

THE MINERAL INDUSTRY OF THE UNITED KINGDOM

By Harold R. Newman

Mine production of ferrous and nonferrous metals in the United Kingdom has been declining since around 1970 because of depleting reserves. Metal processing, however, remained the basis of a large and economically important mineral industry, and imports were required to satisfy metallurgical requirements.

The industrial minerals sector provided a significant base for expanding the extractive industries, thus shifting the balance away from the metallic mineral sector. Companies had a substantial interest in the production of industrial minerals, such as aggregates, ball clay, china clay (kaolin), and gypsum (table 1).

The United Kingdom, with a population of 60,270,700, has a land area, which includes Rockall and the Shetland Islands and one-sixth of Ireland, of 244,800 square kilometers (km²). In 2003, gross domestic product (GDP) in purchasing power parity was \$1.6 trillion, and per capita income, which is based on purchasing power parity, was \$26,930. The inflation rate was 2%, and the unemployment rate was 5%. The country had reserves of foreign exchange and gold of \$46 billion (International Monetary Fund, 2004¹).

The United Kingdom joined the European Union (EU) in 1973, but had not decided whether to adopt the European Monetary Union's single currency [the euro (€)]. The Government was in the process of assessing the national economy to determine whether there was sustainable convergence and sufficient flexibility with the economies of the euro zone countries to make joining feasible (International Energy Agency, 2003[§]).

Government Policies and Programs

In 2003, the 1971 Act, as amended, continued as the statute that governed the development and working of mineral deposits. Minerals are defined in section 209 of the 1971 Act to include all minerals and materials in or under land of a kind ordinarily worked for removal by underground or surface workings; it does not, however, include peat cut for purposes other than for sale. Mineral development is specifically addressed in the Town and Country Planning (Minerals) Regulations, 1971 and the Town and Country Planning (Minerals) Act, 1981. Mineral rights to mineral fuels, such as coal, petroleum, and uranium, belong to the State. The Coal Authority is authorized to license open pit and underground mines to the private sector subject to restrictions on their size and the payment of a royalty on the amount of coal produced.

Most other mineral rights in Great Britain are privately owned. The exceptions are gold and silver, the rights to which are vested in the Royal Family and are referred to as "Crown Rights." A different situation regarding mineral rights applies to Northern Ireland where, under the Mineral Development Act

(Northern Ireland), 1969, the rights to work minerals and to license others to do so are vested in the state.

Environmental Issues

Environmental conditions in the United Kingdom continued to improve. Although some pollutants, such as nitrogen oxides, have not decreased substantially, sulfur dioxide emissions have decreased. Much of the environmental legislation derives from the EU. The EU's 6th Environmental Action Programme 2002 set the framework for EU policy on the environment for the next 10 years. Under the negotiated Kyoto Protocol (signed on April 29, 1998, but not ratified), the United Kingdom agreed to reduce greenhouse gases by 8% below 1990 levels by the 2008-12 commitment period (U.S. Energy Information Administration, 2004[§]).

Production

The Department of Trade and Industry (DTI) ensured a continuing supply of minerals for the country's industry and oversaw mineral activities. Its areas of responsibility were all nonfuel minerals, which included all metallic ores and such industrial minerals as barite, china clay (kaolin), fluorspar, high-grade limestone, potash, salt, and silica sand. The industrial minerals sector also included aggregates, brick and brick clay, cement and its raw materials, dimension stone, gypsum for plaster, and sand and gravel used in the construction industry. The production of mineral commodities is listed in table 1. The indices of production, using the latest available data, are listed in table 3.

The DTI was also responsible for mineral fuels, which included coal, natural gas, and petroleum, and for issuing licenses for the exploration, appraisal, and production of natural gas and petroleum. Primary energy production accounted for 10% of the GDP.

State and privately owned corporations produced minerals and mineral-based products. State ownership was significantly reduced in the mineral industry; state ownership was mostly in the nuclear industry (table 2).

Trade

The United Kingdom was the world's fourth largest economy after the United States, Japan, and Germany and was a trading nation with a generally free and open market. The country had surplus trade balances in chemicals, metal articles, and mineral products. In 2003, total exports were \$305 billion, and total imports were \$364 billion. Principal export destinations were the United States, 15.7%; Germany, 10.5%; France, 9.5%; the Netherlands, 6.9%; and Ireland, 6.5%. Principal import sources were Germany, 13.5%; United States, 10.2%; France, 8.1%; the Netherlands, 6.3%; and Belgium, 4.9% (U.S. Central Intelligence Agency, 2004[§]). Table 4 lists the U.S. export-import trade with the United Kingdom.

