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 for more than 20 years as reserves were depleted. Metal processing, however, has remained the basis of a large and economically important mineral industry, and imports were required to satisfy metallurgical requirements.

Operations in the steel sector showed moderate decreases as the demand for steel decreased. The industrial minerals sector has provided a significant base for expanding the extractive industries, and the balance has shifted away from the metallic mineral sector. Companies have a substantial interest in the production of industrial minerals, such as aggregates, ball clay, china clay (kaolin), and gypsum (table 1).

The British economy is largely shaped by market forces with independent regulatory bodies providing additional direction. Government initiatives include continued privatization, deregulation, and support for competition.

Government Policies and Programs

The current statute regarding the development and working of mineral deposits is called the 1971 Act. This act consolidated all earlier planning legislation and has been amended by various statutes. Minerals were 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 did not, however, include peat cut for purposes other than for sale. Mineral development was 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 was 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 right to work minerals and the right to license others to do so are vested in the State.

The United Kingdom is a member of the European Union (EU) but has not committed to adopting the single European currency (Euro). The Government has stated that a decision on whether to do so would be made on the basis of strict economic self-interest and only if approved by the electorate in a public referendum. This was not expected before 2003 at the earliest (U.S. Embassy, London, United Kingdom, 2001).

Environmental Issues

Environmental conditions in the United Kingdom have improved in recent years. Although some pollutants, such as nitrogen oxides, have not decreased substantially, sulfur dioxide emissions have. Reductions of carbon emissions, as well as reduction in other pollutants, such as sulfur dioxide, have resulted primarily from deregulation and privatization of the electricity industry. Privatization led to a reduction in coal subsidies, thus narrowing the price difference between coal and natural gas. As consumers switch to natural gas, the benefits of burning this cleaner fuel were being realized (U.S. Energy Information Agency, 2001b§[1]).

Production

The Department of Trade and Industry (DTI) ensures a continuing supply of minerals for the country's industry and oversees mineral activities. Its areas of responsibility were all nonfuel minerals, which include 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, in particular, was important to the Nation's economy.

Through its Metals and Minerals Branch, the DTI is responsible for mineral fuels, which include coal, natural gas, and petroleum, and for issuing licenses for the exploration, appraisal, and production of natural gas and petroleum.

The Department of Energy was responsible for the minerals that were used in the construction industry. These included aggregates, brick and brick clay, cement and its raw materials, dimension stone, gypsum for plaster, and sand and gravel. State and privately owned corporations produced minerals and mineral-based products. State ownership was mostly in the nuclear power industry (table 2).

Trade

The United Kingdom is the world's fourth largest economy and is a trading nation with a generally free and open market. The United Kingdom had surplus trade balances in chemicals, mineral products, and metal articles. Also, there was a surplus on investment income, which has increased substantially in the past 5 years. The country has run a surplus on trade in services and made up 23% of total exports. Based on 2000 data (the latest date for which data were available), total exports were $271 billion, and total imports were $321 billion (International Trade Administration, 2001§).

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

Commodity Review

London-based Billiton plc and BHP Ltd. of Australia, which had a market capitalization of about $30 billion, created one of the largest resource companies in the world. This merger combined two of the world's biggest producers of aluminum, coal, chromium, copper, iron ore, manganese, nickel, and petroleum. Both companies had world class positions in commodity businesses in which the other had no existing exposure. This merger will result in each company gaining exposure to those commodities without the risks normally associated with the exploration and development of new projects and businesses. The European Commission (EC) and the Foreign Investment Review Board of Australian approved the merger in mid-2001. The merged company will be known as BHP-Billiton (Metal Bulletin, 2001c).

Metals

Aluminum.—Of the four primary aluminum smelters in the United Kingdom, three were owned and operated by British Alcan Aluminium Ltd. (the United Kingdom subsidiary of Montreal-based Alcan Aluminium Ltd.). The fourth smelter, which was operated by Anglesey Aluminium Ltd., was owned by Rio Tinto Ltd. (51%) and Kaiser Aluminum and Chemical Corp. of the United States (49%). All the aluminum smelters depended on imported alumina for feedstock.

