

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

FORM 10-K

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF  
THE SECURITIES EXCHANGE ACT OF 1934  
FOR THE FISCAL YEAR ENDED DECEMBER 31, 1998  
OR  
☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d)  
OF THE SECURITIES EXCHANGE ACT OF 1934

Commission File Number 1-3610

ALCOA INC.

(Exact name of registrant as specified in its charter)

Pennsylvania 25-0317820  
(State of incorporation) (I.R.S. Employer Identification No.)

Alcoa Corporate Center, 201 Isabella Street,  
Pittsburgh, Pennsylvania 15212-5858  
(Address of principal executive offices) (Zip code)

Registrant's telephone number--area code 412

Investor Relations-----553-3042  
Office of the Secretary-----553-4707

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

Title of each class	Name of each exchange on which registered
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Common Stock, par value \$1.00	New York Stock Exchange
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Securities registered pursuant to Section 12(g) of the Act: None

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

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐

As of March 5, 1999 there were 366,845,135 shares of common stock, par value \$1.00, of the registrant outstanding. The aggregate market value of such shares, other than shares held by persons who may be deemed affiliates of the registrant, was approximately \$14,695 million.

Documents incorporated by reference.

Parts I and II of this Form 10-K incorporate by reference certain information from the registrant's 1998 Annual Report to Shareholders. Part III of this Form 10-K incorporates by reference the registrant's Proxy Statement dated March 8, 1999, except for the performance graph and Compensation Committee Report.

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ALCOA INC.

Formed in 1888 under the laws of the Commonwealth of Pennsylvania, Alcoa Inc. has its registered office in Pittsburgh, Pennsylvania. The name of the Company was changed, effective January 1, 1999, from Aluminum Company of America to Alcoa Inc. In this report, unless the context otherwise requires, Alcoa or the Company means Alcoa Inc. and all subsidiaries consolidated for the purposes of its financial statements.

PART I

Item. 1. Business.

Overview

Alcoa is the world's leading producer of primary aluminum, fabricated aluminum and alumina and a major participant in all segments of the industry: mining, refining, smelting, fabricating and recycling. Alcoa serves customers worldwide primarily in the packaging, transportation (including aerospace, automotive, rail and shipping), building and industrial markets with a great variety of fabricated and finished products.

Alcoa is organized into 24 independently managed business units and has over 215 operating locations in 31 countries. Alcoa gives business unit leaders clear responsibilities that concentrate authority closer to customers.

The U.S. remains the largest market for aluminum. Europe, Asia and Latin America, however, present opportunities for substantial growth in aluminum use. To take advantage of these growth opportunities, Alcoa has made acquisitions or formed joint ventures and strategic alliances in key regional markets.

#### Recent Developments

In July 1998, Alcoa acquired all of the outstanding shares of Alumax Inc. (Alumax) for approximately \$3.8 billion, consisting of cash of approximately \$1.5 billion, stock of approximately \$1.3 billion and assumed debt of approximately \$1 billion. Alumax operated over 70 plants and other manufacturing facilities in 22 states, Canada, Western Europe and Mexico.

The description of each Alcoa operating segment below includes a discussion of the impact of the Alumax acquisition. That discussion indicates how the newly-acquired Alumax operations complement or expand Alcoa's existing products and markets.

In February 1998, Alcoa completed its acquisition of Inespal, S.A. (Inespal) of Madrid, Spain. Alcoa paid approximately \$150 million in cash and assumed \$260 million of debt and liabilities in exchange for substantially all of Inespal's businesses. The acquisition included an alumina refinery, three aluminum smelters, three aluminum rolling facilities, two extrusion plants and an administrative center. These facilities are discussed below in connection with the applicable Alcoa operating segment.

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#### Market and Geographic Information

Alcoa serves a variety of customers in a number of markets. Consolidated revenues from these markets during the past three years were:

	(dollars in millions)		
	1998	1997	1996
	----	----	----
Transportation	\$ 3,738	\$ 3,119	\$ 2,655
Packaging	3,304	3,201	3,326
Distributor and Other	2,764	2,151	2,154
Aluminum Ingot	2,012	1,521	1,449
Alumina and Chemicals	1,781	1,961	1,940
Building and Construction	1,741	1,366	1,537
	-----	-----	-----
Total	\$15,340	\$13,319	\$13,061
	=====	=====	=====

Countries other than the U.S. now contribute close to one-half of Alcoa's consolidated revenues, reflecting the Company's growing global presence.

