



# 2015 Minerals Yearbook

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**BAHRAIN [ADVANCE RELEASE]**

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# THE MINERAL INDUSTRY OF BAHRAIN

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In 2015, Bahrain was estimated to be the world's ninth-ranked primary aluminum producer and accounted for 1.7% of total world production. The country hosted significant downstream aluminum and iron and steel industries. Other mineral commodities produced in Bahrain included ammonia, cement, ferromanganese, ferrosilicon, iron ore pellets, methanol, stainless steel, sulfur, and urea. The country was a modest producer of crude petroleum, natural gas, and refined petroleum products in 2015. Bahrain is one of six countries that make up the Gulf Cooperation Council (GCC) (table 1; Bray, 2017).

In 2015, Bahrain's real gross domestic product (GDP) increased by 2.9% compared with an increase of 4.5% in 2014. The hydrocarbon sector accounted for 20% of the GDP in real terms, followed by manufacturing (15%) and construction (7%). The mining and quarrying sector accounted for 0.8% of real GDP. In real terms, activities in the mining and quarrying sector increased by 16% in 2015, followed by construction (6%) and manufacturing (4%). The hydrocarbon sector decreased in value by 0.9% in real terms compared with an increase of 3% in 2014. The nonhydrocarbon sector increased in value by 3.9% in real terms compared with an increase of 4.9% in 2014. The Government's hydrocarbon revenue accounted for 69% of the country's total revenue in 2015 compared with 85% in 2014 (Central Informatics Organization, 2015; Bahrain Economic Development Board, 2016b, p. 2, 23; International Monetary Fund, 2016).

In 2015, the value of Bahraini exports decreased by 31% to \$16.1 billion from \$23.5 billion in 2014. The value of exported oil and refined products was \$7.2 billion, accounting for 45% of total exports. The value of imports decreased to \$15.7 billion in 2015 from \$19.8 billion in 2014. In 2015, the value of base metals and articles of base metal accounted for 52% of the country's non-oil export value, followed by chemicals (11%), mineral products (10%), and precious or semiprecious stones and metals (5%). The value of mechanical and electrical equipment accounted for 18% of the country's non-oil import value, followed by chemicals (11%), base metals and articles of base metal (8%), and mineral products (7%) (Bahrain Economic Development Board, 2016b, p. 26; International Monetary Fund, 2016).

In 2015, the value of United States exports to Bahrain increased to \$1,274 million from \$1,060 million in 2014. United States exports to Bahrain included drilling and oilfield equipment (\$12.8 million), finished metal shapes (\$7.4 million), iron and steel products (\$2.7 million), manufactured mineral supplies (\$3.2 million), alumina (\$1.3 million), and copper, nonferrous, and precious metals (\$600,000). The value of United States imports from Bahrain decreased to \$902 million from \$965 million in 2014. United States imports from Bahrain included bauxite and aluminum (\$278 million), petroleum products (\$120 million), chemical fertilizers (\$115 million), industrial supplies (\$38 million), and finished metal shapes (\$15.6 million) (U.S. Census Bureau, 2016a, b).

## Production

In 2015, primary aluminum output, increased by 3% to 960,643 metric tons (t) from 931,427 t in 2014. Cement production was estimated to have increased to 1.6 million metric tons (Mt) in 2015 from 1.5 Mt in 2014, or by 7%. Production of direct-reduced iron decreased by 15% to 1.23 Mt in 2015 from 1.44 Mt in 2014. Production of methanol and ammonia was reported to have decreased by 11% and 8%, respectively, compared with that of 2014. Production of ferromanganese and ferrosilicon were estimated to have decreased by 4% and 3%, respectively, compared with that of 2014 (table 1).