IMCO Recycling plc was planning to invest more than $7 million in an aluminum dross and scrap recycling facility, pending planning permission. The plant was to be built at Warrington and would process aluminum drosses and other aluminum-bearing residues from Alcan's United Kingdom recycling operations (Metal Bulletin Monthly, 2002).

Secondary aluminum producer Avon Metals Ltd., which was put into receivership at the start of 2001, was bought by scrap merchant Remet Ltd. The business environment for secondary aluminum producers was tough in 2000 and 2001. Its main consumer, the automotive industry, has gone through a difficult time, and over-capacity was a problem in the secondary aluminum industry. The much needed consolidation has proven difficult to achieve. Several attempts to merge a small group of smelters into one group were made, but discussions failed because terms could not be agreed on by the participants (Metal Bulletin, 2001a).

Ferroalloys.—Eastlink Ferroalloys Ltd. was planning to start ferrovanadium alloy production at a rate of from 1,000 to 2,000 metric tons per year (t/yr) at its plant in Glossop. The project was in the development stage and was gearing up for the first phase of production. The company will continue to produce ferromolybdenum in a range of from 4,000 t/yr to 4,500 t/yr; this was down from its previous design capacity of 7,000 t/yr (Metal Bulletin, 2002).

Gold.—Conroy Diamonds and Gold plc reported the discovery of significant quantities of gold in County Armagh in Northern Ireland. The company stated that the new find proved that gold found at its other exploration site at Tullybuck-Lisglassan was not an isolated incident but, instead, part of the larger Armagh-Monaghan gold belt. The existence of gold in the area has been known for 50 years, and the company believed that a number of economic gold deposits might be located over the 1,300 square kilometers of land on which it holds exploration licenses (Engineering and Mining Journal, 2001).

The Bank of England sold 25 metric tons (t) of gold in late January. The bank reported that the gold went for $268 per ounce and was almost five times over-subscribed. This was the fifth sale in a program of six treasury auctions. The Treasury intended to reduce its gold reserves to 320 t. When the final auction is completed in 2002, the Treasury will have sold 395 t of gold in its 3-year program (Metal Bulletin, 2001b).

Iron Ore.—Production of iron ore was limited to a small amount of hematite ore mined by Egremont Mining Co. at the Florence Mine in Cumbria. The output went for pigments and foundry annealing uses rather than metal production.

Steel.—The Corus Group, which had been created in 1999 by the merger of British Steel plc. of the United Kingdom and Koninklijke Hoogovens NV of the Netherlands, was the fifth largest steel producer in the world in 2000 after Pohang Iron and Steel Co. Ltd. of the Republic of Korea, Nippon Steel Corp. of Japan, Arbed Group of Luxembourg, and Usinor Group of France. Although traditional ingot casting was still used in the manufacture of certain grades of steel, most of the output was by means of continuous casting. Corus was also Europe's top tinplate producer with production of about 1.5 million metric tons per year (Mt/yr) (Metal Bulletin, 2001d).

Corus announced a strategic review that will cut more than 3 million metric tons (Mt) of iron and steel capacity from its United Kingdom operations and will result in more than 6,000 job losses. By 2003, Corus will be left with 22,000 workers in the United Kingdom compared with 300,000 workers in 1970. This reduction will have an adverse effect on the refractories industry and force manufacturers, traders, and raw materials suppliers to reassess their refractories sales and production patterns (Industrial Minerals, 2001c).

Tin.—The South Crofty Mine in the county of Cornwall, which was the last United Kingdom producing tin mine, was acquired in 2000 by Baseresult Ltd., which bought the 8.6 million shares of South Crofty Holding Ltd. South Crofty had been allowed to flood when it was closed in March 1998. Baseresult announced that the mine would be reopened. Pumping water from the mine began late 2001. The cost of returning the mine to its preclosure state was estimated to be more than $3 million. The Wheal Jane Mine's plant processing equipment would be transferred to the nearby South Crofty Mine. Baseresult expected to start producing tin concentrate by 2003. Reserves were estimated to be sufficient to produce 200,000 t/yr of tin ore (Metal Bulletin, 2001e).

