of this phase. In 1981, Congress passed and the President signed into law a bill providing that the Alaska gas producers could become equity owners of the gas transportation system and mandated that the gas conditioning plant be a part of such system. The extent of Sohio's equity interest remains to be determined, and the method of financing the system must still be resolved.

Tankers

Sohio currently utilizes foreign flag tankers to transport imported crude oil to East Coast and Gulf Coast ports of the United States to satisfy the requirements of its refineries. These operations are carried out through various chartering agreements. Sohio expects that the present tanker capacity available to it, along with other tanker tonnage available in the spot market or under short-term charters, will be sufficient to transport the company's foreign crude oil requirements.

Sohio currently has chartered a fleet of U.S. flag tankers amounting to about 3.1 million deadweight tons to transport North Slope crude oil from Valdez, Alaska to markets on the West and Gulf Coasts of the United States and in the Caribbean. The ships are chartered under various short and long-term arrangements. Included in this fleet are eight tankers, totalling 1,060,000 deadweight tons, under long-term charter.

The U.S. flag tankers required to transport Alaskan crude oil to domestic ports are subject to the Merchant Marine Act of 1920, commonly referred to as the Jones Act, which requires that cargo transported between domestic ports be carried in ships built and registered in the United States, owned and operated by United States citizens and manned by United States crews. The vessels, except as permitted by Maritime Administration regulations, must be free of Federal subsidies.

In conjunction with the transportation of Alaskan oil across Panama, Sohio is using a Panama transportation system owned and operated by another company. This facility consists of terminals on the Atlantic and Pacific Coasts connected by a pipeline which became operational on October 1, 1982. Sohio has entered into an agreement for the throughput of 130,000 barrels per day for a period of three years beginning February 1, 1983. The use of this transportation system should result in fewer delays when compared to shipments through the Panama Canal and in increased efficiency in the use of Sohio's Gulf Coast fleet. In the event that shipments of Alaskan crude oil are in excess of the capacity of the pipeline, vessels capable of canal transit are loaded at the Pacific terminal for delivery to Gulf Coast and Caribbean markets.

Existing Pipeline Systems

Exclusive of its interests in TAPS, Sohio also wholly owns and operates crude oil gathering lines and crude oil and petroleum product lines located in nine states. These pipeline systems consist of approximately 1,075 miles of crude oil gathering lines and 1,057 miles of crude oil and product trunk lines. Sohio's interests in these pipelines are principally held by Sohio Pipe Line Company. Sohio also has direct or indirect interests in various pipelines, including the Mid-Valley and Capline systems, which operate large-diameter lines and provide Sohio with a means to transport to its Ohio refineries domestic crude oil from southwestern producing areas and foreign crude oil discharged on the Gulf Coast. Sohio also owns varying equity interests in refined product pipelines, including Colonial Pipeline Company and Laurel Pipeline Company and other systems, which serve certain of its marketing areas. Existing domestic pipelines for crude oil and refined products in the Midwest have sufficient capacity for foreseeable demand. Periodic small system improvements appear adequate to meet regulatory requirements. No major expansions are underway.

Refining

Sohio currently owns and operates three refineries with a rated total capacity of 456,000 barrels of crude oil per day. Locations of these refineries and their rated crude oil capacities are: Toledo, Ohio — 120,000 barrels per day; Marcus Hook, Pennsylvania — 168,000 barrels per day; and Lima, Ohio — 168,000 barrels per day. Refinery runs averaged 360,000 barrels per day in 1982 compared with 362,000 barrels per day in 1981. Sohio utilized about 80% of its refining capacity in 1982. Light product output in 1982 represented approximately 91% of refinery yield. Gasoline production averaged 243,000 barrels per day in 1982.

Sohio also owns and operates a calcined coke plant at Cresap, West Virginia with annual capacity of 330,000 tons. Raw material for this plant consists of petroleum coke, a large part of which is supplied by Sohio.

Marketing

Sohio is, and for many years has been, the leading marketer of gasoline and other refined petroleum products in Ohio, under the trade name "Sohio". Sohio also markets such products under the trade name "Boron", principally in central and western Pennsylvania, and to a limited extent in areas of Michigan, Kentucky, West Virginia and Indiana adjacent to Ohio. In addition, Sohio markets refined petroleum products under the trade names "BP", "Gibbs", "Scot" and "Wm. Penn" through retail outlets in eastern markets north of North Carolina. The trade name "Gas & Go" is used in connection with retail outlets in southeastern Michigan.

Throughout its marketing area, Sohio supplies directly (other than through jobbers) a total of approximately 2,200 retail outlets. More than half of these outlets are operated by employees of Sohio, the others through independent dealers. Sohio markets automotive petroleum products through full service, limited service and self-service facilities. It also operates gasoline and car wash facilities and specialized car care facilities and has opened, on a selective basis, convenience stores at certain of its facilities. Sohio also supplies refined petroleum products to industrial, commercial, governmental and agricultural accounts.

The principal petroleum products manufactured and marketed by Sohio are gasoline, motor oils, lubricants, diesel fuel, jet fuel, heating oils, kerosene, industrial oils, residual fuel and coke. The Company also markets tires, batteries and automotive accessories through many of the retail outlets it supplies.

Copper and Related Minerals

For a discussion of governmental regulations affecting the copper and related minerals operations, see "Government Regulation and Legislation" in this Item 1. Business.

As a result of the acquisition of Kennecott, Sohio became an integrated producer of metals and minerals, principally copper. Kennecott's copper mines contain large amounts of copper ore overlain by waste rock which must be removed before the ore can be mined. Gold, silver and molybdenum, as well as certain other nonferrous metals, are contained in the ore mined at Kennecott's copper mines and extracted as by-products.

Kennecott has many competitors in the sale of copper and the other metals and minerals which it produces. With respect to copper, gold, silver and molybdenum, Kennecott competes with numerous other sellers of these basic commodities, including domestic and foreign primary producers, metal merchants, custom refiners and scrap dealers. In the case of copper, competition also exists with other materials, such as aluminum and plastics. Approximately 40% of the free world's primary copper production is government owned or controlled, much of it by governments of developing nations. Copper production and prices have been influenced by both political and economic considerations.