	(dollars in millions)		
	1998	1997	1996
	----	----	----
U.S.	\$ 8,728	\$ 7,189	\$ 7,246
Australia	1,470	1,875	1,919
Spain	965	44	44
Brazil	934	1,161	1,135
Canada	574	404	351
Germany	554	580	623
Other	2,115	2,066	1,743
	-----	-----	-----
Total	\$15,340	\$13,319	\$13,061
	=====	=====	=====

#### Alcoa's Financial Reporting Segments

Alcoa has adopted SFAS No. 131, "Disclosures about Segments of an Enterprise and Related Information," which was issued in June 1997. This new accounting standard requires disclosure of segment information on the same basis that is used internally for evaluating performance and allocating resources. Accordingly, Alcoa reports four worldwide segments: Alumina and Chemicals, Primary Metals, Engineered Products and Flat-Rolled Products. All of the Company's products that do not fall into one of those four segments are reported in the category entitled Other. See Notes A and O to the Financial Statements for information on the recently adopted accounting standard and for segment and related geographic financial information.

## I. Alumina and Chemicals

The Alumina and Chemicals segment includes the production and sale of:

- bauxite
- alumina

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- alumina-based chemicals used principally in industrial applications and
- transportation services for bauxite and alumina.

The segment consists of a group of companies and assets referred to as Alcoa World Alumina and Chemicals (AWAC). Alcoa owns 60% and WMC Limited (WMC) owns 40% of AWAC. AWAC has two businesses with distinct product lines: Alcoa World Alumina (AWA) produces smelter grade alumina and Alcoa Industrial Chemicals (AIC) makes alumina-based chemicals. AWA also has two geographical regions: Alcoa World Alumina - Australia (AWA - Australia) and Alcoa World Alumina - Atlantic (AWA - Atlantic). AWA - Australia is the new trading name for Alcoa of Australia Limited (AofA); all references throughout this report will be to AWA - Australia instead of AofA.

### Bauxite and Alumina

Bauxite is aluminum's principal raw material. Alcoa refines bauxite into alumina using a chemical process. Alcoa processes into alumina most of the bauxite that it mines. All of the Company's active bauxite interests are part of AWAC, except in Brazil.

Alcoa is the world's leading producer of alumina. The Company sells alumina principally from operations in Australia, Jamaica and Suriname. Alcoa sold approximately 56% of its alumina production in 1998 under supply contracts to third parties worldwide. Alcoa negotiates most of its alumina supply contracts on the basis of agreed volumes over multi-year periods to assure a continuous supply to the smelters. The parties negotiate the prices periodically. Prices may be based on formulas related to aluminum ingot market prices or to alumina production costs.

AWA entities and Sino Mining Alumina Limited (SMAL) have a long-term agreement for the purchase of alumina for the Chinese aluminum industry. SMAL is ultimately owned by the China State Nonferrous Metals Industry Administration (SNMIA), a Chinese state-owned enterprise that has succeeded the China National Nonferrous Metals Industry Corporation (CNNC) as the entity responsible for the Chinese aluminum industry as part of the ongoing governmental restructuring in China. The arrangements entitle a subsidiary of SMAL to purchase a minimum of 400,000 metric tons (mt) of alumina per year for 30 years. The ongoing restructuring of SNMIA and the Chinese aluminum industry has not impacted this contract. The SMAL subsidiary also has the option to increase its alumina purchases as the needs of the Chinese aluminum industry grow.

### Alcoa World Alumina - Australia

AWA - Australia's bauxite mineral lease is due for renewal in 2002. Renewal options allow AWA - Australia to extend the lease until 2044.

AWA - Australia's three alumina refineries, located in Kwinana, Pinjarra and Wagerup, in Western Australia, have an aggregate annual rated capacity of 6.8 million mt. AWA - Australia has begun a 440,000 mt per year expansion of the Wagerup refinery with completion of construction expected in the second quarter of 1999. This US\$193 million expansion will increase Wagerup's production capacity from 1.75 million mt per year to 2.19 million mt per year. This is the first stage of a planned expansion to 3.30 million mt per year at Wagerup, for which AWA - Australia has obtained environmental approval.

