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ALUMINIUM BAHRAIN

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- CHASE MANHATTAN BK.
- WEST DEUTSCHE BANK.
CANCELLED LOAN

Aluminium Bahrain ('Alba') was incorporated as a company with limited liability by Charter of His Highness the Amir of the State of Bahrain on 9th August, 1968. The business of Alba is the operation of a primary aluminium smelter located near Awali on the east coast of Bahrain.

The share capital of Alba is held by the Government of Bahrain ('the Government') owning 77.9%, Kaiser Aluminum Bahrain owning 17% and Breton Investments Limited owning 5.1% of the equity.

During 1975 the Company produced 116,000 tons of aluminium in the form of standard ingot, T-ingot and extrusion billets. In 1976 aluminium production was 122,058 tons. All sales of aluminium are made to the three parties who together own Alba and who purchase Alba's output under a quota agreement which requires the aluminium selling price to be sufficient to satisfy Alba's net cash requirements. A summary of the terms of the present agreement ('The New Quota Agreement') is given on page 8.

At 31st December, 1975 Alba had total assets of BD 99.5 million (\$251 million). Total sales revenues for the financial year 1975 were BD 38.8 million (\$97.7 million) and net earnings after extraordinary items were BD 726,000 (\$1.8 million).

Alba is of considerable economic importance to the Bahrain economy both as an employer of some 2,200 local people and as an exporter of aluminium. Export earnings in 1975 totalled BD 31.1million (\$78.3 million).

HISTORY

Alba was originally formed by a group of international investors together with the Government. Between 1968 and 1971 there were some shareholding changes and since the date of start-up of operations the following additional changes have been made:

	Equity Interest at May, 1971	Date of Sale of Equity	Equity Interest at January, 1977
The Bahrain Government	19.0%	—	77.9%
General Cable Corporation	17.0	1974	—
Kaiser Aluminum Bahrain*	17.0	—	17.0
The British Metal Corporation Limited	17.0	1975	—
Aktiebolaget Elektrokoppar	12.0	1975	—
Breton Investments**	9.5	1972	5.1
Calpurnia N.V.	8.5	1976	—
	<u>100.0%</u>		<u>100.0%</u>

Notes: *Kaiser Aluminum Bahrain is a wholly-owned subsidiary of the Kaiser Aluminum and Chemical International Company which is in turn wholly-owned by Kaiser Aluminum and Chemical Corporation of the United States of America.

**Breton Investments was initially owned by two companies, Johnson and Bloy Holdings Ltd. and Eckart-Werke OHG. Johnson and Bloy Holdings withdrew from this investment holding company in 1972 and its proportionate interest in Alba of 4.4% held through Breton Investments was sold to the Bahrain Government.

Having taken a decision in principle to construct their own smelter, the original shareholders (excluding the Government) decided upon Bahrain as a suitable site for the project for reasons which included the following considerations:

Freely available energy supplies. Aluminium smelting requires large amounts of electric power in the production process and in Bahrain there exists a considerable reservoir of natural gas which can be readily converted by a gas turbine power station to low cost electricity.

Geographic location. It was considered that Bahrain was geographically well placed in relation both to the source of alumina, Western Australia, and to the ultimate destinations, Europe and Asia, of the finished product.

Governmental attitude. Given the scale of the proposed investment in fixed plant the partners found the attitude of the Government towards developing new industries particularly encouraging. The project has received rapid and constructive support from the Government throughout its planning and construction phases.

Labour. An adequate supply of unskilled labour and a certain amount of skilled labour was available locally.

In September, 1972, Alba entered into a technical consultation agreement with Kaiser Aluminum Technical Services. This expired in September, 1975 and was renewed, in a modified form, for a further two years. Under the terms of the agreement Kaiser provides technical advice and information upon Alba's request.

Construction work on the smelter commenced in January, 1969 under the direction of British Smelter Construction Limited as main contractor with George Wimpey Limited as main sub-contractor. The first metal was cast in May, 1971. The total capital cost of the project to date, including additions not included in the original construction contract, has amounted to BD 90 million (\$227 million) and Alba estimates that the current capital cost for constructing an aluminium smelter of 120,000 tons per annum rated capacity in the Middle East would be at least twice as great as this figure.

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Aluminium production built up rapidly after 1971 as shown below:

	1972	1973	1974	1975	1976
Rated capacity (000 tons)	120.0	120.0	120.0	120.0	120.0
Estimated capacity (000 tons)	120.0	120.0	120.0	121.8	122.0
Metal output (000 tons)	68.4*	102.6	118.0	116.4**	122.1
Runs in operation (year end)	339	421	444	424	446
Average metal purity, %	—	99.76	99.74	99.74	99.76

Notes: *Plant still under construction.

**The 1975 output was affected by a rectifier fire in November which closed one potline for almost a month. Recovery from the effects of the fire was exceptionally good and by March, 1976 Alba was producing at planned levels.

The entire output of Alba has always been sold to its shareholders under a quota agreement and accordingly the company is not directly exposed to market forces which could influence the selling price and sales volume of other primary aluminium producers.

Since 1970, a number of shareholders have withdrawn from Alba. In all cases their equity interests and their obligations under the quota agreement and Alba's various loan agreements have been taken up by the Government on a reasonable and freely negotiated basis.