¹References that include a section mark (§) are found in the Internet References Cited section.

Commodity Review

Metals

Aluminum.—Of the four primary aluminum smelters in the United Kingdom, three were owned and operated by British Alcan Aluminium Ltd., and the fourth smelter was operated by Anglesey Aluminium Ltd. All the aluminum smelters depended on imported alumina for feedstock.

The French-based aluminum producer Pechiny Group bought the two main aluminum-processing businesses of steel producer Corus Group plc of the United Kingdom for \$841 million. The assets acquired included plants in Belgium and Germany. Corus continued to own primary smelters in Germany and Holland (Aluminum Association Inc., 2003§).

Secondary aluminum refining in the United Kingdom was not typical of the rest of Western Europe in that the country had fewer very large companies and a greater number of smaller ones.

Hydro Aluminium plc announced that it would cut production by 2,000 metric tons (t) to 5,000 t at its plant in Deeside. Hydro acquired the plant from Aluminum Holding UK in 2000 and had plans to raise production capacity to 43,000 metric tons per year (t/yr) from the existing 38,000 t/yr. The plant was producing about 34,000 t/yr before the production cutback. A weak market for billet may have been a factor in the decision (Metal Bulletin, 2003a).

Gold.—The Bank of England (BoE) conducted its final auction of 20,000 kilograms (kg) of gold on behalf of the Royal Treasury in 2002. The BoE reported that this concluded its 3-year program of auctioning gold; about 312,000 kg of gold reserves remained in the Treasury in 2003 (Oesterreichische Nationalbank, 2003§).

Conroy Diamonds and Gold plc reported two new discoveries in the Armagh-Monaghan Gold Belt, which is located in Tivnacree in County Armagh, Northern Ireland. This was in addition to the previous discoveries at Tullybuck-Lisglassen, County Monaghan, and Cargalisgorran and Tivnacree, County Armagh, 1.2 kilometers (km) southwest of the company's Cargalisgorran deposit. Tullybuck-Lisglassen is located 5 km southwest of Tivnacree. The Armagh-Monaghan Gold Belt is located within the Longford-Down Massif, which is a major geological feature stretching from County Longford in the Republic of Ireland to County Down in Northern Ireland. The company believed the deposits identified are spatially related to a major regional feature, the Orlock Bridge Fault (Conroy Diamonds and Gold plc, 2003§).

Tournigan Ventures Corp. signed an option agreement with Strongbow Resources Inc. to acquire 75% in the Curraghinalt and the Tyrone gold projects in County Tyrone, Northern Ireland. The Tyrone license covered an area of 346 km² located northwest of the town of Omagh. The Curraghinalt project consists of several mesothermal gold quartz veins that have been evaluated by 2,800 meters (m) of trenching, 18,000 m of drilling, and 700 m of underground workings. Estimated inferred resources were 7,700 kg of gold in 468,000 t of ore at a grade of almost 17 grams per metric ton gold. Tournigan applied for four new exploration licenses, which totaled almost 810 km² to the north and west of the Strongbow licenses, and a license near Ballycastle for 240 km² (Tournigan Gold Corp., 2003§).

Iron and Steel.—Corus was created in 1999 by the merger of British Steel plc. of the United Kingdom and Koninklijke Hoogovens NV of the Netherlands and was the fifth largest steel producer in the world in 2003. Corus announced a restructuring program in its Engineering Steels business with a major investment of £90 million (\$112 million) to provide manufacturing and product improvements in the major parts of the process. The main focus would be steelmaking, casting, rolling and bar processing, primary product finishing and specialized processing of aerospace and other remelted steels (Corus Group plc, 2003b§).

In an agreement with Arcelor S.A. and Sollac Méditerranée (a subsidiary of Arcelor) Corus was to purchase Sollac's 50% share in Lusosider Projectos Siderúgicos S.A., which was a Portuguese 50/50 joint venture between Corus and Arcelor, for about €10.8 million (\$13.4 million) in cash. In an agreement with Banco Espírito Santo de Investment S.A., Corus was to sell to them this 50% share in Lusosider for the same consideration. Following the merger of Usinor S.A., Arbed S.A., and Aceralia S.A. in 2002 to form Arcelor, the European Commission required Arcelor to divest itself of a number of assets, which included its stake in Lusosider (Corus Group plc, 2003a§).