AWA - Australia meets most of the energy requirements of its Australian refineries through a contract with the North West Shelf Gas Joint Venture. In December 1997, the parties extended the existing contract term from 2005 through 2020. These new arrangements may be subject to review by the Australian competition authorities.

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### Alcoa World Alumina - Atlantic

#### Suriname

Suriname Aluminum Company, L.L.C. (Suralco) mines bauxite in Suriname under rights that expire in 2032. Suralco also holds a 24% minority interest in a bauxite mining joint venture managed by the majority owner, an affiliate of Billiton plc (Billiton). Bauxite from both mining operations serves Suralco's share of a refinery in Suriname. Suralco expects to deplete the current mine reserves at both operations in the period 2005-2010.

Suralco owns 55% of a 1.7 million mt per year alumina refinery in Paranam, Suriname and operates the plant. An affiliate of Billiton holds the remaining 45% interest.

#### Jamaica

Bauxite mining rights in Jamaica expire after the year 2020. The

bauxite mining rights are held in a joint venture with the Government of Jamaica.

An Alcoa subsidiary and a corporation owned by the Government of Jamaica are equal participants in an alumina refinery in Clarendon Parish, Jamaica. The Alcoa subsidiary manages the joint venture. The participants expect the refinery's annual capacity to increase from 800,000 to about 1 million mt by the end of 1999.

#### Brazil

Alcoa owns 59% of Alcoa Alumínio S.A. (Alumínio). Alumínio manages the operation of the Alumar Consortium (Alumar), a cost-sharing and production-sharing venture that owns a large refining and smelting project near São Luís, in the northeastern state of Maranhão. For the refining project, Alumínio owns 35.1% of Alumar, an affiliate of Billiton owns 36%, Abalco S.A. (owned 60% by Alcoa and 40% by WMC) owns 18.9% and an affiliate of Alcan Aluminium Limited (Alcan) owns 10%.

In 1999, the Alumar refinery will complete an expansion of 260,000 mt, bringing the total annual capacity to approximately 1.25 million mt. The smelter consumes most of this alumina production.

Alumínio holds an 8.6% interest and Abalco S.A. holds a 4.6% interest in Mineracao Rio do Norte S.A. (MRN), a mining company jointly owned by affiliates of Alcan, Companhia Brasileira de Alumínio, Companhia Vale do Rio Doce, Billiton, Norsk Hydro and Reynolds Metals Company.

Alumínio and Abalco S.A. purchase bauxite from MRN under long-term supply contracts.

At Pocos de Caldas, Alumínio mines bauxite and operates a refinery. The refinery has an annual capacity of 270,000 mt and primarily supplies Alumínio's nearby smelter.

#### Spain

Alcoa and a WMC affiliate hold a 60% and 40% interest, respectively, in the refinery at San Ciprian, which was part of the Inespal acquisition.

#### Guinea

Alcoa has long-term contracts to purchase bauxite mined by a partially-owned entity in the Republic of Guinea in Western Africa. This bauxite services most of the requirements of the Pt. Comfort, Texas and San Ciprian, Spain alumina refineries. The contracts expire after 2011.

#### U.S.

Alcoa World Alumina LLC, through a majority-owned entity, St. Croix Alumina, L.L.C., owns a 600,000 mt per year alumina refinery located on St. Croix, U.S. Virgin Islands. In February 1998, AWA restarted the refinery to fill customer orders because AWAC's worldwide demand for alumina, including

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the material it produced at St. Croix, sold out for 1998. The refinery had been inactive due to world alumina market conditions.

Alcoa World Alumina LLC owns an alumina refinery at Pt. Comfort, Texas with an annual capacity of 2.3 million mt.

#### Industrial Chemicals

Alcoa sells industrial chemicals to customers in a broad spectrum of markets. These markets include:

- refractories
- ceramics
- abrasives
- chemicals processing and
- other specialty applications.

Alcoa produces or processes industrial chemicals, principally alumina-based chemicals, at the following locations. Except for the plants located in Brazil, all of the following facilities are part of AIC:

- Bauxite, Arkansas
- Ft. Meade, Florida
- Dalton, Georgia
- Port Allen and Vidalia, Louisiana
- Leetsdale, Pennsylvania
- Pt. Comfort, Texas
- Kwinana and Rockingham, Australia
- Pocos de Caldas and Salto, Brazil
- Ludwigshafen, Germany
- Falta, India (joint venture)
- Iwakuni and Naoetsu, Japan
- Moerdijk and Rotterdam, the Netherlands and
- Singapore.