The only other tin mining activity was a very small scale production of cassiterite by a tourist operation, which smelted the ore onsite to produce metallic tin for jewelery and ornaments.

Zinc.—MIM Holdings Ltd. announced that it would sell its zinc smelters at Avonmouth, United Kingdom, and Duisberg, Germany, following poor performances during the 12 months to June 30, 2001. The company did an evaluation of its European zinc assets and decided that they were not core businesses and

would be sold. The smelters are not the most efficient in the world and would need a lot of investment to get them producing at capacity. Also, a capacity of 80,000 t/yr at Avonmouth and 85,000 t/yr at Duisberg placed the two operations among Europe's smallest zinc smelters (Mining Journal, 2001b).

Industrial Minerals

Cement.—The United Kingdom's two largest cement producers were Blue Circle Industries plc. (BCI) and Castle Cement Ltd. The third producer was the Rugby Group. BCI had 10 plants which included 1 in Northern Ireland. Castle has four plants, which included one grinding plant. Rugby had six plants (table 2).

Blue Circle accepted the $4,400 million second takeover bid of Lafarge SA of France; Lafarge raised its original bid by 13%. If accepted by shareholders, then the deal would create the world's largest cement producer with a global production capacity of 150 Mt/yr (Industrial Minerals, 2001a).

Clays.—The United Kingdom was a leading world producer and exporter of ball clay and china clay (kaolin). Watts, Blake, Bearne & Co. plc (WBB) was the country's largest producer of ball clay. English China Clays (ECC) International Ltd. was the largest producer of china clay and one of the major producers worldwide. Operations were mainly in the southwestern area of the United Kingdom.

In October 2001, WBB and Sibelco Minerals and Chemicals Ltd. merged. The merged business (WBB Minerals) will have an almost 11-Mt/yr sales volume that will comprise approximately equal amounts of white firing clays, red firing clays, and industrial sands ranks the group as the country's leading industrial minerals supplier (Industrial Minerals, 2001d).

ECC International Ltd. operated ball clay and kaolin mines and quarries in the Wareham basin, Dorsetshire; the Bovey basin, southern Devon; and the Petrockstowe basin, northern Devon. A majority of the production was from the Bovey Basin.

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 Mt/yr of gypsum. With few exceptions, this material went to supply the domestic market.

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 meters (m) in a seam that ranged up to 20 m but averaged 7 m in thickness. Within a Permian evaporite sequence, silvinite ore comprises 35% to 45% sylvite and 45% to 55% halite plus impurities. The sedimentary strata above the evaporites include the Triassic Sherwood sandstone, which contains brine under high pressure. During extraction, pressured gas will occasionally cause blowouts in the shaly parts of the potash (Cleveland Potash Ltd., 2001§).

Silica.—The DTI, which accepted the recommendations of Competition Commission (CC) and the Director General of Fair Trading, decided that SCR Sibelco SA should be required to divest Fife Sands plc (FSS) and Fife Resources plc, which it acquired in 2000. Sibelco's share of the 1.8-Mt/yr domestic silica sand market rose to between 75% and 90% after the acquisition. The CC ruled that without the restraint of FSS's competition, glass sand prices in the United Kingdom would be likely to rise (Industrial Minerals, 2001b).

Stone, Dimension.—Most slate mining in the United Kingdom was in northern Wales; additional mining operations were in Cornwall and the Lake District. Alfred McAlpine Slate Ltd. was the owner and operator of the Cwt y Bugail, Ffestiniog, and Penrhyn quarries in northern Wales. The 2,415 by 805-m Penrhyn quarry at Bethesda was considered to be the world's largest slate quarry. It has been in operation for more than 400 years.

Mineral Fuels

The Government initiated an energy study to review the long-term energy objectives, which included the challenge of global warming. The United Kingdom was self-sufficient in energy at competitive prices and the sources of supply are diverse. The study will consider the role of coal, natural gas, petroleum, and renewables and the future of nuclear energy. Many are concerned that in the future, the country could become increasingly reliant on imported fuel, particularly natural gas, which accounted for about 37% of primary energy consumption. Petroleum accounted for 35%; coal, 16%; and nuclear energy, about 11%. The balance was provided for by hydropower and other renewable resources. The country could be importing 15% of its gas requirements by 2005 compared with 2% in 2001 (Mining Journal, 2001e).