Reserves

The following table shows reserve data (proved and probable) as of December 31, 1982 with respect to Kennecott's copper properties:

Estimated ore reserves
3.1 billion tons

Recoverable primary metal
17.5 million tons of copper

Recoverable by-product metals
10.9 million troy ounces of gold
124.0 million troy ounces of silver
386.2 thousand tons of molybdenum

Although the life of reserves of copper ore controlled by Kennecott at or adjacent to its copper mines exceeds 25 years at present or planned production rates, Kennecott is engaged in an extensive exploration program to locate additional reserves of copper and certain other minerals. In addition to the proved and probable reserves stated above, Kennecott owns, or has under long-term lease, deposits of copper mineralization in Alaska, Arizona, Minnesota, Utah, Wisconsin and northern British Columbia. No significant development of any of these deposits has commenced. In addition, Kennecott has a net proceeds royalty interest in a silver-copper mine near Spar Lake, Montana. Production of ore has begun at this mine.

Principal mines and plants

Kennecott's principal operations for the production of copper and related minerals are: *Utah Copper Division*, with a mine at Bingham, Utah and processing plants at Magna and Garfield, Utah; *Chino Mines Company*, with a mine and concentrator at Santa Rita, New Mexico and a smelter and fire refinery at Hurley, New Mexico; and *Ray Mines Division*, with a mine at Ray, Arizona and a smelter at Hayden, Arizona. As a result of the low copper prices world-wide in 1982, Kennecott's copper production was curtailed to varying extents at several of its operations. Utah Copper Division made substantial reductions in its work force throughout 1982 but remained at full production during 1982 and into 1983. Chino Mines Company shut down from April until August 1982 when it started performance acceptance testing of its new concentrator; it is currently operating on a reduced schedule. Ray Mines Division was shut down in May 1982 and remains on a temporary shut-down basis pending further improvements in the copper market.

Kennecott and the 13 international unions representing 5,300 employees at Kennecott's copper operations are presently negotiating new labor agreements to replace those which are due to expire June 30, 1983.

A detailed engineering study of the Utah Copper Division will be completed in 1983 to review the method and timing of modernizing these facilities. In 1981, Kennecott began drilling a development shaft adjacent to its open pit mine at Bingham, Utah to define fully an underground deposit of copper, gold, silver and molybdenum. It is not expected that production will begin from this shaft before 1985 at the earliest.

Chino Mines Company is a New Mexico general partnership, owned two-thirds by Kennecott and one-third by a subsidiary of Mitsubishi Corporation, a Japanese corporation ("Mitsubishi"). Kennecott manages the operations of Chino Mines Company and receives an annual management fee. A modernization program, designed to increase copper mine and concentrating capacity 70%, has been substantially completed and is presently estimated to cost in excess of $270 million. All costs of the modernization program in excess of Mitsubishi's initial contribution of approximately $129 million were paid by Kennecott and Mitsubishi in proportion to their interest in Chino Mines Company. The new concentrating capacity is being tested, and a decision to sustain operations will be based upon economic conditions. Construction of additional smelter capacity has begun and will take approximately two years to complete.

Kennecott has an additional smelting facility in Nevada. The Nevada copper smelter processes copper concentrates tolled or purchased from other producers or produced at Kennecott's other copper properties. The smelter is located in McGill, Nevada, near Kennecott's Nevada mine which was closed in 1978 due to economic conditions. Substantial capital expenditures would be required to reopen this mine.

Kennecott has two electrolytic copper refineries; one is located adjacent to the Utah copper smelter, and the other is near Baltimore, Maryland and is currently on a reduced production schedule. Kennecott also has a solvent extraction-electrowinning copper refinery at its Arizona copper facilities which is currently shutdown.

Kennecott owns in fee substantially all of the land upon which its copper mining properties are located.

The following tables show production data with respect to Kennecott's copper properties and include Kennecott production data for the period prior to Kennecott's acquisition by Sohio in June 1981. Production data for 1980 is presented for comparative purposes only.

	Ore Mined, Milled and Treated (000 net tons)	Material Removed to Dumps (000 net tons)	Copper Produced (net tons)	Grade of Ore Mined (Percent copper)	Molybdenum Produced (000 pounds)	Gold Produced (ounces)	Silver Produced (ounces)
1982	45,201	147,599	285,716	.691	5,196	191,556	3,360,386
1981	59,246	196,008	372,213	.706	8,239	267,413	3,678,686
1980 (1)	48,190	160,067	335,914	.681	8,044	211,318	2,840,299

Location of Mine	Total Copper Produced from All Sources (net tons)			Ore Mined, Milled and Treated (000 net tons)			Average Grade of Ore Mined (Percent Copper)		
	1982	1981	1980 (1)	1982	1981	1980 (1)	1982	1981	1980
New Mexico	32,872(2)	36,704(2)	50,705	3,537(2)	5,406(2)	5.432	.864	.878	.815
Nevada	–	1,119	887	–	–	–	–	–	–
Arizona	53,326(3)	111,267	84,269	4,786(3)	14,816	11,180	1.071	.969	.916
Utah	199,518	223,123	200,053	36,878	39,024	31,578	.625	.582	.575
Total	285,716	372,213	335,914	45,201	59,246	48,190	.691	.706	.681

(1) 1980 production was adversely affected by a ten week strike at all of Kennecott's copper facilities.

(2) Effective March 2, 1981 represents Kennecott's ⅔ share of production from these facilities. Chino Mines Company was shutdown or on reduced schedule for much of 1982.

(3) Ray Mines Division was placed on temporary shutdown in May 1982.

Kennecott has a 49% interest in Minerales de Bolanos, S.A. de C.V., a privately held Mexican silver mining company. The mines, owned and operated by this joint venture, are approximately 100 miles from Guadalajara, in the Mexican state of Jalisco. Kennecott's share of silver production in 1982 and 1981 from this facility was 349,957 and 311,686 troy ounces, respectively.

Product uses and sales

Kennecott sells most of its copper to domestic and foreign fabricators for use primarily in the fields of communications, power generation, electrical and electronic products, building construction, automotive vehicles and industrial machinery and equipment. In 1982, Kennecott moved from a comex-based pricing system to a list price basis. Molybdenum is sold both domestically and abroad as an alloying agent in stainless, specialty and alloy steels. Kennecott sells gold and silver principally to domestic dealers in precious metals.

Lead and Zinc

For a discussion of governmental regulations affecting the lead and zinc operations, see "Government Regulation and Legislation" in this Item 1. Business.

On March 4, 1983, Kennecott shut down its Ozark Lead Company division as a result of continuing economic and market conditions. Until the shutdown, the Ozark division mined lead and zinc ore at an underground mine near Sweetwater, Missouri. A portion of the mine is held under a long-term lease expiring after the year 2000. At December 31, 1982, estimated ore reserves (proved and probable) were 25.3 million tons, and recoverable lead and zinc were approximately 1.1 million tons and .1 million tons, respectively. Recoverable silver was estimated at 4.1 million troy ounces.