In late 1998, AIC began construction of a facility in China to process tabular alumina and other alumina-based materials for sale to the Chinese refractory market.

Alcoa produces aluminum fluoride at two locations, Pt. Comfort and

Ft. Meade, both in the U.S. At Pt. Comfort, the aluminum fluoride is produced from fluorspar and at Ft. Meade it is produced from hydrofluosilicic acid. Aluminum fluoride is used in the aluminum smelting process.

## II. Primary Metals

The Company smelts primary aluminum from alumina obtained principally from its alumina refineries. Following the Alumax acquisition, Alcoa's consolidated primary aluminum capacity is approximately 3.2 million mt per year. When operating at capacity, Alcoa's smelters satisfy most of the primary aluminum requirements of its fabricating operations. Other Alcoa operations used most of the Company's primary aluminum production in 1998 for alloying and/or further fabricating. Purchases of aluminum scrap, principally used beverage cans, supplemented by purchases of ingot when necessary, satisfy additional aluminum requirements. Since 1994, Alcoa has had 450,000 mt of its worldwide smelting capacity idle because of an oversupply of ingot on world markets.

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Alcoa produces aluminum from alumina by an electrolytic process requiring large amounts of electric power. Electric power accounts for approximately 25% of the Company's primary aluminum costs. Alcoa generates approximately 40% of the power used at its smelters worldwide. Most purchase contracts for firm power tie prices to aluminum prices or to prices based on various indices.

#### Australia

AWA - Australia is a participant in a joint venture smelter at Portland, in the State of Victoria, with an annual rated capacity of 320,000 mt. The owners of the smelter are:

- AWA - Australia (45% interest)
- Eastern Aluminum Ltd. (10% interest)
- the China International Trust and Investment Corporation (22.5% interest) and
- Marubeni Aluminium Australia Pty., Ltd. (22.5% interest).

Each participant in this smelter contributes to the cost of operations and construction in proportion to its interest in the venture. Each participant also then receives a proportionate share of the output. AWA - Australia supplies the alumina and operates the smelter.

Power is generated from extensive brown coal deposits covered by a long-term mineral lease held by AWA - Australia, and that power currently provides approximately 40% of the electricity for the 180,000 mt Point Henry smelter. The State Electricity Commission of Victoria (SECV), under contracts with AWA - Australia, provides the remaining power for this smelter and all power for the Portland smelter. Using a formula, the parties tie power prices to aluminum prices. Negotiations have been finalized on favorable economic terms that permit power interruptibility at both Point Henry and Portland to contribute to accommodating peak demands in the power grid serving the State of Victoria.

#### Brazil

The Alumar smelter at Sao Luis, Brazil has an annual rated capacity of 362,000 mt. Aluminio receives about 54% of the production from this smelter. Aluminio purchases electric power from the government-controlled power grid in Brazil at a small discount from the applicable industrial tariff price. There is a protective cap on the price of the electric power based on the London Metal Exchange (LME) aluminum price.

Aluminio contracted with Central Eletricas de Minas Gerais S.A. (CEMIG), the government-controlled electric utility, to supply power to Aluminio's 90,000 mt Pocos de Caldas smelter for a 30-month period that began in October 1996. Aluminio purchased the plant's anticipated full power requirements for this period through a single payment based on the price of energy on the date of the agreement. In February 1999, Aluminio and CEMIG entered into a new power purchase agreement. Similar to the previous agreement, Aluminio purchased the plant's anticipated full power requirements for 38 months, beginning April 1999, through a single payment based on the price of energy on the date of the agreement.

Aluminio participates in a consortium that is building the new Machadinho hydroelectric power plant in Southern Brazil. In early 1998, after all of the necessary environmental and other approvals had been obtained, the consortium began construction of the dam and related facilities. Aluminio will share in the output of the plant beginning in 2002. Aluminio expects its share to be sufficient to supply approximately one-half of the power requirements for the Pocos de Caldas smelter. In addition, Aluminio intends to participate in an auction process that could result in its purchase of the regional Rio Pardo hydroelectric utility.