Coal.—The EC gave approval to the Government to give $9 million in state aid to two coal mines that posted operating losses for 2000 and 2001. The money will go to the Longannet Mine ($7.7 million) in Scotland and the Aberpergwm Mine ($1.3 million) in Wales. The EC had previously authorized the Government to grant operating costs aid to the Longannet Mine. The aid was intended to be used to improve the economic viability of the production units by reducing production costs to make them competitive enough to survive beyond 2002 without public subsidy (Mining Journal, 2001a).

As a further example of commitment to the coal industry, the Government will make aid payments of $30 million to four other coal mines following EC approval. The beneficiaries will be the Blaentillery Mine in Mid Glamorgan, the Hae Royds Mine near Huddersfield, the Moorside Mine near Sheffield, and the Selby Mine in North Yorkshire. The money will help protect more than 1,000 jobs and was part of the Government's Coal Operating Aid Scheme (Mining Journal, 2001c).

The Coal Authority reported 55 coal mining licence applications and 11 coal bed methane (CBM) applications. Interest was continuing in CBM potential with ongoing research into ways to harness the CBM. Aside from its licensing activities, the Coal Authority is charged with providing information that relates to geologic data and coal

mining plans. The Coal Authority also settles subsidence claims and manages issues related to property and liabilities from previous coal mining activities (Mining Journal, 2001d).

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 operated 13 underground and 6 open pit mines, which produced more than 20 Mt of coal. The largest operation was the underground Selby Complex which consisted of Riccall/Whitmoor, Stillingfleet Combine, and Wistow (Mining Magazine, 2001).

Natural Gas and Petroleum.—***North Sea.***—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 (OPEC). The offshore United Kingdom sector of the 37-year-old North Sea oilfield continued to be significant in international petroleum and natural gas activities. As a result, the country has become the headquarters for international oil companies and a major energy supplier to other countries. The United Kingdom and Norway were the largest producers of North Sea oil by a large margin. Denmark, Germany, and the Netherlands were smaller North Sea oil producers (U.S. Energy Information Agency, 2001a§).

North Sea petroleum output declined in 2001 for the second year running to its lowest level in 8 years. Production decreased by an estimated 15% in what some analysts described as the beginning of the end for the country's petroleum bonanza. Natural gas maintained its level; it was, however, expected to start to decline in 5 years as the larger fields are depleted (Alexander's Gas and Oil Connections, 2002§).

Offshore/Onshore.—Exploration for petroleum on the Falkland Islands Continental Shelf is governed by Falkland Islands law. These provisions are independent of the United Kingdom laws and regulations; there are, however, many similarities to the United Kingdom North Sea regime.

The North Falkland Basin was the location of interest for drilling activity. The Falkland Hydrocarbon Consortium, which was a group of United Kingdom companies, was trying to revive the hunt for potentially rich petroleum and natural gas reserves. The Consortium was in the process of filing for exploration licences and meeting with the Falkland Government. Falkland Islands Holdings, which was the entity that handled trade between the islands and the United Kingdom, had a 10% stake in the consortium (Alexander's Gas and Oil Connections, 2001a§).

In mid-2001, the DTI announced the 10th round of onshore licensing. The latest round will follow recent practice and invites applications for Petroleum Exploration and Development Licences over all unlicenced acreage in Great Britain above the Mean High Water Mark. Applications for traditional oil and gas exploration, and also CBM, are expected either by direct drilling or by collecting gasses released from abandoned coal workings (British Geological Survey, 2001).

Renewable Energy.—The Government believed that advances in green technology will see the cost of wind power dropping significantly during the next 20 years and undercutting electricity from conventional power stations. Onshore wind costs have dropped by a factor of four in the past 10 years. Wind-generated energy was expected to grow, and the Government's goal was to increase production of renewable energy from 2.8% in 2001 to 10.4% by 2011. This would help cut greenhouse gas emissions, which has been seen by many scientists as contributing to global warming. The Government aimed to cut such emissions by 23% by 2010 from 1990 levels (Alexander's Gas and Oil connections, 2001b§).