Lead and Zinc.—Britannia Refined Metals Ltd. (an Xstrata plc subsidiary) planned to close the lead recycling facility at Northfleet at yearend 2003. The Northfleet No. 2 refinery was supplied with crude lead from Britannia Zinc Ltd.'s Avonmouth zinc smelter, which had been closed earlier in 2003. The closure was also being carried out to try to improve the productivity and competitiveness of the Northfleet operation. The remaining refinery will continue to process bullion from MIM Holdings Ltd.'s Mount Isa Mine in Australia and MIM's Duisburg smelter in Germany (Metal Bulletin, 2003b).

Industrial Minerals

Cement.—F.L. Smidth A/S signed a contract for a new 2,650-metric-ton-per-day production line for Castle Cement Ltd.'s Padeswood plant. The value of the contract was about \$28.9 million. The contract included two grinding mills, a coal mill, a raw meal silo, a cyclone preheater tower, a clinker cooler, and a conveyor system plus a kiln. F.L. Smidth Airtech (Smidth's subsidiary) was to supply air pollution equipment for the new production line (F.L. Smidth A/S, 2003§).

Clays.—The United Kingdom was a leading world producer and exporter of ball clay and china clay (kaolin). WBB Minerals was the country's largest producer of ball clay (Hoover's Co., 2004§). The Imerys Group was the largest producer of china clay in the United Kingdom and a major producer worldwide (Imerys Group, 2004§). Operations were mainly in the southwestern area of the United Kingdom.

Diamond.—The United Kingdom, which was a major diamond trading country, continued to be actively involved in the Kimberly Process to end illegal trade in conflict diamond and to support the legitimate industry. The United Kingdom's trade in diamond, which used latest available data, is listed in tables 5 and 6.

Gypsum.—British Gypsum Ltd. (a subsidiary of BPB Industries plc.) was the major producer of gypsum in the United Kingdom. The company had mines in Cumbria, Leicestershire,

Nottinghamshire, Staffordshire, and Sussex that produced about 1.5 million metric tons per year (Mt/yr) of gypsum. With few exceptions, this material went to supply the domestic market (British Gypsum Ltd., 2004§).

Potash.—Cleveland Potash Ltd. (CPL), which was the only potash producer in the United Kingdom, operated the Boulby Mine in Yorkshire. CPL also mined rock salt as a coproduct from an underlying seam in the Boulby Mine. The seam of potash extends out under the North Sea and occurs at depths of between 1,200 and 1,500 m in a seam that totaled up to 20 m but averaged 7 m in thickness.

Stone, Crushed.—The Aggregates Levy changed the pattern of aggregates trade between Northern Ireland and the Republic of Ireland. Previously, the industries of both areas were not in competition. The advent of the \$3.35-per-metric-ton aggregates levy, however, changed the trade balance in favor of the Republic of Ireland. Northern Ireland was importing large amounts of aggregates from the Republic of Ireland at the expense of production in Northern Ireland (British Geological Survey, 2003a§).

Another consequence of the Aggregates Levy was increased interest in slate waste. The Aggregates Levy was not applied to the byproducts, tailings, or waste materials of any quarrying operation. This made millions of metric tons of slate waste a competitive construction material for the first time. This had implications for old quarries with significant quantities of slate waste, such as those at Penryn in Wales (British Geological Survey, 2003b§).

Mineral Fuels

Coal.—Most of the coal mining industry was owned by UK Coal plc (formerly RJB Mining plc), which was the largest coal mining company in the United Kingdom and the largest independent coal producer in the EU. UK Coal had 20 deep and surface mine sites that produced about 18 Mt/yr. Coal provided about 39% of the country's raw energy needs. This equated to 54 Mt/yr of coal, which made coal the largest fuel source used for power generation. Coal production has been declining steadily for the past 10 years (U.S. Energy Information Administration, 2004§).

The European Commission (EC) gave approval to the Government to give \$14 million in state aid to 10 coal mines that posted operating losses. The money was intended to improve their economic viability by reducing production costs (Mining Journal, 2003a).

In addition, the Government announced that it would provide £60 million (\$110 million) in aid to the coal industry. The funds were to be spent during 3 years and would target the improvement of the efficiency of the industry and encourage the exploitation of resources, thus safeguarding the dwindling jobs that coal mining provides. The aid package was allowable under EC subsidy rules as investment aid to coal producers. The Government would provide £2.7 million (\$4.9 million) in operating aid to six small coal producers; operating aid is designed to help viable mines overcome short-term market problems as opposed to investment aid, which must go into capital projects. Since 2000, aid under the UK Coal Operating

Aid Scheme has totaled £165 million (\$301 million). UK Coal reported a net operating loss for 2002 of £18.7 million (\$33.4 million). This was attributed to a combination of problems in the country's electricity generating industry, which was UK Coal's main customer; low international coal prices; closure costs; and unexpected adverse geological conditions (Mining Journal, 2003b).