#### Europe

The Company's aluminum smelters at Portovesme and Fusina, Italy have a combined annual capacity of 187,000 mt. The owners of the Eurallumina refinery, located on the island of Sardinia

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adjacent to the Portovesme smelter, supply alumina to Alcoa Italia S.p.A. under an evergreen agreement. ENEL, Italy's state-owned utility, supplies power for these smelters.

The acquisition of Inespal included the purchase of aluminum smelters at San Ciprian, La Coruna and Aviles, with a combined annual capacity of 365,000 mt. The San Ciprian refinery supplies alumina, and the government-controlled power grid currently supplies electric power at the lowest applicable industrial tariff rate.

#### North America

The Company generates approximately 35% of the power requirements for its 11 North American smelters and purchases the remainder under long-term contracts. Alcoa obtains approximately 12% of the self-generated power from its entitlement to a fixed percentage of the output from Chelan County Public Utility District's Rocky Reach hydroelectric power facility located in the State of Washington.

In addition, Alcoa has a contract with the Bonneville Power Administration (BPA) that services the Wenatchee, Washington smelter. Several contractual provisions allow power supply restrictions when power is in short supply. Beginning in 1995, power purchased from a local public utility district replaced a portion of the power supplied under the BPA contract. The Wenatchee facility currently uses no power from BPA, but instead purchases its additional power needs from the local public utility district.

The Company has generated substantially all of the power used at its Warrick, Indiana smelter using nearby coal reserves. A 1996 coal supply contract satisfies 40% of the smelter's fuel requirement through 2006. Existing low-sulfur coal contracts satisfy an additional 35% of the requirement through 1999. Short-term contracts of less than two years satisfy the remainder of the fuel requirements.

The Rockdale, Texas smelter uses lignite to generate power. Company-owned generating units supply about one-half of the total requirements. Texas Utilities Company supplies the balance through a long-term power contract expiring in 2013.

Two subsidiaries of the Company own and operate hydroelectric facilities under Federal Energy Regulatory Commission licenses. They provide electric power for the aluminum smelters at Alcoa, Tennessee and Badin, North Carolina. The Tennessee plant also purchases firm and interruptible power from the Tennessee Valley Authority under a contract recently extended to 2010. The Badin plant purchases additional power from Duke Power under an evergreen contract providing for specified periods of notice before termination by either party.

The purchased power (primarily hydroelectric) contract for the Massena, New York smelter expires not earlier than 2003. Alcoa, however, may terminate this contract with one year's notice.

Through the Alumax acquisition, Alcoa increased its primary aluminum capacity and added to its primary aluminum operations. Alcoa acquired ownership interests in the following smelters: Lauralco, located in Deschambault, Quebec (100.00%); Intalco, located in Ferndale, Washington (61.00%); Eastalco, located in Frederick, Maryland (61.00%); Mt. Holly, located in Goose Creek, South Carolina (50.33%); and Becancour, located in Becancour, Quebec (24.95%). During 1998, these facilities produced a total of 1,286,000 mt of aluminum, of which the Company's share was 718,200 mt.

A Japanese consortium, led by a subsidiary of Mitsui & Co. Ltd., owns an aggregate 39% interest in each of the Intalco and Eastalco facilities. Subsidiaries of Century Aluminum Company, a publicly traded domestic corporation, and Sudelektra Holding, AG, a Swiss corporation, together own 49.67% of Mt. Holly.

AWA - Australia has been Alumax's principal supplier of alumina for over 20 years and currently provides substantially all of the alumina for its smelting operations.

Lauralco, Intalco, Eastalco, Mt. Holly and Becancour purchase electricity under long-term contracts that expire in the years 2014, 2001, 2003, 2005 and 2014, respectively, subject to certain extension provisions. Except for Intalco, each facility's contract is with a single supplier. Power rates for all of the electricity supplied to the Becancour and Lauralco facilities are linked to the prevailing price of aluminum. In late 1995, Intalco entered into a series of new long-term power contracts with the BPA and British Columbia Power Exchange Corporation to provide all of its electricity needs from September 1996 through 2001. Under these contracts, Intalco's power costs are no longer linked to the price of aluminum but are set at a fixed rate. Mt. Holly entered into a new electric power supply agreement in 1997, while Eastalco amended its existing power supply agreement during the same year. For the foreseeable future, these contracts are expected to meet the power requirements of these facilities.