Outlook

The United Kingdom is a significant player in the world mining and mineral processing industries. This is more the result of an extensive range of companies in the country that have various interests in the international mineral industry rather than the domestic mineral industry. This situation is expected to continue.

Exploration for petroleum and natural gas is expected to continue onshore and offshore. Onshore exploration activities will be directed mainly toward gold. Offshore petroleum and natural gas exploration interest 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 the development of mineral resources. Efforts to raise the level of environmental management and to maximize the best use of natural resources, which will include the use of recycled materials and renewable energy sources, will continue to be evaluated and developed.

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Great George St.
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Belfast BT1 3AJ, Northern Ireland
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TABLE 1
UNITED KINGDOM: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity		1997	1998	1999	2000	2001 e/
METALS						
Aluminum:						
Alumina from imported bauxite e/		100,000	96,000	90,000	88,500 r/	90,000
Metal:						
Primary		247,675	258,397	272,211	305,100	340,800 2/
Secondary		257,800	236,000 e/	274,800	285,300	237,700 2/
Cadmium, metal including secondary		455	440 e/	547	503 r/	485 2/
Copper, metal, refined:						
Primary		9,000 e/	7,000	--	-- r/	-- 2/
Secondary		51,402	47,774	50,334	3,000 r/	-- 2/
Total		60,402	54,774	50,334	3,000 r/	-- 2/
Iron and steel:						
Iron ore:						
Gross weight		1,210	1,188	1,000 e/	1,033	500
Fe content (54% Fe)		653	642	568 e/	540	270
Metal:						
Pig iron	thousand tons	13,057	12,569	12,399	10,989	9,861 2/
Steel, crude	do.	18,528	17,007	16,634	15,306 r/	13,610 2/
Steel, hot rolled	do.	16,149	15,214	14,334	13,173 r/	11,369 2/
Lead:						
Mine output, Pb content e/		1,800	1,800	1,000	1,000	1,000
Metal:						
Smelter:						
Bullion from imported concentrate		38,500 e/	37,927	40,177	36,700	40,000
Secondary (refined) e/ 3/		100,000	100,000	100,000	100,000	100,000
Total e/		139,000	138,000	140,000	137,000	140,000
Refined:						
Primary 4/		215,243	186,212	185,422	166,411	203,000
Secondary 3/		175,783	163,492	162,651	170,740	163,000
Total		391,026	349,704	348,073	337,151	366,000
Magnesium, metal, secondary including alloys e/		1,000	1,000	500	500	500
Nickel, metal, refined 5/		36,586	41,994	39,467	37,976	33,817 2/
Tin, mine output, Sn content		2,396	400 e/	--	-- e/	--
Zinc, metal, smelter		107,704	99,600	132,800	99,600	100,000
INDUSTRIAL MINERALS						
Barite e/ 6/		74,000	68,000	59,000	55,000	66,000
Bromine		35,600 r/	35,900	55,000 e/	50,000 e/	50,000
Cement, hydraulic	thousand tons	12,638	12,409	13,027 r/	12,702 r/	11,854 2/
Clays:						
Fire clay e/	do.	338 2/	500	575	595 r/	600
Fuller's earth e/ 7/	do.	135 2/	95	75	66 r/	52
Kaolin (China clay) 8/	do.	2,360	2,392	2,304	2,420	2,400
Ball clay and pottery clay e/ 8/	do.	916 2/	960	985	1,000	1,000
Other, including shale e/	do.	12,000	10,000	12,500	12,000	12,000
Feldspar (china stone) e/		8,000	3,278 2/	3,000	2,000	2,000
Fluorspar, all grades e/ 9/		67,000	65,000	40,000	36,000	50,000
Gypsum and anhydrite e/	thousand tons	2,000	2,000	1,800	1,500	1,500
Lime, quicklime and hydrated e/	do.	2,500	2,500	2,500	2,500	2,500
Nitrogen, N content of ammonia	do.	642	871	901	814	850
Potash, K_2O equivalent		564,500	608,400	494,700	600,000 r/	532,000
Salt: e/						
Rock	thousand tons	1,800	700	1,500	1,700	1,900
From brine	do.	1,300	1,300	1,300	1,200	1,200
In brine, sold or used as such	do.	3,561 2/	3,500	3,000	3,000	3,000
Sand and grave, common e/	do.	99,800	98,315 2/	100,953 r/	101,621 r/	104,670 2/
Sand and grave, industrial sand e/	do.	4,800	4,662 2/	4,092 r/	4,095 r/	4,100
Sodium compounds, n.e.s, carbonate e/	do.	1,000	1,000	1,000	1,000	1,000
Stone:						
Dimension: e/						
Igneous	do.	100	138	140	125	125
Limestone	do.	225	225	295	300	300
Sandstone	do.	275	287	290	300	300
Slate	do.	85	69	70	70	70