While Ozark has a concentrating facility adjacent to its mine, it does not own or operate a smelting facility to process its lead and zinc concentrate. The concentrate has been sold directly to custom smelters. The following table shows production information for the Ozark mine and includes Ozark's production data for the period prior to the acquisition of Kennecott by Sohio in June 1981. Production data for 1980 is presented for comparative purposes only.

	Ore Mined (tons)	Lead Produced (tons)(*)	Zinc Produced (tons)(*)	Silver Produced (ozs.)(*)
1982	1,428,708	89,721	6,072	236,985
1981	1,883,092	76,949	11,732	307,601
1980	1,630,224	72,632	5,947	216,628

*Represents approximate net metal content of concentrates delivered to smelters.

Because lead and zinc concentrates are sold directly to custom smelters, Ozark has not competed directly in the sale of lead and zinc. The expansion program at the Ozark lead and zinc mine was substantially completed in 1982 and increased production capacity by approximately 30%.

Coal

For a discussion of governmental regulations affecting the coal operations, see "Government Regulation and Legislation" in this Item 1. Business.

At December 31, 1982, Sohio, through its wholly owned coal subsidiaries, held proved and probable reserves estimated at 1,720 million tons. Of this total, estimated proved reserves assigned to active mines were 244 million tons.

During 1982, Sohio added approximately 120 million tons to proved and probable reserves. Most of these additions resulted from the acquisition of properties and facilities from Republic Steel Corporation in June 1982. The additional reserves and facilities are located in Pennsylvania and West Virginia.

Kennecott has an interest in certain properties in Oregon (sub-bituminous) and Washington (lignite) containing coal deposits and is a participant in a consortium in Australia having an interest in two properties containing bituminous coal deposits. With respect to each of these prospects, no definitive conclusion has been reached as to the quantity, quality or economic recoverability of the coal deposits.

On the basis of the test data relating to thickness, quality and extent of particular coal seams as evaluated by Sohio's engineers, approximately 29% of its estimated recoverable reserves has a shipped sulfur content of 2% or less. Production from such reserves is sold for both metallurgical and steam purposes. The balance of Sohio's recoverable reserves is of a quality suitable only for steam purposes.

Sohio's wholly owned subsidiaries, Old Ben Coal Company ("Old Ben") and Kitt Energy Corporation ("Kitt"), produce and market bituminous coal, approximately 61% of which is produced from underground mines and the balance from surface mines. Production consists principally of steam coal for the electric utility market and metallurgical coal for use in producing coke by iron and steel producers. Old Ben operates two surface mines in Indiana, five underground mines in Illinois and one underground mine in West Virginia. Kitt operates one underground mine in West Virginia and manages four other underground mines in Pennsylvania and Kentucky for Republic Steel Corporation. All of these mines produce steam coal, and three also produce metallurgical coal. Demand has increased for low-sulfur coal in the steam market as a result of the adoption or expected adoption by various governmental authorities of restrictions on the emission of sulfur dioxide. As proposed and currently in effect, such restrictions have not yet had an ascertainable impact on Old Ben; however, if such restrictions prohibit the use of high-sulfur coal, there can be no assurance that all of Old Ben's sales contracts will be enforceable. In such event, there can be no assurance that such coal could be sold to others.

Old Ben produced and sold about 11 million tons of bituminous coal in 1982. The average selling price and production cost per ton of coal sold from Old Ben's mines during 1982 were $31.28 and $29.79, respectively. Old Ben is increasing its use of longwall underground mining which generally results in improved productivity, as well as safer mining conditions than available with other methods of underground mining. While underground productivity improved in 1982, it continues to fall short of expectations partly because of the long lead time required to develop longwall mining.

Approximately 80% of Old Ben's sales during 1982 was considered to be steam coal, which is mostly sold to the electric utility industry on the basis of its heating content. The remainder of Old Ben's production was metallurgical coal which is sold for its coking characteristics and its low ash and sulfur content. During 1982, approximately 84% of Old Ben's production was sold under long-term contracts with price adjustment provisions designed to reflect changes in economic conditions or costs of production. The balance was sold under annual or spot arrangements.

Chemicals and Industrial Products

Sohio's chemical operations conducted by Sohio Chemical Company, formerly Vistron Corporation, and Kennecott Corporation's manufacturing operations have been consolidated within one organization, Sohio Chemicals & Industrial Products Company ("SCIPCO"). These operations consist of three primary groups: advantaged commodities, engineered materials and engineered solutions. Substantially all of SCIPCO's businesses are in industries that are highly competitive.

Advantaged Commodities

The businesses in this group include a chemical sector, a fabricated metals sector and a processed minerals sector.

Chemicals

SCIPCO's chemical operations are conducted by Sohio Chemical Company which primarily produces agricultural and industrial chemicals. These products are generally sold to other manufacturers for further processing or to consumers.

Sohio Chemical Company operates ammonia, urea, Barex, nitric acid, acrylonitrile, carbon dioxide and catalyst plants at Lima, Ohio and Green Lake, Texas. Sohio Chemical Company also operates 130 retail outlets for the sale of fertilizer and agricultural chemicals under the brand name "Sohigro".

In 1982, Sohio Chemical Company began construction of a 100 million gallon a year benzene plant at the Lima, Ohio complex that is scheduled for completion in 1985. An expansion of the Lima urea plant was completed during 1982. Operations at the Lima urea plant and Lima nitrogen chemical manufacturing facility were temporarily discontinued in 1982 due to an oversupply in the market, falling ammonia prices and increasing natural gas feedstock costs, however operations will be resumed in April 1983.

Fabricated Metals

SCIPCO, through its Chase Brass and Copper unit, is a leading fabricator of metal products for industrial markets, producing free-cutting brass rod and copper and copper alloy coiled sheet and strip, and fabricating zirconium and titanium based extrusion products, including zirconium tubing. Raw materials and energy sources are generally readily available. During 1982 Chase Brass completed an expansion of its rod facility in Williams County, Ohio, increasing capacity by 50%. Chase Brass has its principal facilities in Ohio, Connecticut and Ontario, Canada. Chase Brass is in the process of divesting its injection-molded, plastic precision parts and brass and aluminum forged components businesses.

The principal customers for Chase Brass' sheet and strip are manufacturers of automotive components and electrical and electronic equipment and for brass rod are manufacturers of plumbing, heating and cooling equipment and industrial fittings and parts. Chase Brass sells zirconium tubing for use in the construction of Canadian heavy water nuclear power units and titanium products for use in chemical processing and waste treatment applications.

Processed Minerals

This sector includes the QIT-Fer et Titane ("QIT") unit and the Electro Minerals unit, formerly a part of The Carborundum Company. QIT is the international leader in the electric furnace processing of ilmenite ore into titania slag, high quality iron and iron powder. The titania slag is sold to pigment producers for use in the paint, paper, plastic and rubber industries, and the iron is sold principally to foundries for use in the production of ductile iron castings.