In February 1998, Alcoa and the government of British Columbia, Canada signed a memorandum of understanding to proceed with a feasibility study for the construction of a 250,000 mt per year primary aluminum smelter. Alumax Primary Aluminum Corporation also entered into a similar memorandum of understanding with the British Columbia government. After Alcoa acquired Alumax, the study by the Alumax

subsidiary was not completed. Alcoa completed its study, but the project is on hold until market conditions change.

In addition, Alcoa produces and markets aluminum paste, particles, flakes and atomized powder. The Company also produces high-purity aluminum.

#### Suriname

Suralco owns and operates a 30,000 mt per year smelter in Paranam, Suriname. Suralco also operates the Afobaka hydro project, which supplies power to the smelter.

#### Norway

The Company reports equity earnings from its interest in two smelters in Norway. Elkem Aluminium ANS, 50%-owned by an Alcoa subsidiary, is a partnership that owns and operates the smelters.

### III. Flat-Rolled Products

Alcoa's flat-rolled products serve three principal markets: packaging, transportation and building and construction. Light gauge sheet products, mainly RCS and foil, serve the packaging market, and mill products (sheet and plate) serve the other markets.

Alcoa employs its own sales force for most products sold in the packaging market.

#### Rigid Container Sheet (RCS)

RCS accounted for most of the 1998 revenues in the packaging market. Can companies purchase RCS for production of beverage and food cans and can ends.

The number of RCS customers in the U.S. is relatively small. Use of aluminum beverage cans continues to increase by approximately 3% annually worldwide.

Aluminum's diverse characteristics, particularly its light weight, recyclability and flexibility for package designs, are significant factors in packaging markets. Aluminum competes with materials such as steel, plastic and glass in these markets. Alcoa maintains leadership in the packaging markets by

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improving processes and facilities. Alcoa also provides marketing, research and technical support to its customers. Alcoa produces RCS at the following locations:

- Warrick, Indiana
- Alcoa, Tennessee
- Point Henry and Yennora, Australia (joint venture facilities)
- Moka, Japan (joint venture facility) and
- Swansea, Wales.

Kaal Australia Pty. Ltd., 50%-owned by Alcoa, owns and operates the former AofA rolling mill at Point Henry and the former Comalco Limited rolling mill at Yennora. These mills produce RCS for the Australian and Asian markets. AWA - Australia supplies Kaal Australia with aluminum ingot.

A subsidiary of Alcoa participates in a 50/50 joint venture with Kobe Steel, Ltd. that produces RCS for markets in Japan and other Asian countries. In connection with this venture, Alcoa has a long-term contract to supply metal to Kobe Steel.

Used aluminum beverage cans are an important source of metal for RCS. Recycling aluminum conserves raw materials, reduces litter and saves energy -- about 95% of the energy needed to produce aluminum from bauxite. In addition, recycling capacity costs much less than new primary aluminum capacity. The Company has can recycling or remelt facilities at or near its plants in:

- Warrick, Indiana
- Alcoa, Tennessee and
- Yennora, Australia.

#### Foil

Alcoa's Lebanon, Pennsylvania facility produces industrial foil, laminated foil and brazing sheet. The building and construction, packaging and automotive markets use these products. Continuous casting facilities in Hawesville, Kentucky and Badin, North Carolina produce reroll stock in support of the Lebanon facility. With the acquisition of Alumax, Alcoa acquired an additional casting facility in St. Louis, Missouri. Foil products from this facility are sold primarily to commercial users in the flexible packaging, converter, food service and pharmaceutical industries. The Company now also owns and operates a facility in Russellville, Arkansas. The Russellville plant, which is supported by the casting facility in St. Louis, includes two rolling mills, annealing ovens and ancillary equipment, all dedicated to the production of foodservice and converter foil products.

Aluminio, near Recife, Brazil, manufactures light gauge sheet,

foil products and laminated evaporator panels. The Yennora, Australia plant also produces light gauge sheet. In addition, the facilities at Alicante and Sabinanigo, Spain produce foil products.

Alcoa and Shanghai Aluminum Fabrication Plant (SAFP) have a joint venture, owned 60% by Alcoa and 40% by SAFP, that operates the former SAFP aluminum foil and foil laminate production facility in Shanghai, China. With the addition of a second caster in April 1998, the annual output of the joint venture facility is now approximately 14,000 mt.