## Structure of the Mineral Industry

Bahrain's mineral industry was composed of significant downstream aluminum and iron and steel industries, which relied on imported alumina and iron ore, respectively. Apart from quarries for limestone (used in cement production), there were no active mines in the country. The country's petrochemical sector produced nitrogen fertilizer from domestically produced crude petroleum and natural gas. Although the Government was a major investor in Bahrain's mineral industries, companies from Kuwait, Saudi Arabia, and the United Arab Emirates (UAE) held substantial equity interest in most of the country's mineral enterprises. Aluminium Bahrain B.S.C. (Alba)—a public company with interest held by Government-owned Bahrain Mumtalakat Holding Co. (69.38%), SABIC Industrial Investments Co. Ltd. (20.62%), and others (10%)—produced primary aluminum from its smelter at Sitra. Gulf Aluminium Rolling Mill Co. B.S.C., which was majority owned by Bahrain Mumtalakat Holding Co. (31.28%) and SABIC Industrial Investments Co. Ltd. (31.28%), produced downstream aluminum products, including aluminum circles, coils, and sheets. Bahrain Steel BSCC E.C., which was wholly owned by Foulath Holding B.S.C., produced iron ore pellets from its complex at Al Hidd. United Steel Co. B.S.C. (Sulb), an iron and steel company owned by Foulath Holding B.S.C. (51%) and Yamatu Kogyo Co. of Japan (49%), produced crude steel and DRI at its complex in the Al Hidd Industrial area (table 2).

The National Oil and Gas Authority (NOGA) was the Government agency responsible for implementing policy regarding hydrocarbon resources and for issuing regulations for and controlling the use of hydrocarbon resources in Bahrain. NOGA Holding Co. was NOGA's business and investment branch and the Government's shareholder in such companies as Bahrain Petroleum Co. B.S.C. (Bapco) (100% interest), Bahrain National Gas Co. B.S.C. (Banagas) (75% interest), Bahrain Aviation Fueling Co. (60% interest), Bahrain Lube Base Oil Co. (55% interest), Tatweer Petroleum (51% interest), Skaugen Gulf Petchem Carriers (35% interest), and Gulf Petrochemical Industries Co. B.S.C. (GPIC) (33.3% interest). Tatweer Petroleum was a joint venture among Mubadala

Development Co. of the UAE, NOGA, and Occidental Petroleum Corp. of the United States (table 2; National Oil and Gas Authority, 2016, p. 8).

## Commodity Review

### Metals

**Aluminum.**—In 2015, Alba (the country's sole aluminum producer) produced 960,643 t of primary aluminum compared with 931,427 t in 2014. The company's smelter at Sitra was the country's sole aluminum smelter. Alba reported that 48% of its aluminum products was sold to domestic consumers; 17%, to markets in Asia; 16%, to the other countries in the Middle East and North Africa; 10%, to markets in Europe; and 9%, to markets in the America's. Alba's total sales of aluminum products were composed of extrusion billet (39%), liquid metal (31%), rolling slab (13%), foundry alloys (12%), and standard ingots (5%). In 2015, Alba employed 2,907 people and operated a water desalination facility with the capacity to produce 41,000 cubic meters of water per day (Aluminium Bahrain B.S.C., 2016b, p. 6, 21; 2016c).

Alba continued the development of the Line 6 expansion project, which was expected to increase the company's primary aluminum capacity by 540,000 metric tons per year (t/yr). In February, Alba signed an agreement with Emirates Global Aluminium PJSC of the United Arab Emirates to upgrade the technology for the Line 6 project. The upgrade was expected to improve energy efficiency, which would allow the company to increase the Line 6 expansion project's planned production capacity to 540,000 t/yr from 519,000 t/yr without increasing electricity consumption. In February, the company received environmental approval from the Supreme Council of the Environment (SEC) and, in November, signed an agreement with BAPCO to secure a natural gas supply for the Line 6 expansion project. The 424-pot Line 6 expansion project included the construction of a 1,350-megawatt (MW) powerplant, which would be the company's fifth powerplant and would expand the company's overall generating capacity to about 3,600 MW. The project was planned to increase Alba's smelter capacity to 1.5 million metric tons per year (Mt/yr), making the smelter at Sitra the largest single-site smelter in the world. The first hot-metal production was expected in January 2019 (Aluminium Bahrain B.S.C., 2016a; 2016b, p. 9, 11, 27; 2016c).

In September 2015, Gulf Aluminium Rolling Mill Co. B.S.C. (GARMCO) signed an agreement for the construction of an aluminum remelt facility with Fives Group of France at a cost of \$55 million. The company had begun the first stage of the remelt project—the construction of a scrap storage area and segregation unit—in September. The facility, which had a planned capacity of 120,000 t/yr of aluminum slab, would provide the capability to recycle aluminum and was expected to lower the cost of metal casting. The remelt facility was projected to be completed in November 2017 and would employ 50 new workers. GARMCO operated a 165,000-t/yr rolling mill and a 20,000-t/yr foil mill (Gulf Aluminium Rolling Mill Co. B.S.C., 2015a, b; 2016).