See footnotes at end of table.

TABLE 1--Continued
UNITED KINGDOM: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity		1997	1998	1999	2000	2001 e/
INDUSTRIAL MINERALS--Continued						
Stone--Continued:						
Crushed:						
Calcite e/	thousand tons	13	15	--	--	--
Chalk	do.	9,550	9,934	10,000 e/	10,000 e/	10,000
Dolomite	do.	18,282	15,622	13,698	14,000 e/	14,000
Igneous rock	do.	48,656	45,807	53,155 r/	54,113 r/	53,190 2/
Limestone	do.	87,752	88,979	86,933	86,000 e/	86,000
Sandstone	do.	18,499	20,129	15,485	15,000 e/	15,000
Slate including fill	do.	347	450	425	350 e/	350
Total	do.	155,254	155,365	169,541	175,000 e/	175,000
Sulfur, byproduct: e/						
Of metallurgy		39,200	40,500	61,000 2/	51,400 2/	69 3/
Of petroleum refining		137,000	184,000	136,000	140,000 r/	111 3/
Total		176,000	225,000	197,000	191,000 r/	180,000 3/
Talc, soapstone, and pyrophyllite e/		5,500	4,937 2/	5,000	5,000	5,000
Titania e/ 10/		200	200	200	200	200
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Anthracite e/	thousand tons	1,000	1,000	1,000	797 2/	616 2/
Bituminous including slurries, fines, etc.	do.	46,981	40,272	36,450	31,175	31,512 2/
Lignite	do.	1	1	--	-- e/	--
Total e/	do.	48,000	41,300	37,500	31,972 3/	32,128 2/
Coke:						
Metallurgical		6,178	6,178	5,837	6,058	6,000
Breeze, all types		44 e/	37	33	37	36
Fuel briquets, all grades		814 e/	616 e/	635	537	550
Gas, natural:						
Marketable 11/	million cubic meters	91,800 e/	95,503	104,900	95,854 r/	96,000
Marketed e/ 12/	do.	66,000	68,000	70,000	70,000	70,000
Natural gas liquids 13/	thousand 42-gallon barrels	55,391	58,877	61,859	62,000 e/	62,000
Peat	cubic meters	1,619	1,076	1,000 e/	1,000 e/	1,000
Petroleum:						
Crude 14/	thousand 42-gallon barrels	902,408	931,665	961,965	884,115 r/	820,845 2/
Refinery products:						
Liquefied petroleum gases	do.	24,232	25,265	24,406	25,000 e/	25,000
Naphtha including white spirit	do.	24,259	21,148	21,675	22,000 e/	22,000
Gasoline	do.	249,210	240,210	232,832	230,000 e/	230,000
Jet fuel	do.	66,763	63,536	59,032	60,000 e/	60,000
Kerosene	do.	25,854	26,900	27,714	28,000 e/	28,000
Distillate fuel oil	do.	214,684	207,828	195,280	195,000 e/	195,000
Residual fuel oil	do.	87,633	74,000	68,591	68,000 e/	68,000
Lubricants	do.	8,617	7,938	6,440	6,500 e/	6,500
Bitumen	do.	13,683	13,271	10,102	10,000 e/	10,000
Petroleum coke	do.	5,600	5,500	5,000 e/	5,000 e/	5,000
Petroleum wax	do.	325	350	472	400 e/	400
Unspecified e/	do.	30,300	30,000	30,000	30,000 e/	30,000
Refinery fuel and losses e/	do.	35,000	25,000	25,000	25,000 e/	25,000
Total e/	do.	786,000	741,000	707,000	705,000 e/	705,000