Natural Gas and Petroleum.—The North Sea holds Europe's largest natural gas and petroleum reserves and was one of the world's key producing regions not in the Organization of the Petroleum Exporting Countries. As of January 2004, the United Kingdom's estimated proven crude oil reserves were 4.7 billion barrels, which was the largest within the EU, and located mostly offshore on the United Kingdom Continent Shelf (UKCS). Most of the country's production comes from basins east of Scotland in the central North Sea. The northern North Sea east of the Shetland Islands also contains considerable reserves, and smaller deposits are located in the North Atlantic Ocean west of the Shetland Islands (U.S. Energy Information Administration, 2004§).

Total (formerly TotalFinaElf) made a significant gas and condensate discovery in block 29/5b in the Central Graben Area about 240 km east of Aberdeen, Scotland. The discovery, which was made at 5,750 m, was one of the deepest ever achieved on the UKCS. On test, the well flowed at a rate of about 1 million cubic meters of gas per day with 2,000 barrels per day of condensate and will be put into production from the adjacent Franklin facilities (Total, 2003§).

The petroleum exploration group Pentex Oil UK Ltd. successfully tested the Avington-2 exploration well located in Hampshire. The well had proven hydrocarbons through a production drill string test in a structure with mapped volumes in excess of 100 million barrels. The discovery, which was considered to be the most significant onshore discovery in the past 20 years, was expected to provide a stimulus to the onshore natural gas and petroleum business (Rigzone.com, 2003§).

Renewable Energy Products.—The United Kingdom's wind power industry reached a milestone with the commissioning of the country's 1,000th wind turbine at the Moel Maelogen wind farm in North Wales. The British Wind Energy Association (BWEA) expected that within 2 years, the country will have doubled this total. Total wind generation capacity following the North Wales development comprised 1,003 turbines that produced 556 megawatts (MW) of power. This was enough to meet the annual electricity needs of about 400,000 residences, according to the BWEA (Alexander's Gas & Oil Connections, 2003c§).

The Government underlined its backing for offshore developments with the announcement of £42 million (\$77 million) in capital grants for projects around the British Isles—£18 million (\$32 million) to Offshore Energy Resources and Solway Offshore for the Robin Rigg project, Solway Firth; £10 million (\$18 million) to GREP UK Marine for the Kentish Flats project, North Kent; £10 million (\$18 million) to Warwick Offshore Wind for the Barrow Offshore project, Cumbria; and £4 million (\$7 million) to National Wind Power for the Rhyl Flats project, North Wales. Together the projects would create more than 500 wind turbines and would generate 1,500 MW of electricity (Alexander's Gas & Oil Connections, 2003b§).

The Seaflow Project to generate electricity from tidal energy began production in the Bristol Channel. The £3 million (\$5 million) project aimed to use the large tidal flows in the channel and was capable of producing 300 kilowatts of electricity. A single 11-m-diameter rotor blade turning at from 15 to 20 revolutions per minute at a depth of 20 m was used to test the technology; a second rotor was to be added by yearend 2004. Seaflow was financed by the Department of Trade and Industry and the EC as a part of their renewable energy programs (Alexander's Gas & Oil Connections, 2003a§).

Outlook

The United Kingdom will continue to be a significant player in the world mining and mineral-processing industries, in particular the industrial minerals sector. This is more the result of an extensive range of companies in the country that have various interests in the international minerals industry rather than the domestic minerals industry.

Exploration for natural gas and petroleum is expected to continue onshore and offshore. Onshore exploration activities will be directed mainly toward gold. Interest in offshore natural gas and petroleum exploration will continue to be focused on North Sea areas, particularly in the areas west of the Shetland Islands, the central North Sea, and the Southern Gas Basin of the North Sea.

The DTI is expected to continue to be involved in efforts to raise the level of environmental management and to maximize the best use of natural resources, which will include use of recycled materials and renewable energy sources.