Ilmenite operations are in Quebec, Canada and Richards Bay, South Africa. QIT's headquarters is in Montreal, Quebec, and sales offices are also maintained in Chicago; Detroit; Frankfurt, West Germany and Tokyo, Japan.

In the Electro Minerals unit, electric furnace processing is used to produce silicon carbide and aluminum oxide from basic raw materials which are readily available. Because of their unique hardness and ability to withstand high temperatures, the silicon carbide and aluminum oxide are sold to producers of abrasive, wear resistant and heat resistant products primarily in the United

States, Canada, Western Europe and Latin America. The production of silicon carbide and aluminum oxide requires significant amounts of electric power and, to a lesser extent, natural gas, oil and coal. Generally, energy requirements have been met without difficulty. Major production facilities are located in the United States, Canada and Norway.

Engineered Materials

The Engineered Materials group includes the Carborundum resistant materials sector and abrasives products sector.

Resistant Materials

These operations involve the application of ceramic technology to materials systems and components. The principal products are molded and cast refractories, ceramic fiber insulation, wear and corrosion resistant materials, proppants for oil and gas drilling, electric heating elements, electrical and electronic components, semi-conductor doping materials and advanced engine components. Silicon carbide, which is manufactured by the Electro Minerals unit, is an important raw material utilized in this sector. Alumina, another significant raw material, is readily available. Also, energy sources are available at reasonable and generally favorable rates.

The markets for Carborundum's resistant materials consist generally of the foundry, steel, automotive, chemical, petrochemical, aluminum and glass industries throughout the world. While not dependent upon any single customer or group of customers, foundries, automobile and steel producers are important purchasers of Carborundum's resistant materials. International sales of resistant materials are important to Carborundum with the key foreign markets being in Europe, South and Central America, Mexico, Australia, South Africa and Japan.

In the United States, Carborundum manufactures resistant materials at facilities in Indiana, Louisiana, New Jersey, New York and Pennsylvania and outside the United States in the United Kingdom, Germany, Australia, Mexico and Brazil.

Abrasives Products

Abrasives products manufactured by Carborundum include a wide variety of bonded abrasives (such as grinding wheels) and coated abrasives (abrasives applied to paper and cloth backings to form sandpaper and sanding belts). In March 1983, the Company announced that it is permanently closing its domestic bonded abrasives operations. In addition, the Company intends to sell substantially all of its remaining abrasives products operations except in Brazil in the near future.

Engineered Solutions

The Engineered Solutions group includes its process systems and equipment sector, blast cleaning equipment sector and the recently acquired Pfaudler sector that manufactures certain types of glass-lined steel vessels.

Process Systems and Equipment

SCIPCO, through its Dorr-Oliver unit, is engaged principally in the design, engineering and sale of process systems and equipment for the continuous separation, mixing, handling or other treatment of solids suspended in liquids or gases, primarily for the minerals, food, pulp and paper, chemical and wastewater treatment industries. Substantially all of the equipment sold by Dorr-Oliver is designed and manufactured for particular applications. Dorr-Oliver markets its equipment throughout the United States directly and through marketing representatives. Dorr-Oliver, with operations located in eleven countries, markets its systems and equipment worldwide.

Dorr-Oliver has manufacturing facilities in Indiana, Mississippi, Pennsylvania and Utah and in Brazil and Canada.

Blast Cleaning Equipment

SCIPCO, through its Pangborn unit, is a major worldwide producer and supplier of blast cleaning equipment (shot blasting, shot peening and sand reclamation equipment) used primarily to clean forgings, castings and other metal, plastic and rubber parts and to improve the surface characteristics of metal. The primary customers are in the automotive, transportation, steel, metal fabrication, foundry and aerospace industries. Pangborn also manufactures and markets blasting media, typically cast steel, shot and grit. Pangborn has manufacturing facilities in Maryland, Pennsylvania, Canada, Mexico, Italy and the United Kingdom.

Glass-lined Steel Vessels

During 1982, SCIPCO acquired the worldwide operations of the Pfaudler Company which manufactures glass-lined steel vessels and certain related product lines.

The United States unit of Pfaudler was the first manufacturer of industrial glass-steel processing equipment, and SCIPCO believes it is the largest producer of such equipment. Glass-steel vessels and other corrosion-resistant equipment manufactured by Pfaudler are used to process, produce and store chemicals, drugs, plastics and similar products. Glass-steel equipment is produced by Pfaudler in New York and Ohio and by Pfaudler units in Scotland, Mexico, Brazil and Germany. Pfaudler also has facilities for manufacturing other equipment in Louisiana, New Jersey, New York and Ohio. In general, Pfaudler has alternate sources of supply for materials used in the manufacture of process equipment and does not rely on any single customer for a significant portion of sales of these products.

Synthetic Fuels

Sohio has been involved for many years in the development of synthetic fuels. Sohio is a participant in three shale oil projects aimed at producing usable hydrocarbons from shale: the White River and Paraho projects in Utah and the Pacific project in Colorado. The Company is also participating in certain ventures studying the commercial feasibility of converting coal to synthetic fuels.

Technology

Sohio conducts a program of research and development directed toward the invention and improvement of energy and chemicals products and processes and also toward the improvement of environmental controls for its operating facilities. It maintains its primary laboratory facilities in Cleveland, Ohio which employed approximately 625 research personnel in 1982. Research and development expense was approximately $71 million in 1982.

Sohio owns patents in the petroleum and chemicals fields which it uses and has licensed to others. The major portion of Sohio's royalty income is from the licensing of its acrylonitrile process on a worldwide basis. Sohio is also licensed by others to use patented processes principally for the processing of crude oil, the manufacture of petroleum products and the production of chemicals. Operations, however, are not dependent upon patents which are not generally available to the industry.

In 1980, Sohio formed a venture capital subsidiary which continues to make investments in small high technology companies. In 1981, Sohio entered into partnerships with another company to develop new and larger low-cost solar energy cells to convert sunlight into electricity.

Government Regulation and Legislation

Taxes

Sohio's total tax expense, principally federal and state, was approximately $3.57 billion in 1982.

The tax expense incurred under the Crude Oil Windfall Profit Tax Act of 1980 amounted to approximately $620 million in 1982. In addition, the State of Alaska imposes various taxes on the

Company's operations in Alaska. At present these include a severance tax on oil and gas produced, an ad valorem tax on all oil and gas exploration, production and pipeline equipment and a corporate income tax on companies doing business in Alaska which derive income from the production or pipeline transportation of oil and gas.