e/ Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. r/ Revised. -- Zero.
1/ Table includes data available through May 2002.
2/ Reported figure.
3/ Includes a small quantity of primary lead from domestic concentrate.
4/ Produced entirely from imported bullion and includes the lead content of alloys.
5/ Refined nickel and nickel content of ferronickel.
6/ Includes witherite.
7/ Salable product.
8/ Sales, dry weight.
9/ Proportions of grades not available; probably about two-thirds acid grade.
10/ Sales.
11/ Methane, excluding gas flared or reinjected.
12/ Marketable methane, excluding that used for drilling, production, and pumping operations.
13/ Includes ethane, propane, butane, and condensates, respectively.
14/ Excludes gases and condensates.

TABLE 2
UNITED KINGDOM: STRUCTURE OF THE MINERAL INDUSTRY IN 2001
(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aggregate	ARC Ltd. (Hanson Plc., 100%) Foster Yoeman Ltd.	50 quarries in various locations	50,000
Do.	do.	Glensanda quarry at Oban	15,000
Aluminum, primary	British Alcan Aluminium Ltd.	Fort William, Kinlochleven, and Lynemouth	175
Do.	Anglesy Aluminium Ltd. (Rio Tinto Corp., 51%; Kaiser Aluminum and Chemical Corp., 49%)	Holyhead, Wales	113
Aluminum, secondary	Trent Alloys Ltd. (Cookson Group, 100%)	North Cave, Humberside	30
Do.	Deeside Aluminium Ltd.	Clwyd, Wales	45
Ball clay	Watts, Blake, Bearne & Co. Plc.	Various operations in northern and southern Devon	500
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 Rhoose, Glamorgan	1,000
Do.	Blue Circle Industries plc.	Plants at Aberthaw, Cauldon, Dunbar, Hope, Masons, Northfleet, Plymstock, and Weardale	7,300
Do.	Castle Cement Ltd. (Scancem, 100%)	Plants at Ketton, Ribblesdale, Pades, and Pitstone	3,400
Do.	Rugby Group	Plants at Barrington, Chinnor, Rochester, Rugby, and South Ferriby	2,700
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
Copper	IMI Refiners Ltd.	Refinery at Walsall, west Midlands	80
Ferroalloys	British Steel Plc.	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	1.2
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
Lead, secondary	H.J. Enthoven and Son Ltd. [Billiton (U.K.) Ltd., 100%]	Darley Dale, Derbyshire	60
Lead, smelter	MIM Holdings (U.K.) Ltd.	Avonmouth, Avon	55
Natural gas billion cubic feer per year	Amoco Ltd., British Petroleum Ltd. Esso (U.K.) Ltd., Phillips Petroleum Co. Plc., Shell (U.K.) Ltd.	North Sea gasfields	1,250
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 year	Amoco Ltd. , British Petroleum Ltd., Chevron Ltd., Esso (U.K.) Ltd., Occidental Petroleum Co. Ltd., Shell (U.K.) Ltd., Texaco, Unocal, Inc.	North Sea oilfields	2.1
Petroleum, 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.	Boulby Mine, Yorkshire	500
Salt, rock	Imperial Chemical Industries Plc.	Mines at Winsford, Cheshire	3,000
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	British Steel Plc.	4 intergrated steelworks in Gwent, Lanark, Humberside, and Cleveland	18,000
Talc	Alex Sandison and Son Ltd.	Unst, Shetland Islands	15
Do.	Shetland Talc Ltd. (Anglo European Minerals Ltd., 50%; 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	MIM Holdings (U.K.) Ltd.	Avonmouth, Avon	120