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Major Sources of Information

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Keyworth, Nottingham NG1 25GG
United Kingdom
Central Statistics Office
Great George St.
London SW1 P3AQ
United Kingdom
Department of Economic Development (Northern Ireland)
Belfast BT1 3AJ
Northern Ireland
Department of the Environment
Minerals Division
Marsham St.
London SW1 P3EB
United Kingdom
Department of Trade and Industry
123 Victoria St.
London SW1E 6RB
United Kingdom
Geological Survey of Northern Ireland
20 College Gardens
Belfast BT9 6BS
Northern Ireland

TABLE 1
UNITED KINGDOM: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	1999	2000	2001	2002	2003 ^c
METALS					
Aluminum:					
Alumina from imported bauxite ^c	90,000	88,500	83,900 ²	73,800 ²	--
Metal:					
Primary	272,211	305,100	340,778	344,318	342,748 ²
Secondary	274,800	285,300	248,600	204,900	205,400 ²
Total	547,011	590,400	589,378	549,218	548,148 ²
Cadmium, metal including secondary	547	503	425	292	22 ²
Copper, metal, refined, secondary	50,334	3,000	--	--	--
Iron and steel:					
Iron ore and concentrate, manganeseiferous:					
Gross weight	1,000 ^c	1,033	510	464	500
Fe content (54% Fe)	568 ^c	540	281	255	275
Metal:					
Pig iron	12,399	10,989	9,861	8,579	10,200
Steel:					
Crude	16,634	15,306	13,610	11,718	12,949 ²
Hot-rolled	14,334	13,173	11,369	13,771 ^r	13,500
Lead:					
Mine output, Pb content ^c	1,000	1,000	800	700	700
Metal:					
Smelter:					
Bullion from imported concentrate	40,177	36,700	36,000	36,000	9,000
Secondary ^{e,3}	100,000	100,000	100,000	100,000	100,000
Total	140,177	136,700	136,000	136,000	109,000
Refined:					
Primary ⁴	185,422	166,411	202,915	207,719	181,668 ²
Secondary ³	162,651	170,740	163,390	166,927	169,574 ²
Total	348,073	337,151	366,305	374,646	351,242 ²
Nickel, metal, refined ⁵	39,467	37,976	33,817	33,790 ^r	26,788 ²
Zinc, metal, smelter	132,800	99,600	100,000	99,600	16,600 ²
INDUSTRIAL MINERALS					
Barite ^{e,6}	59,000	55,000	66,000 ^c	59,000	57,000
Bromine ^c	55,000	50,000	50,000	24,500 ^r	25,000
Cement, hydraulic	13,027	12,702	11,854	11,089 ^r	11,215 ²
Clays:^c					
Fire clay	575	595	600	491 ^r	450
Fuller's earth ⁷	75	66	52	44 ²	34
Kaolin, china clay ⁸	2,304 ²	2,420 ²	2,204 ²	2,163 ²	2,097 ²
Ball clay and pottery clay ⁷	985	1,000	998	921 ²	885 ²
Other, including shale	12,500	12,000	10,100	10,306 ^{r,2}	10,400
Feldspar, china stone	3,000 ^c	2,000 ^c	2,995	1,896 ^r	2,000
Fluorspar, all grades ^{e,9}	40,000	36,000	50,000	53,000	56,000
Gypsum and anhydrite ^c	1,800	1,500	1,600	1,700	1,700
Lime, hydrated and quicklime ^c	2,500	2,500	2,500	2,500	2,000
Nitrogen, N content of ammonia	901	814	850	837	1,044 ²
Potash, K ₂ O equivalent	494,700	600,000	531,900	540,100	621,400 ²
Salt:^c					
Rock	1,500	1,700	1,900	1,500 ^r	1,500
From brine	1,300	1,200	1,200	1,000 ^r	1,000
In brine, sold or used as such	3,000	3,000	3,000	3,200 ^r	3,200
Sand and gravel:					
Common sand and gravel	100,953	101,621	101,397	94,424 ^r	91,000
Industrial sand	4,092	4,095	4,100 ^c	3,833 ^r	4,000
Sodium compounds, n.e.s., carbonate ^c	1,000	1,000	1,000	1,000	1,000

See footnotes at end of table.