Pipeline Regulation

Reference is made to "Transportation — The Trans Alaska Pipeline System" in this Item 1. Business for a brief discussion of the proceedings before the Federal Energy Regulatory Commission and Alaska Public Utilities Commission regarding tariffs posted by the TAPS owners.

Environmental Regulations

Federal, state and local laws and regulations relating to protection of the environment continue to impact the Company in substantially all of its activities. Significant costs have been incurred by the Company in complying with the requirements of and the regulations promulgated under the National Environmental Policy Act, the Clean Air Act Amendments, the Clean Water Act, the Resource Conservation and Recovery Act ("RCRA"), the Solid Waste Disposal Act Amendments of 1980, the Surface Mining Control and Reclamation Act, the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), and other federal, state and local statutes and regulations. The Company estimates that capital expenditures for these purposes will be approximately $250 million in 1983 and $225 million in 1984 and of similar magnitude in subsequent years. These estimates include capital to retrofit existing facilities and the environmental capital associated with new facility development.

Materials presently excluded from regulation under RCRA by the Solid Waste Disposal Act Amendments of 1980 include (1) "solid waste from the extraction, beneficiation, and processing of ores and minerals" and (2) "drilling fluids, produced waters, and other wastes associated with the exploration, development or production of crude oil, natural gas or geothermal energy." Until such time as the United States Environmental Protection Agency ("USEPA") completes studies of such materials as required by the amendments, determines if regulations are required for protection of human health and the environment, and promulgates such regulations, additional capital investment for solid waste disposal and increased operating costs resulting therefrom cannot be reliably estimated.

At the present time, the Company is a party to a number of administrative and judicial proceedings by governmental authorities arising under federal, state or local statutes or regulations related to environmental matters. Such proceedings include actions for civil penalties for alleged violations of regulations and permits and applications by the Company for permits, variances from established regulations and modification of the regulations themselves. The Company does not believe that such environmental proceedings will have a material effect on its business or financial condition. With respect to certain facilities, however, environmental regulation is a significant economic and operating burden and in a few instances may lead to the cessation of operations, if relief is not obtained. For a description of such proceedings, see Item 3. Legal Proceedings herein.

Safety

Old Ben and Kennecott mining operations are subject to the safety rules and regulations of Federal and State authorities. The Federal Coal Mine Health and Safety Act of 1969, as amended by the Federal Mine and Health Act of 1977 (the "Acts") imposes strict health and safety requirements. It provides for the assessment of civil penalties and mine or section closings until violations are corrected. The Acts, as amended in 1972, 1977 and 1981, provide for payments to miners for disability or death caused by pneumoconiosis.

Employees

At the end of 1982, Sohio had approximately 49,800 employees.

Information as to Lines of Business

Note Q — "Business Segment Information" on page 49 in The Standard Oil Company (Ohio) Annual Report 1982 is incorporated herein by reference.

Item 2. Properties.

Sohio's principal oil and gas reserves and production facilities and mining, refining, marketing, transportation, chemicals and manufacturing facilities are described under Item 1 above. See Item 1. Business.

Item 3. Legal Proceedings.

Five citations relating to alleged violations of particulate and sulfur dioxide emissions limitations were resolved by executing Letter Agreements or Consent Orders and included the payment of civil penalties or voluntary contributions totaling $80,650. One additional Letter Agreement relating to alleged violations of sulfur dioxide emission limitations is being negotiated and would involve a voluntary contribution of $42,100.

Sohio Chemical Company's Green Lake facility received an Administrative Order and executed a Compliance Agreement for reported violations of its National Pollutant Discharge Elimination System ("NPDES") permit. The Order and Agreement require Sohio Chemical Company to report compliance with the terms of its permit or to submit a plan and schedule for achieving compliance, and to monitor and report the impact of its discharge on a nearby waterway. It is expected that any penalties or capital expenditures resulting from this proceeding will be minimal.

Potential capital expenditures associated with the settlement being negotiated with respect to the Toledo Refinery Thermal Limitation Litigation are currently estimated to be approximately $3.4 million.

In July 1982, the USEPA proposed granting for the Marcus Hook refinery a variance from thermal limitations imposed on the refinery as a result of state water quality standards. After the Company challenged an NPDES permit amendment to the refinery imposing a gross thermal discharge limitation on the refinery, the USEPA issued a new permit amendment that eliminated the need to commit approximately $27.4 million for installation of a cooling tower.

On February 2, 1983, the Lima refinery received from the Ohio Environmental Protection Agency ("OEPA") two administrative orders denying Permits to Operate for two refinery air contamination sources because of alleged non-compliance with sulfur dioxide emission limitations. Inability to operate those sources could result in the Company having to shut down the refinery until such permits are obtained. An administrative challenge to the denial has been filed, reinstating the administrative permit. Negotiations with the OEPA are in progress to resolve the issues associated with the alleged non-compliance of these sources. The Ohio Attorney General's office is contemplating enforcement proceedings related to these sources. While the Company is presently unable to estimate what penalties, if any, may ultimately be imposed, the Company believes that capital expenditures of up to $5 million may be required at the Lima refinery as a result of these proceedings.

The Company and the New Jersey Department of Environmental Protection executed a Consent Order in August 1982 relating to the clean-up of subsurface contamination at the Company's Paulsboro, New Jersey terminal. Capital expenditures of up to $3 million will be required to comply with this Consent Order.

During 1982 the Company and the West Virginia Air Pollution Control Commission (the "Commission") signed a Consent Order. Pursuant to the Consent Order the Company committed to spend approximately $23 million to bring the Company's Mountaineer Carbon facility into compliance with regulations adopted by the Commission shortly after the execution of the Consent Order.

Kennecott has four petitions pending in the 9th and 10th United States Circuit Courts of Appeal challenging existing regulations governing sulfur dioxide and particulate emissions from Kennecott's smelters in Arizona, Nevada, New Mexico, and Utah. The USEPA has approved or is expected to approve new regulations during 1983 that would make these challenges moot. If the proposed new regulations are approved, the regulations could necessitate capital expenditures by the Company of approximately $70 million to bring the Nevada smelter into compliance with such regulations. If the USEPA does not approve the proposed new regulations, total capital expenditures of up to $200 million may be required to bring the Nevada smelter into compliance with the existing regulations. The challenged regulations are the basis for two Notices of Violation issued by the USEPA with respect to the Nevada smelter. Approximately $75 million has been committed to bring the Chino smelter into compliance with the revised New Mexico regulations. If the USEPA does not approve the proposed regulations affecting the Utah smelter or if other parties successfully challenge the USEPA approval of new Arizona or Utah regulations, substantial additional capital expenditures may be required at the Arizona and Utah smelters. Because of the uncertainty as to the applicable regulations, however, no estimate of capital expenditures required can be made.