MANAGEMENT AND EMPLOYEES

The Board of Directors of Alba, which reflects the composition of the shareholding group, is set out below:

The Board of Directors

- His Excellency Sayyed Mahmud Al Alawi (*Chairman*)
- His Excellency Y. A. Shirawi (*Minister of Development and Industry*)
- His Excellency H. A. Kassim (*Minister of Commerce and Agriculture*)
- W. B. Saunders (*Kaiser Aluminum Bahrain*)
- Dr. M. Knauer (*Kaiser Aluminum Bahrain*)
- A. Wolf (*Breton Investments*)

The principal operating and executive officers of Alba are directly employed by Alba which does not rely upon staff seconded from its shareholders to manage its operations. The senior officers of Alba together with their positions with the Company and their qualifications are set out below:—

Officer	Age	Position	Principal Qualifications
K. Baltensperger	46	Technical Manager	Diplome Mechanical Engineer, Swiss Federal Institute
A. J. de Vries	39	Engineering Services Manager	Diploma Mechanical Engineer
D. J. Lake	50	Company Secretary	Chartered Accountant
I. D. Livingstone, C.B.E.	46	General Manager	B.A. Econ., Chartered Accountant
G. K. Tofte	36	Production Manager	Diplome Mechanical Engineer
A. F. Wilkie	32	Financial Controller	Cost and Management Accountant

Alba employs 2,700 workers in its smelter operation. Of this number over 2,200 are Bahrain nationals. The division of nationals and non-nationals between supervisory and non-supervisory roles as at October, 1976 is shown in the following table:—

	Bahrain Nationals	Western Expatriate	Eastern Expatriate	Eastern Sub-Contracted
Supervisory	162	228	48	—
Non-Supervisory	2,082	—	—	180

BUSINESS ACTIVITIES AND PROSPECTS

Technical Summary

The principal elements of Alba's aluminium smelting plant are briefly described as follows:—

- (a) the four Potrooms, each 2175' x 75', containing 456 electrolytic furnaces (or pots) have been designed from specifications prepared initially by Montecatini Edison and sublet for the civil, mechanical and electrical work. Alba is continually developing its potroom facilities and a programme of computerised potroom process automation now being introduced is believed to be the most advanced of its type in the aluminium reduction industry.
- (b) the Cast House contains the mixing and holding furnaces from which the molten aluminium is poured into ingots, billets and slabs.
- (c) the Anode Manufacturing Plant consists of the Paste Plant, Kilns and Rodding Room.
- (d) Marine Facilities, Handling and Storage which include an unloading jetty, capable of receiving bulk carriers of up to 35,000 tons, and alumina and petroleum coke stores. The jetty is linked by a six mile aerial ropeway to the smelter and a causeway link has recently been added.
- (e) Power Station. The 19 gas turbines have a combined output of approximately 300 MW. The switch gear, rectifiers and high tension distribution system were designed and supplied through a direct contract between Alba and Electro-Invest of Sweden.
- (f) Water Supply. Due to the location of the plant, water was only available in sufficient quantity for process needs in the Cast House from either the sea or a deep well. A 450' well was drilled, providing brackish water. This raw water is degassed and desalinated to produce 250,000 gallons per day of pure water.

All other services normal to a major industrial complex such as offices, workshops, laboratories, cafeterias, medical centre and other ancillary facilities have also been provided.

Sources of Raw Materials

Alumina: Alba purchases its alumina requirements from Alcoa of Australia under a twenty year contract signed in 1970 under the terms of which Alba has the option of extending the expiry date for a further ten years. The contract provides for Alcoa of Australia to deliver from its jetty at Kwinana, Western Australia, up to 270,000 tons of alumina annually at prices which were initially calculated in U.S. dollars from a 1970 base price plus annual cost escalations not exceeding 2½% per annum. This pricing arrangement was later agreed by both buyer and seller to be excessively favourable to Alba and has been satisfactorily renegotiated. The volume of alumina purchased under this contract satisfies fully Alba's alumina requirements for its current and foreseeable aluminium production levels.

Currently the alumina is shipped from Kwinana to Bahrain by a Japanese shipping company, Yamashita Shinnihon, on a medium-term contract of affreightment which expires in December, 1978. In the light of the current world shipping market the management of Alba does not anticipate difficulty in negotiating a new agreement when the existing agreement expires in December, 1978.

Electricity: Alba's 300 megawatt electricity generation plant consumes about 100 million cubic feet of natural gas daily. This gas is supplied on favourable terms by the Bahrain National Oil Company ('Banoco') and the Bahrain Petroleum Company ('Bapco') mainly from the Khuff field under a twenty year contract signed in 1968. The contract provides for annual price increases and defines annual maximum and minimum levels between which Alba's consumption must range.

Carbon Anodes: For its annual production of 120,000 tons Alba requires about 60,000 tons of anodes which are used in the electrolytic furnaces to pass an electric current through the raw alumina to reduce the oxide of aluminium to pure aluminium metal. The anodes consist of carbon blocks suspended from aluminium rods. Alba has its own anode manufacturing facilities which produce some 450 rodded anodes daily.

The basic materials required for the anode production are petroleum coke and pitch. Alba imports over 50,000 tons annually of petroleum coke from Kaiser Trading, whilst its pitch requirements are at present imported from Australia. There are prospects that Alba's requirements of petroleum coke could be produced locally in association with Banoco and Bapco.

Labour Supply: As mentioned above under 'Management and Employees' Alba employs some 2,200 Bahraini nationals. Pressure on manpower in Bahrain is such that most replacements for staff losses will, for the foreseeable future, have to be expatriates probably from Pakistan, India or Far Eastern countries.

Alba is committed to employee welfare through training schemes, advanced industrial relations policies and occupational safety and is currently spending nearly BD 500,000 annually on training. A similar amount has been spent on improving training facilities and equipment. Seventy Bahraini employees will