TABLE 1--Continued
 UNITED KINGDOM: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	1999	2000	2001	2002	2003 ^c
INDUSTRIAL MINERALS--Continued					
Stone:					
Crushed:					
Calcite ^e thousand tons	10	12	12	10	10
Chalk ^e do.	10,000	10,000	10,000	8,587 ^r	8,500
Dolomite do.	13,698	14,000 ^e	14,000 ^e	12,937 ^r	12,950 ²
Igneous rock do.	53,155	54,113	53,190	51,008 ^r	50,400
Limestone do.	86,933	86,000 ^e	86,000 ^e	80,497 ^r	82,000
Sandstone do.	15,485	15,000 ^e	19,967	18,362 ^r	18,100
Slate including fill do.	425	350 ^e	467	622 ^r	900
Total do.	179,706	179,475 ^r	183,636 ^r	172,023 ^r	173,000
Dimension:^e					
Igneous do.	140	125	497 ²	500	500
Limestone do.	295	300	250	217 ^{r,2}	225
Sandstone do.	290	300	250	250	250
Slate do.	70	70	84 ²	120 ^r	100
Total do.	795	795	1,080	1,090 ^r	1,080
Sulfur, byproduct:^e					
Of metallurgy	61,000 ²	51,400 ²	69,000 ^{r,2}	33,000 ^{r,2}	13,000
Of petroleum refining	136,000	140,000	111,000	125,000	115,000
Total	197,000	191,000	180,000 ^r	158,000 ^r	128,000
Talc, soapstone, pyrophyllite	5,000 ^e	5,000 ^e	4,937	6,194 ^r	6,000
Titania ^{e,10}	200	200	200	200	200
MINERAL FUELS AND RELATED MATERIALS					
Coal:					
Anthracite thousand tons	1,000 ^e	797	616	2,000 ^{r,e}	1,500
Bituminous including slurries, fines, etc. do.	36,450	31,175	31,512	28,000	26,700
Total do.	37,500 ^e	31,972	32,128	30,000 ^{r,e}	28,200
Coke:					
Metallurgical	5,837	6,058	5,306	4,335 ^r	4,286 ²
Breeze, all types	330	370	210	221	314 ²
Fuel briquets, all grades	635	537	550	431	393 ²
Gas, natural:					
Marketable ¹¹ million cubic meters	104,900	95,854	96,000 ^e	109,050 ^r	100,000
Marketed ^{e,12} do.	70,000	70,000	70,000	70,000	70,000
Natural gas liquids ¹³ thousand 42-gallon barrels	61,859	62,000 ^e	62,000 ^e	62,000	60,000
Peat ^e cubic meters	1,000	1,000	1,000	973 ^{r,2}	900
Petroleum:					
Crude ¹⁴ thousand 42-gallon barrels	961,965	884,115	821,220	810,158 ^r	815,000
Refinery products:^e					
Liquefied petroleum gas do.	24,406 ²	25,000	25,000	24,963 ^{r,2}	25,000
Naphtha including white spirit do.	21,675 ²	22,000	22,000	27,480 ^{r,2}	28,000
Gasoline do.	232,832 ²	230,000	230,000	198,458 ^{r,2}	200,000
Jet fuel and kerosene do.	86,746 ²	80,000 ^r	80,000 ^r	71,952 ^{r,2}	72,000
Distillate fuel oil do.	195,280 ²	195,000	195,000	210,536 ^{r,2}	200,000
Residual fuel oil do.	68,591 ²	68,000	68,000	57,768 ^{r,2}	58,000
Lubricants do.	6,440 ²	6,500	6,500	6,500	6,500
Bitumen do.	10,102 ²	10,000	10,000	10,000	10,000
Petroleum coke do.	5,000	5,000	5,000	5,000	5,000
Petroleum wax do.	472 ²	400	400	400	400
Unspecified do.	30,000	30,000	30,000	30,000	30,000
Refinery fuel and losses do.	25,000	25,000	25,000	25,000	25,000
Total do.	707,000	697,000 ^r	697,000 ^r	668,000 ^r	660,000

^cEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. -- Zero.

¹Table includes data available through September 2004.

²Reported figure.

³Includes a small quantity of primary lead from domestic concentrate.

TABLE 1--Continued
UNITED KINGDOM: PRODUCTION OF MINERAL COMMODITIES¹

⁴Produced entirely from imported bullion and includes the lead content of alloys.

⁵Refined nickel and nickel content of ferronickel.

⁶Includes witherite.

⁷Salable product.

⁸Sales, dry weight.

⁹Proportions of grades not available; probably about two-thirds acid grade.

¹⁰Sales.

¹¹Methane, excluding gas flared or reinjected.

¹²Marketable methane, excluding that used for drilling, production, and pumping operations.

¹³Includes ethane, propane, butane, and condensates, respectively.

¹⁴Excludes gases and condensates.