Kennecott has filed, under protest, with the USEPA an application for an NPDES Permit for Chino Mines Company. Such a permit has been issued by USEPA but has been stayed pending an adjudicatory hearing which the USEPA has agreed to hold to enable Kennecott to contest the permit. The capital expenditures required by Chino Mines Company to comply with the permit, if it is required, are estimated to be approximately $72 million.

No further significant developments have taken place with respect to the Alyeska legal proceeding (Alaska v. Alyeska, U.S. District Court F-70-33 (IV)). This proceeding seeks civil penalties and damages of approximately $750,000.

In April 1982, the Company was notified by the USEPA of potential liability as a responsible party under CERCLA with respect to material disposed by Carborundum at a refuse site in Wheatfield, New York. Until additional information can be obtained, the extent of the Company's liability can not be determined.

See also Item 1. Business — Government Regulation and Legislation and Item 1. Business — Transportation — The Trans Alaska Pipeline System.

PART II

Item 5. Market for the Registrant's Common Equity and Related Stockholder Matters.

Common stock market prices and common stock dividend information in "Note P: Quarterly Data — Unaudited" on page 48 of The Standard Oil Company (Ohio) Annual Report 1982 is incorporated herein by reference. The principal markets on which Sohio's Common Stock is traded are the New York Stock Exchange and Midwest Stock Exchange. As of March 4, 1983, there were approximately 65,600 holders of record of Sohio's Common Stock. The Special Stock of the Company owned by BP provides that cash dividends cannot exceed net income of the Company in any year.

Item 6. Selected Financial Data.

"Selected Financial Data" on page 36 of The Standard Oil Company (Ohio) Annual Report 1982 is incorporated herein by reference.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

"Company Discussion and Analysis of Financial Condition and Results of Operations" on pages 34 through 36 of The Standard Oil Company (Ohio) Annual Report 1982 is incorporated herein by reference.

Item 8. Financial Statements and Supplementary Data.

The following financial statements and supplementary information included in The Standard Oil Company (Ohio) Annual Report 1982 are incorporated by reference:

Item	Pages
Statement of Income	37
Balance Sheet	38, 39
Statement of Changes in Financial Position	40
Statement of Changes in Shareholders' Equity	41
Notes to Financial Statements	42-51
Supplementary Information on Oil and Gas Exploration, Development and Production Activities:	
Historical Information	52
Estimated Quantities of Proved Oil and Gas Reserves	53
Standardized Measure of Discounted Future Net Cash Flows Relating to Proved Oil and Gas Reserves	53, 54
Supplementary Information on Mineral Resource Quantities and Prices	56
Supplementary Information on Inflation and Changing Prices	57, 58
Maintenance and Repairs	61

PART III

Item 10. Directors and Executive Officers of the Registrant.

Information about nominees for election as directors in the section titled "Election of Directors" on pages 3 through 7 of Sohio's Notice of Annual Meeting of Shareholders and Proxy Statement, dated March 18, 1983, is incorporated herein by reference.

Executive Officers of the Registrant

Name	Title	Age
A. W. Whitehouse, Jr.	Chairman of the Board and Chief Executive Officer	55
T. D. Barrow	Vice Chairman	58
J. R. Miller	President and Chief Operating Officer	45
R. A. Bray	Senior Vice President — Exploration and Production	51
G. R. Brown	Senior Vice President — Technology and Planning	52
A. H. Ford	Senior Vice President — Finance and Control	54
G. F. Joklik	Senior Vice President — Metals Mining	54
C. H. King	Senior Vice President — Administration	59
W. P. Madar	Senior Vice President — Chemicals and Industrial Products	43

Name	Title	Age
F. E. Mosier	Senior Vice President — Downstream Petroleum	52
D. J. Atton	Vice President — Corporate Planning	39
R. M. Donaldson	Vice President — Government and Public Affairs	53
G. J. Dunn	Vice President and General Counsel	47
D. C. Haley	Vice President — Control	55
R. A. Meierhenry	Vice President — Finance and Treasurer	44
E. H. Nielsen	Vice President — Human Resources	54
V. J. Carbone	Controller	47
W. P. Ginn	Corporate Secretary	34

None of the above officers are related to one another.

Mr. Whitehouse has been Chairman since January 1, 1978. Mr. Barrow was elected Vice Chairman in August 1981, prior to which time he was Chairman of Kennecott Corporation from 1978-1981 and Senior Vice President and Director of Exxon Corporation from 1972-1978. Mr. Miller became President on August 1, 1980, prior to which he was Senior Vice President — Technology and Chemicals from 1979-1980; Vice President — Transportation from 1978-1979 and Vice President — Finance and Planning from 1977-1978. Mr. Bray became Senior Vice President — Exploration and Production in February 1982, prior to which time he held managerial and officer positions in oil and gas exploration during the previous five years for subsidiaries of Exxon Corporation. Dr. Brown was elected Senior Vice President — Technology and Planning in February 1982, prior to which he was Senior Vice President — Minerals, Research and Planning from 1980-1982; Senior Vice President — Coal, Minerals and Planning from 1979-1980; Vice President — Technology and Planning from 1978-1979 and Vice President — Research and Engineering from 1975-1978. Mr. Ford has been Senior Vice President — Finance and Control since February 1982, prior to which time he was Senior Vice President — Finance and Accounting from June 1981-1982 and Executive Vice President and President of the Biosciences Unit of Diamond Shamrock Corporation from 1976-1980. Mr. Joklik was elected Senior Vice President — Metals Mining in February 1982, prior to which time he was President of Kennecott Minerals Company and a Vice President of Kennecott Corporation since 1980; Senior Vice President of Kennecott Minerals Company from 1979-1980 and a Vice President of Kennecott Corporation from 1974-1979. Mr. King was elected Senior Vice President — Administration in February 1982, prior to which he was Senior Vice President — Marketing, Refining and Employee Relations from 1979-1982; Senior Vice President — Marketing and Refining from 1978-1979 and Vice President — BP Marketing from 1972-1978. Mr. Madar was elected Senior Vice President — Chemicals and Industrial Products in February 1982, prior to which time he was Vice President — Chemicals from 1980-1982; Vice President — Supply from 1978-1980 and General Manager, Supply and Distribution from 1977-1978. Mr. Mosier was named Senior Vice President — Downstream Petroleum in February 1982, prior to which he was Senior Vice President — Supply, Transportation and Engineering from 1980-1982; Senior Vice President — Supply and Transportation from 1978-1980 and Senior Vice President — Marketing and Refining from 1977-1978. Mr. Atton was elected Vice President — Corporate Planning in 1982, previously he was Manager, Supply and Transportation Policy and Planning from 1980-1982 and Manager, Corporate Planning from 1977-1980. Mr. Donaldson has been Vice President — Government and Public Affairs since 1974. Mr. Dunn has been Vice President and General Counsel since 1974. Mr. Haley was named Vice President — Control in 1982, prior to which he was Vice President — Accounting from 1979-1982 and Controller from 1976-1979. Mr. Meierhenry was named Vice President — Finance and Treasurer in February 1983, prior to which time he was Vice President and Treasurer of Internorth, Inc. since 1978. Mr. Nielsen was elected