In November 2015, Government-owned Mumtalakat Holding Co. signed a joint-venture agreement with Synergies Castings Ltd. of India for the construction of a 25,000-t/yr

aluminum casting and alloy wheel manufacturing facility. Synergies Castings, which held a 51% interest in the project, was responsible for design, operations, and management of the facility. Mumtalakat Holding Co., which held the remaining 49% interest, was to provide infrastructure support and financing. The facility was expected to create 600 jobs and cost \$150 million to build. The project was located at the molten metal park adjacent to the Alba smelter. The molten metal park was an initiative under development by Mumtalakat Holding Co. and the Bahrain Economic Development Board to promote downstream aluminum manufacturing (Bahrain Mumtalakat Holding Company B.S.C., 2015; Bahrain Economic Development Board, 2016a, p. 39).

**Iron and Steel.**—In 2015, Bahrain imported about 5.4 Mt of iron ore and concentrates compared with about 5.3 Mt in 2014. In 2014 and 2015, 87% and 94%, respectively, of the country's iron ore was imported from (collectively) Brazil and Chile. Bahrain Steel produced iron ore pellets, which were consumed by Sulb, from two pelletizing plants. The two plants (both of which were located in the Hidd Industrial Area) had operating capacities of 7 Mt/yr and 4 Mt/yr, respectively. Sulb operated a 0.97-Mt/yr electric arc furnace crude steel melt shop and a 0.6-Mt/yr medium- and heavy-section rolling mill. Bahrain Steel sourced its iron ore from suppliers in Brazil, Chile, Norway, and Sweden through long-term agreements (table 2; Bahrain Steel, 2014, p. 5, 8; Organisation for Economic Co-operation and Development, 2015, p. 28; Information and eGovernment Authority, 2016a, b).

### Industrial Minerals

**Cement.**—In 2015, Bahrain had the capacity to produce about 2.4 Mt/yr of cement from two plants and a cement grinding mill. Falcon Cement Co., which was owned by Cemena Holding Company B.S.C., was the country's only integrated cement producer. The company operated a 1.2-Mt/yr integrated plant in the Hufaira Industrial Area. The second-ranked cement producer in Bahrain, Al Sager Cement Co., operated a 750,000-t/yr plant in Al Hidd. In 2014, Al Sager Cement announced a \$30 million development project that was expected to increase the Al Hidd plant's production capacity to 825,000 t/yr. Arabian Gulf Cement Co. W.L.L., which was an indirect wholly owned subsidiary of UltraTech Cement Ltd. of India, operated a 400,000-t/yr clinker grinding mill in the Al Hidd Industrial Area (table 2; Cemena Holding Company B.S.C., 2014; Ministry of Industry and Commerce, 2014; Falcon Cement Co. B.S.C., 2015).

**Nitrogen (Ammonia, Methanol, and Urea).**—In 2015, GPIC's production of methanol decreased by 11%; production of ammonia decreased by 8.4%, and production of urea increased by about 1.7% compared with production of 2014. The company exported a total of about 1.1 Mt of ammonia, methanol, and urea products to global markets. The company exported the majority of its methanol and urea production, and it used 364,000 t of the ammonia it produced for urea production. The company exported about 41,000 t of ammonia, of which 44% was exported to India; 17%, to Japan and the Republic of Korea; 15%, to African countries; and 7%, to Taiwan. GPIC exported about 635,000 t of urea, of which 50% was exported to the United States; 25%,

to Brazil; 7% (each), to Canada and Turkey; 6%, to Thailand; and 5%, to European countries. GPIC's methanol exports totaled about 415,000 t, of which 29% was exported to Taiwan; 26%, to the United States; 19%, to Singapore; 9%, to China; 7%, to the Republic of Korea; 4% (each), to the Netherlands and the UAE; and 2%, to Spain (table 1; Gulf Petrochemical Industries Co. B.S.C., 2016, p. 18–19, 26–27).