TABLE 2
UNITED KINGDOM: STRUCTURE OF THE MINERAL INDUSTRY IN 2003

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Alumina	Alcan Inc.	Burntisland, Scotland (closed)	100,000
Aluminum:			
Primary	British Alcan Aluminium Ltd.	Fort William, Kinlochleven, and Lynemouth	175
Do.	Anglesy Aluminium Ltd. (Rio Tinto Corp., 51%, and Kaiser Aluminum and Chemical Corp., 49%)	Holyhead, Wales	113
Secondary	Bernhard Metals plc	Derby	50
Do.	Deeside Aluminium Ltd.	Clwyd, Wales	45
Do.	Hydro Aluminium plc	Deeside	38
Barite	Laporte Industries plc	Mines in Derbyshire	25
Celestite	Bristol Minerals Co. Ltd.	Yate, Avon	30
Cement	Aberthaw and Bristol Channel Portland Cement Co. Ltd.	East Aberthaw and Rhooose, Glamorgan, Scotland	1,000
Do.	Blue Circle Industries plc	Plants at Aberthaw, Cauldon, Dunbar, Hope, Masons, Northfleet, Plymstock, and Weardale	7,300
Do.	Castle Cement Ltd. (Heidelberg Cement AG, 100%)	Plants at Ketton, Ribblesdale, Padeswood, and Pitstone	3,400
Do.	Rugby Group	Plants at Barrington, Chinnor, Rochester, Rugby, and South Ferriby	2,700
Clay:			
Ball clay	WBB Minerals (Silbelco Group)	Various operations in northern and southern Devon	500
China clay (kaolin)	Imerys Group	Mines and plants in Cornwall and Devon	3,000
Coal	million metric tons	UK Coal plc	19 mines in various locations
			30 ¹
Copper	IMI Refiners Ltd.	Refinery at Walsall, west Midlands	80
Ferroalloys	Corus Group	Teesside, Cleveland	80
Do.	Murex Ltd.	Rainham, Essex	25
Do.	London and Scandinavian Metallurgical Co. Ltd.	Rotherham, South Yorkshire	30
Do.	Eastlink Ferroalloys Ltd.	Glossop	1
Fluorspar	Durham Industrial Minerals Ltd.	Mines in Weardale	50
Do.	Laporte Industries plc	Mill at Stoney Middleton, mines in Derbyshire	70
Gypsum	British Gypsum Ltd.	Mines in Cumbria, Nottinghamshire, and Sussex	3,500
Lead:			
Refined	Britania Refined Metals Ltd.	Northfleet, Kent	165
Secondary	H.J. Enthoven and Son Ltd. [Billiton (U.K.) Ltd., 100%]	Darley Dale, Derbyshire	60
Smelter	MIM Holdings (U.K.) Ltd.	Avonmouth, Avon	55

See footnotes at end of table.

TABLE 2--Continued
 UNITED KINGDOM: STRUCTURE OF THE MINERAL INDUSTRY IN 2003

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Natural gas		Amoco Ltd., British Petroleum Ltd. Esso (U.K.) Ltd., Phillips Petroleum Co. plc, Shell (U.K.) Ltd.	North Sea gasfields	1,250 ²
Nickel, refined		INCO Europe Ltd. (INCO Ltd., Canada)	Clydach, Wales	30
Nitrogen, N content of ammonia		Terra Nitrogen Ltd.	Billingham	550
Petroleum:				
Crude	million 42-gallon barrels per day	Amoco Ltd., British Petroleum Ltd., Chevron Ltd., Esso (U.K.) Ltd., Occidental Petroleum Co. Ltd., Shell (U.K.) Ltd., Texaco Ltd., Unocal, Inc.	North Sea oilfields	2 ³
Refined	do.	British Petroleum Ltd., Conoco Ltd., Mobil Oil Co. Ltd., and others	11 refineries in various locations	2 ³
Platinum-group metals		Johnson Matthey plc	Refineries at Enfield (London) and Royston	20
Potash		Cleveland Potash Ltd. (Israel Chemicals Ltd., 100%)	Boulby Mine, Yorkshire	1,000
Salt:				
Road		do.	do.	500
Rock		British Salt Ltd.	Middlewich	800
Do.		Irish Salt Mining and Exploration Co.	Mine at Carrick Fergus, Northern Ireland	300
Sand and gravel		TMC Pioneer Aggregates Ltd.	Chelmsford, Essex	1,000
Silica sand		Hepworth Minerals and Chemicals Ltd.	Operations in Cambridgeshire, Cheshire, Humberside, and Norfolk	6,000
Slate, natural		Alfred McAlpine Slate Ltd.	Penrhyn quarry, Bethesda, Wales	25
Steel		Corus Group plc	4 integrated steelworks in Gwent, Lanark, Humberside, and Cleveland	18,000
Do.		ASW Holdings plc	Integrated steelworks at Cardiff, Wales	600
Stone, crushed		ARC Ltd. (Hanson plc, 100%)	50 quarries in various locations	50,000
Do.		do.	Glensanda quarry at Oban, Scotland	15,000
Talc		Alex Sandison and Son Ltd.	Unst, Shetland Islands	15
Do.		Shetland Talc Ltd. (Anglo European Minerals Ltd., 50%, and Dalriada Mineral Ventures Ltd., 50%)	Cunningsburg, Shetland Islands	35
Tin, ore		Baseresult Ltd.	South Crofty Mine, Cornwall (closed March 1998)	1,800
Titanium, sponge		Deeside Titanium Ltd.	Plant at Deeside, Clyde	5
Zinc, smelter		Britannia Zinc Ltd. (Xstrata plc, 100%)	Avonmouth, Avon (closed)	120