Vice President — Human Resources in February 1982, prior to which he was Vice President of Kennecott Corporation from 1980-1982; Vice President of Organization Resources Counselors from 1979-1980 and Vice President of Hooker Chemical Corporation from 1974-1979. Mr. Carbone was elected Controller in September 1982, prior to which he was Assistant Controller from 1981-1982; Division Manager, Supply and Transportation Accounting from 1980-1981; Manager, Corporate Budgets from 1978-1980 and prior thereto was Manager, Budgets and Financial Forecasts of Downstream Petroleum. Mr. Cinn was elected Corporate Secretary in November 1982 and has been a member of the law department of Sohio since May 1980, prior to which time he was Vice President — Administration of a division of Medusa Corporation, from 1978-1979 and an attorney for Medusa Corporation from 1973-1978.

Item 11. Management Remuneration and Transactions.

Information about "Transactions with Directors, Officers, Nominees and Their Associates" on pages 14 and 15, "Management Remuneration" on page 16 and the "Retirement Plans", "Incentive Compensation Plans", "Deferred Compensation Plans", "Stock Option Plans", "Investment Plans", "Sohio Tax Reduction Act Stock Ownership Plan" and "Other Benefit Plans" on pages 17 through 24 of Sohio's Notice of Annual Meeting of Shareholders and Proxy Statement, dated March 18, 1983, is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management

(a) Security Ownership of Certain Beneficial Owners.

Information about the beneficial ownership of the Registrant's voting securities in the table on page 1 of Sohio's Notice of Annual Meeting of Shareholders and Proxy Statement, dated March 18, 1983, is incorporated herein by reference.

(b) Security Ownership of Management.

Management ownership information in the table on page 2 of Sohio's Notice of Annual Meeting of Shareholders and Proxy Statement, dated March 18, 1983, is incorporated herein by reference.

(c) Change in Control.

None

PART IV

Item 13. Exhibits, Financial Statement Schedules and Reports on Form 8-K.

(a) Financial Statements

The response to this portion of Item 13 is submitted as a separate section of this report.

(b) Reports on Form 8-K

None

(c) Exhibits

The Exhibit Index and exhibits being filed therewith are submitted as a separate section of this report.

(d) Financial Statement Schedules

The response to this portion of Item 13 is submitted as a separate section of this report.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, The Standard Oil Company has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

THE STANDARD OIL COMPANY

By A. W. WHITEHOUSE, JR.

(A. W. Whitehouse, Jr., Chairman of the Board and Chief Executive Officer)

March 31, 1983

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed by the following persons on behalf of The Standard Oil Company and in the capacities and on the dates indicated below.

Signature	Title	Date
A. W. WHITEHOUSE, JR. A. W. Whitehouse, Jr.	Chairman of the Board, Chief Executive Officer and Director (Chief Executive Officer)	
A. H. FORD A. H. Ford	Senior Vice President — Finance and Control (Principal Financial Officer)	
D. C. HALEY D. C. Haley	Vice President — Control (Principal Accounting Officer)	
R. W. ADAM R. W. Adam	Director	
T. D. BARROW T. D. Barrow	Director	March 31, 1983
R. Bexon	Director	
G. R. BROWN G. R. Brown	Director	
D. W. BUCHANAN, JR. D. W. Buchanan, Jr.	Director	
W. J. DE LANCEY W. J. De Lancey	Director	
J. J. HANGEN J. J. Hangen	Director	

Signature	Title	Date
ALASTAIR MANSON W. A. L. Manson	Director	
J. R. MILLER J. R. Miller	Director	
F. E. MOSIER F. E. Mosier	Director	March 31, 1983
R. C. MCPHERSON R. C. McPherson	Director	
W. P. Rogers	Director	
H. A. SHEPARD H. A. Shepard	Director	

ITEM 13(a)(1), (2) and (3); 13(c) and 13(d)

FINANCIAL STATEMENTS, FINANCIAL STATEMENT SCHEDULES
AND CERTAIN EXHIBITS

FORM 10-K ANNUAL REPORT

YEAR ENDED DECEMBER 31, 1982

THE STANDARD OIL COMPANY

(an Ohio corporation)

Item 13(a)(1), (2) and (3). Financial Statements, Schedules and Exhibits.

13(a)(1) Financial Statements

The following consolidated financial statements of The Standard Oil Company and subsidiaries, included in The Standard Oil Company (Ohio) Annual Report 1982, are incorporated by reference in Item 8:

Statement of Income — Years ended December 31, 1982, 1981 and 1980

Balance Sheet — December 31, 1982 and 1981

Statement of Changes in Financial Position — Years ended December 31, 1982, 1981 and 1980

Statement of Changes in Shareholders' Equity — Years ended December 31, 1982, 1981 and 1980

Notes to Financial Statements

"Maintenance and repairs" for the years ended December 31, 1982, 1981 and 1980 included in the "Other Data" section of the Operating and Other Statistics on page 61

13(a)(2) Financial Statement Schedules

The following consolidated financial information is included in Item 13(d) and is submitted herewith:

Schedule I — Marketable Securities — Other Investments

Schedule V — Property, Plant and Equipment

Schedule VI — Accumulated Depreciation, Depletion and Amortization of Property, Plant and Equipment

Schedule VIII — Valuation and Qualifying Accounts and Reserves

All other schedules are omitted for the reason that they are not applicable, not required, or the information is otherwise supplied.

13(a)(3) Exhibits

See Exhibit Index attached as a separate section of this report.

REPORT OF INDEPENDENT AUDITORS

Shareholders and Board of Directors
The Standard Oil Company

We have examined the consolidated financial statements and related schedules of The Standard Oil Company, an Ohio corporation, and subsidiaries listed in Item 13(a) (1) and (2) of the annual report on Form 10-K of The Standard Oil Company for the year ended December 31, 1982. Our examinations 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.