### **Mineral Fuels**

**Natural Gas and Petroleum.**—In 2015, Bahrain produced a total of 73.6 million barrels (Mbbbl) of crude petroleum, including about 18.5 Mbbbl from the Bahrain oilfield, which was operated by Bapco, and 55.1 Mbbbl from Bahrain's 50% share of the Abu Saafa offshore oilfield. The Abu Saafa oilfield was jointly owned by Bahrain and Saudi Arabia and was operated by Saudi Arabian Oil Co. (Saudi Aramco). Banagas's total natural gas production, which included dry and associated gas, decreased slightly to 14.7 billion cubic meters in 2015 from 14.8 billion cubic meters in 2014. Bahrain was reported to have 200 billion cubic meters of proved natural gas reserves at the end of 2015 (tables 1, 2; BP p.l.c., 2016, p. 20; National Oil and Gas Authority, 2016, p. 11).

NOGA Holding Co. signed an agreement with three companies—Gulf Investment Corporation (GIC) of Kuwait, Samsung C&T Corp. of the Republic of Korea, and Teekay LNG Partners, L.P. of Bermuda—for the construction and operation of a floating liquid natural gas terminal located off the northeastern shore near the Hidd Industrial Area. The project consisted of a 4.1-billion-cubic-meter-per-year terminal (which could be expanded to 8.3 billion cubic meters per year), an onshore gas receiving facility, and a nitrogen production facility. NOGA Holding Co. held a 30% interest in the project; the remaining 70% interest was held jointly by GIC, Samsung C&T, and Teekay LNG. The facility would be owned and operated under a 20-year agreement expected to commence in the third quarter of 2018 (National Oil and Gas Authority, 2016, p. 17).

Tatweer Petroleum Co. of Bahrain, which operated the Bahrain oilfield, reported that 62 wells were drilled in 2015. The company commissioned three associated gas compressor stations by yearend, which added about 1.07 billion cubic meters per year of compression capacity and about 730,000 barrels per year of crude petroleum production. The company signed a \$100 million agreement with Petrofac of Jersey [United Kingdom] to build a 5-billion-cubic-meter-per-year gas dehydration facility (Tatweer Petroleum Co., 2016, p. 8, 13; National Oil and Gas Authority, 2016, p. 18).

In September, Bapco signed a \$350 million agreement with Al Rabie Holding Co. of Saudi Arabia and the National Petroleum Construction Co. of the United Arab Emirates for the construction of a 115-kilometer (km) crude petroleum pipeline. The planned pipeline was expected to provide crude petroleum from Saudi Arabia to the Bapco refinery at Sitra. Al Rabie Holding Co. was contracted to build the 74-km section on land. The National Petroleum Construction Co. was to build the 41-km underwater section. In December, the Government issued tenders for the design and construction of an associated gas

plant (Bahrain National Gas Co. B.S.C., 2016; National Oil and Gas Authority, 2016, p. 18).

In December, Bapco awarded a contract to WorleyParson Ltd. of Australia to manage the front-end engineering work and design for the Bapco refinery modernization project. Bapco planned to increase the production capacity at its petroleum refinery at Sitra to 360,000 barrels per day (bbl/d) from 267,000 bbl/d. The refinery modernization project was expected to include the staged implementation of a delayed coker, a diesel hydrotreater, a residue hydrocracker, a sulfur recovery unit, and a vacuum gas-oil hydrocracker (Brelsford, 2015).

### **Outlook**

As Bahrain attempts to diversify its economy through investments in non-oil activities, the mineral industry is expected to benefit from large infrastructure projects in the near to medium term. The construction of Alba's Line 6 expansion project and other downstream metal-processing projects will likely increase imports of raw and primary materials and exports of base-metal products. Cyclical world commodity prices, energy availability, and fluctuating Government budgets remain obstacles to the country's attempts to diversify its economy.