¹Million metric tons.

²Billion cubic feet per year.

³Million 42-gallon barrels per day.

TABLE 3
UNITED KINGDOM: SELECTED INDICES OF PRODUCTION

(1995 = 100)

Sector	1998	1999	2000	2001	2002	2003
General	103.3	104.1	105.9	103.6	100.0	102.5
Mining	104.2	108.1	106.8	101.5	99.6	93.7
Manufacturing	102.8	103.1	105.2	102.6	98.6	102.3
Electricity and gas	107.5	109.4	111.4	113.8	113.0	118.8

Source: United Nations, 2004, Monthly Bulletin of Statistics, v. LVII, no. 984, June, p. 16.

TABLE 4
UNITED STATES TRADE WITH THE UNITED KINGDOM

(Million dollars)

Month	2001		2002		2003	
	Exports	Imports	Exports	Imports	Exports	Imports
January	3,374	3,857	2,764	3,046	2,670	3,003
February	3,486	3,547	2,771	2,860	2,781	3,493
March	3,700	3,634	2,985	3,253	3,300	3,729
April	3,719	3,685	2,957	3,702	2,729	3,515
May	4,036	3,567	2,702	3,588	2,939	3,559
June	3,824	3,327	2,966	3,327	2,949	3,525
July	3,087	3,550	2,456	3,767	2,655	3,711
August	3,252	3,172	2,914	3,372	2,818	3,171
September	3,157	2,747	2,643	3,257	2,577	3,647
October	3,190	3,919	2,904	3,723	2,821	4,136
November	2,935	3,476	2,619	3,507	2,806	3,430
December	2,952	2,889	2,524	3,344	2,782	3,876
Total	40,712	41,370	33,205	40,746	33,827	42,795

Source: U.S. Census Bureau, Foreign Trade Division, April 2004.

TABLE 5
UNITED KINGDOM: EXPORTS OF DIAMOND¹

Grade	1999		2000		2001		2002	
	Quantity (thousand carats)	Value (thousand dollars)						
Unsorted	2,784	242,843	8,616	626,155	4,031	447,882	NA	430,678
Gem:								
Rough	63,338	4,517,638	61,757	5,576,720	89,543	5,894,276	86,681	5,877,830
Cut	1,706	619,601	795	563,486	900	644,169	395	748
Industrial	29,979	36,309	27,031	43,803	11,861	29,904	7,837	27,002
Dust	49,035	17,989	NA	22,533	88,613	21,457	NA	18,882
Total	146,842	5,434,380	98,199	6,823,697	194,948	6,590,253	94,913	5,924,462

NA Not available.

¹Where necessary, values have been converted from United Kingdom pounds (£) to U.S. dollars (\$) at the rate of £1.00=US\$1.57.

Source: British Geological Survey, United Kingdom Minerals Yearbook 2003, March 2004, p. 47.

TABLE 6
UNITED KINGDOM: IMPORTS OF DIAMOND¹

Grade	1999		2000		2001		2002	
	Quantity (thousand carats)	Value (thousand dollars)						
Unsorted	4,677	239,180	5,561	340,249	587	49,708	1,795	126,264
Gem:								
Rough	151,651	5,738,628	79,692	6,531,685	81,303	6,612,276	70,336	4,858,323
Cut	4,810	989,282	6,423	1,086,032	4,396	975,125	5,132	1,246,848
Industrial	8,406	17,994	16,209	28,029	7,345	19,364	7,802	18,360
Dust	64,954	20,007	98,133	23,804	74,756	22,398	68,359	17,116
Total	234,498	7,035,091	206,018	8,009,799	168,387	7,678,871	153,424	6,266,911

¹Where necessary, values have been converted from United Kingdom pounds (£) to U.S. dollars (\$) at the rate of £1.00=US\$1.57.

Source: British Geological Survey, United Kingdom Minerals Yearbook 2003, March 2004, p. 47.