In our opinion, the financial statements referred to above present fairly the consolidated financial position of The Standard Oil Company and subsidiaries at December 31, 1982 and 1981, and the consolidated results of their operations and the changes in their financial position for each of the three years in the period ended December 31, 1982, in conformity with generally accepted accounting principles applied on a consistent basis. Further, it is our opinion that the schedules referred to above present fairly the information set forth therein in compliance with the applicable accounting regulation of the Securities and Exchange Commission.

ERNST & WHINNEY

Cleveland, Ohio
February 25, 1983

CONSENT OF INDEPENDENT AUDITORS

We consent to the incorporation by reference of our report on the consolidated financial statements and financial statement schedules included in the annual report on Form 10-K of The Standard Oil Company, an Ohio corporation, and subsidiaries for the year ended December 31, 1982 in the following:

Registration Statement Number 2-79678 on Form S-8 dated October 6, 1982;

Registration Statement Number 2-74071 on Form S-8 dated September 16, 1981;

Post-Effective Amendment Number 4 to Registration Statement Number 2-61417 on Form S-8 dated June 4, 1982;

Post-Effective Amendment Number 11 to Registration Statement Number 2-47852 on Form S-8 dated June 4, 1982; and

Registration Statement Number 2-78399 on Form S-3 dated July 26, 1982.

ERNST & WHINNEY

Cleveland, Ohio
March 31, 1983

THE STANDARD OIL COMPANY AND SUBSIDIARIES
SCHEDULE I — MARKETABLE SECURITIES — OTHER INVESTMENTS

December 31, 1982
(Millions of Dollars)

Name of Issuer and Title of Issue	Principal Amount of Bonds and Notes	Cost	Market
MARKETABLE SECURITIES — Current			
Securities of the U.S. Federal Government and its agencies	$ 12	$ 9	$ 11
Other securities of banks and corporations	73	72	72
	$ 85	$ 81	$ 83
MARKETABLE SECURITIES — Long-term			
Securities of the U.S. Federal Government and its agencies	$1,103	$ 994	$ 997
Securities of states, political subdivisions and other	103	98	90
	$1,206	$1,092*	$1,087

*Includes amortized discount of $16 million.

THE STANDARD OIL COMPANY AND SUBSIDIARIES

SCHEDULE V — PROPERTY, PLANT AND EQUIPMENT

Years Ended December 31, 1982, 1981 and 1980

(Millions of Dollars)

Classification	Balance at Beginning of Period	Additions At Cost	Retirements, Sales or Other	Balance At End of Period
Year Ended December 31, 1982				
Petroleum				
Exploration and production	$ 8,346	$ 1,996	$ 121	$10,221
Refining and marketing	1,161	102	25	1,238
Coal	974	168	5	1,137
Metals mining	1,664	190	64	1,790
Chemicals	431	87	7	511
Industrial products	418	71	24	465
Corporate and other	158	94	(5)	257
	$13,152	$ 2,708	$ 241	$15,619
Year Ended December 31, 1981				
Petroleum				
Exploration and production	$ 7,032	$ 1,447	$ 133	$ 8,346
Refining and marketing	1,111	113	63	1,161
Coal	310	666	2	974
Metals mining	—	1,667	3	1,664
Chemicals	295	138	2	431
Industrial products	—	440	22	418
Corporate and other	121	30	(7)	158
	$ 8,869	$ 4,501*	$ 218	$13,152
Year Ended December 31, 1980				
Petroleum				
Exploration and production	$ 6,352	$ 761	$ 81	$ 7,032
Refining and marketing	1,087	48	24	1,111
Coal	271	42	3	310
Chemicals	200	110	15	295
Corporate and other	78	46	3	121
	$ 7,988	$ 1,007	$ 126	$ 8,869

*Includes approximately $1.9 billion of properties acquired in the acquisition of Kennecott Corporation.

THE STANDARD OIL COMPANY AND SUBSIDIARIES

SCHEDULE VI — ACCUMULATED DEPRECIATION, DEPLETION AND AMORTIZATION OF PROPERTY, PLANT AND EQUIPMENT

Years Ended December 31, 1982, 1981 and 1980
(Millions of Dollars)

Classification	Balance at Beginning of Period	Additions Charged to Costs and Expenses	Retirement, Sales or Other	Balance At End of Period
Year Ended December 31, 1982				
Petroleum				
Exploration and production	$2,091	$ 687	$ 65	$2,713
Refining and marketing	596	52	16	632
Coal	149	31	4	176
Metals mining	37	42	—	79
Chemicals	139	34	7	166
Industrial products	17	34	2	49
Corporate and other	32	10	—	42
	$3,061	$ 890	$ 94	$3,857
Year Ended December 31, 1981				
Petroleum				
Exploration and production	$1,572	$ 556	$ 37	$2,091
Refining and marketing	572	44	20	596
Coal	125	25	1	149
Metals mining	—	37	—	37
Chemicals	123	18	2	139
Industrial products	—	16	(1)	17
Corporate and other	24	5	(3)	32
	$2,416	$ 701	$ 56	$3,061
Year Ended December 31, 1980				
Petroleum				
Exploration and production	$1,022	$ 566	$ 16	$1,572
Refining and marketing	538	46	12	572
Coal	106	20	1	125
Chemicals	116	18	11	123
Corporate and other	21	5	2	24
	$1,803	$ 655	$ 42	$2,416

THE STANDARD OIL COMPANY AND SUBSIDIARIES

SCHEDULE VIII — VALUATION AND QUALIFYING ACCOUNTS AND RESERVES

Years Ended December 31, 1982 and 1981

(Millions of Dollars)

Description	Balance at Beginning of Period	Acquired in Purchase Acquisitions	Charged to Costs and Expenses	Deductions — Describe (D)	Balance At End of Period
Year ended December 31, 1982					
Reserves included in Other Long-term Obligations:					
Dismantlement, restoration and reclamation costs of certain properties and facilities (A)	$151	$ 1	$ 84	$ —	$236
Fringe benefits (B)	$225	$ 16	$ 43	$ 34	$250
Other (C)	$153	$ —	$ 6	$ 26	$133
Year ended December 31, 1981					
Reserves included in Other Long-term Obligations:					
Dismantlement, restoration and reclamation costs of certain properties and facilities (A)	$ 81	$ 4	$ 66	$ —	$151
Fringe benefits (B)	$ 48	$160	$ 22	$ 5	$225
Other (C)	$ —	$155	$ —	$ 2	$153

(A) See Note A of The Standard Oil Company (Ohio) Annual Report 1982.

(B) Principally reserves for certain retirement and health-care benefits, termination indemnities and other employee compensation.

(C) Principally reserves for restructuring and disposition of certain assets.

(D) Represents deductions for which the respective reserves were provided.