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TABLE 1  
BAHRAIN: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Thousand metric tons unless otherwise specified)

Commodity <sup>2</sup>	2011	2012	2013	2014	2015	
METALS						
Aluminum metal, primary	metric tons	881,300	890,217	912,700	931,427	960,643
Iron and steel:						
Crude steel <sup>e</sup>		950	950	970	970	970
Direct-reduced iron		--	--	780	1,440	1,230
Iron ore pellets <sup>e,3</sup>		11,000	11,000	11,000	10,800 <sup>r</sup>	11,000
Stainless steel <sup>e</sup>	metric tons	90,000	90,000	90,000	90,000	90,000
Steel reinforcing bar <sup>e</sup>	do.	200,000	200,000	200,000	200,000	200,000
Ferromanganese	do.	35,300	35,000	35,000	35,000	33,500 <sup>e</sup>
Ferrosilicon manganese	do.	3,000	3,000	3,000	3,000	2,900 <sup>e</sup>
INDUSTRIAL MINERALS						
Cement <sup>e</sup>		1,300	1,350	1,350	1,500	1,600
Nitrogen:						
N content of ammonia		380	341	378	454	416
N content of urea		310	288	316	292 <sup>r</sup>	297
Sulfur		132 <sup>e</sup>	135 <sup>e</sup>	64 <sup>e</sup>	137 <sup>r</sup>	143
MINERAL FUELS AND RELATED MATERIALS						
Gas, natural:						
Gross	million cubic meters	15,641	15,370	13,600	14,800 <sup>r</sup>	14,700
Dry	do.	13,300 <sup>r</sup>	13,700	14,700 <sup>r</sup>	15,500 <sup>r</sup>	15,500
Methanol		443	416	446	453	404
Natural gas plant liquids:						
Butane	thousand 42-gallon barrels	908	900	868	832	816
Naphtha	do.	1,760	1,800	1,698	1,884 <sup>r</sup>	1,820
Propane	do.	990	1,000	924	995	1,000
Petroleum:						
Crude <sup>4</sup>	do.	69,452	63,302	72,124	73,882	73,556
Refinery products:						
Liquefied petroleum gas	do.	584	600	654	685	735
Gasoline	do.	6,205	7,000	5,640	6,398	6,981
Kerosene and jet fuel	do.	23,813 <sup>r</sup>	23,806 <sup>r</sup>	26,169 <sup>r</sup>	23,254 <sup>r</sup>	25,821
Distillate fuel oil	do.	28,470	30,295 <sup>r</sup>	28,470 <sup>r</sup>	29,529 <sup>r</sup>	29,000 <sup>e</sup>
Residual fuel oil	do.	16,300 <sup>r</sup>	16,100 <sup>r</sup>	16,800 <sup>r</sup>	14,300 <sup>r</sup>	15,900 <sup>e</sup>
Other	do.	20,654 <sup>r</sup>	23,302 <sup>r</sup>	22,229 <sup>r</sup>	26,068 <sup>r</sup>	22,550
Total	do.	96,026	101,103	99,962	100,233	100,900

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. do. Ditto. -- Zero.

<sup>1</sup>Table includes data available through June 20, 2016.

<sup>2</sup>Aggregates, ferrochrome, sand, and stone were also produced, but available information was inadequate to make reliable estimates of output.

<sup>3</sup>Pellets were produced from imported iron ore.

<sup>4</sup>Includes the country's share of production from the Abu Saafa field.

TABLE 2  
BAHRAIN: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
<b>Aluminum:</b>				
<b>Metal:</b>				
Primary and secondary		Aluminium Bahrain B.S.C. (Alba) (Bahrain Mumtalakat Holding Co., 69.38%; SABIC Industrial Investments Co. Ltd., 20.62%; others, 10%)	Smelter at Sitra	960,000
Secondary		Bahrain Recycling Plant (private, 100%)	Dross and scrap remelt facilities at Askar	4,500
Rolled products		Gulf Aluminium Rolling Mill Co. B.S.C. [Bahrain Mumtalakat Holding Co., 31.28%; SABIC Industrial Investments Co. Ltd., 31.28%; Gulf Investment Corp., 5.15%, Government of Iraq, 4.12%; Government of Oman, 2.06%; Government of Qatar, 2.06%]	Rolling mill at Sitra	165,000
Do.		do.	Foil mill at Sitra	20,000
Do.		Midal Cables Ltd. (Intersteel W.L.L., 50%, and Saudi Cable Co., 50%)	Rolling mill at Manama	120,000
Alloys		Bahrain Alloys Manufacturing Co.	Sitra	30,000
Flat products		Bahrain Aluminum Extrusion Co.	do.	25,000
Castings, wheel		Aluminium Wheel Co. W. L.L.	Manama	400,000
Powder		Bahrain Atomisers International B.S.C.	East Riffa Area	NA
Cement		Arabian Gulf Cement Co. W.L.L. (UltraTech Cement Ltd., 100%)	Clinker grinding mill at Al Hidd	400,000
Do.		Falcon Cement Co. (Cemena Holding Company B.S.C., 100%)	Hufaira Industrial Area	1,241,000
Do.		Al Sager Cement Co. (private, 100%)	Plant at Al Hidd	750,000
<b>Iron and steel:</b>				
Direct-reduced iron		United Steel Co. B.S.C. (Sulb) [Foulath Holding B.S.C., 51%, and Yamatu Kogyo Co., 49%]	Al Hidd Industrial Area	1,500,000
Iron ore pellets		Bahrain Steel BSCC E.C. (Foulath Holding B.S.C., 100%)	Pellet plants at Al Hidd	11,000,000
<b>Steel:</b>				
Crude		United Steel Co. B.S.C. (Sulb) [Foulath Holding B.S.C., 51%, and Yamatu Kogyo Co., 49%]	Al Hidd Industrial Area	970,000
Heavy sections		do.	do.	600,000
Hot-rolled		United Stainless Steel Co. B.S.C. (Gulf United Steel Holding Co., 100%)	do.	100,000
Stainless		Universal Rolling W.L.L.	do.	200,000
Ferroalloys		Bahrain Ferro Alloys B.S.C. (ETA Star Holdings L.L.C., 100%)	do.	60,000
Methanol		Gulf Petrochemical Industries Co. B.S.C. (GPIC) [National Oil and Gas Authority, 33.3%; Petrochemical Industries Co., 33.3%; Saudi Basic Industries Corp. (SABIC), 33.3%	Sitra	450,000
<b>Natural gas:</b>				
Extracted	million cubic meters	Bahrain Petroleum Co., B.S.C. (Bapco) (Closed) (National Oil and Gas Authority, 100%)	Bahrain field, Awali	14,000
<b>Liquids:</b>				
Butane	thousand 42-gallon barrels	Bahrain National Gas Co. B.S.C. (Banagas) (National Oil and Gas Authority, 75%; Boubyan Petrochemical Co. 12.5%; Chevron Bahrain, 12.5%)	Natural gas plant at Awali	1,100
Naphtha	do.	do.	do.	1,020
Propane	do.	do.	do.	1,800

See footnotes at end of table.

TABLE 2—Continued  
 BAHRAIN: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
<b>Nitrogen:</b>				
Ammonia		Gulf Petrochemical Industries Co. B.S.C. (GPIC) [National Oil and Gas Authority, 33.3%; Petrochemical Industries Co., 33.3%; Saudi Basic Industries Corp. (SABIC), 33.3%]	Sitra	500,000
Urea		do.	do.	700,000
<b>Petroleum:</b>				
Synthetic coke		Aluminium Bahrain B.S.C. (Bahrain Mumtalakat Holding Co., 69.38.5%; SABIC Industrial Investments Co. Ltd., 20.62%; others, 10%)	do.	600,000
Crude	thousand 42-gallon barrels	Saudi Arabian Oil Co. (Saudi Aramco)	Abu Saafa offshore oilfield	93,400 <sup>1</sup>
Do.	do.	Bahrain Petroleum Co., B.S.C. (Bapco) (Closed) (National Oil and Gas Authority, 100%)	Bahrain field, Awali	16,300
Refinery products	do.	do.	Sitra	267,000
Lube oil	do.	Bahrain Lube Base Oil Co. [National Oil and Gas Authority, 55%; Bahrain Petroleum Co., B.S.C. (Bapco) (Closed), 27.5%; Neste Oil Corp., 27.5%]	do.	2,800
Sulfur		Bahrain Petroleum Co., B.S.C. (Bapco) (Closed) (National Oil and Gas Authority, 100%)	do.	135,000

Do., do. Ditto. NA Not available.

<sup>1</sup>Production from the field is pumped to Bahrain and subsequently refined and marketed by Bahrain Petroleum Co.