As part of the Alumax acquisition, the Company acquired a 56% interest in a foil mill in Kunming, Yunnan, China.

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## Mill Products

Alcoa produces sheet and plate products that are used in the following markets:

- aerospace
- auto and truck
- lithographic
- railroad
- shipbuilding
- building and construction
- defense and
- other industrial and consumer markets.

The Company maintains its own sales force for most of the sheet and plate products.

Differentiation of material properties, price and service are significant competitive factors in these markets. Aluminum's diverse characteristics are important in markets where competitive materials include steel and plastics for automotive and building applications; magnesium, titanium, composites and plastics for aerospace and defense applications; and wood and vinyl in building and construction applications. Alcoa continues to develop alloys and products for aerospace and defense applications, such as those developed for the:

- Boeing 777 aircraft
- Lockheed F-16 aircraft
- Canadair aircraft
- Advanced Amphibious Assault Vehicle and
- Airbus A340-600 aircraft.

Davenport, Iowa is home to Alcoa's largest sheet and plate plant. The plant produces products requiring special alloying, heat-treating and other processing, some of which are unique or proprietary. Over the past two years, the Davenport plant's heat-treating capacity for sheet and plate was increased to meet aerospace and automotive demand. Alcoa also commissioned the largest vertical heat-treat furnace in North America, thus tripling the plant's capacity for wide-width fuselage sheet. A horizontal plate heat-treating furnace has increased capacity by 30% since production began in the second quarter of 1997.

Alcoa has a plant in Hutchinson, Kansas for further processing and just-in-time stocking of aluminum sheet products for the U.S. aerospace market. Alcoa serves European sheet and plate markets through a distribution center in Paal, Belgium.

Alcoa has a plant in Danville, Illinois for further processing and just-in-time stocking of aluminum sheet products for the North American automotive market. This facility began to operate in 1998 and is expected to be up to full production in the second half of 1999.

As required by the terms of its agreement with the U.S. Department of Justice that cleared the way for the Company to acquire Alumax, Alcoa sold its cast aluminum plate business in Vernon, California to Century Aluminum Company in December 1998.

Alcoa and Kobe Steel have a joint venture in the U.S. and one in Japan to serve the transportation industry. The focus of these ventures is to expand the use of aluminum sheet products in passenger cars and light trucks.

The Company's Hungarian subsidiary, Alcoa-Kofem Kft (Kofem), produces common alloy flat and coiled sheet as well as soft alloy extrusions and end products for the building, construction, food, transportation and agricultural markets in central and western Europe. Kofem began delivering

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aluminum truck bodies to major beverage companies in Russia and Poland in 1996. Kofem also delivered additional truck bodies to customers in central and eastern European countries in 1997.

The Company's Alcoa Italia S.p.A. subsidiary produces industrial plate and common alloy flat and coiled sheet for the building and construction, transportation and other industrial markets in Europe at its Fusina, Italy rolling mill.

In the Inespal acquisition, Alcoa acquired rolling mills at Amorebieta, Alicante and Sabinanigo, Spain. These mills produce industrial plate and common alloy flat and coiled sheet for the building and construction and transportation markets, lithographic sheet and coil and bright products for lighting, cosmetic and



industrial uses, and foil products for food, pharmaceutical and industrial applications in Europe.

As part of the Alumax acquisition, Alcoa acquired Alumax Mill Products. Alumax Mill Products produces flat-rolled products, both sheet and plate, and semi-fabricated products, circles and blanks at mills in Lancaster, Pennsylvania and Texarkana, Texas. The Lancaster facility also produces semi-fabricated cast aluminum plate, engineered to meet highly specialized industrial applications. In November 1997, Alumax Mill Products entered into a new five-year operating lease, renewable for up to two additional years, covering the Texarkana mill. This leasing arrangement enabled Alumax to forego a previously planned capital investment of \$97 million to purchase the Texarkana facility.

Alcoa is in the process of integrating the marketing and sales functions for Alumax products to maximize efficiencies, meet customer demands and realize cost savings.

In October 1998, Alcoa and Pechiney announced their letter of intent for Alcoa to purchase the bright products business of Pechiney's Rhenalu rolling plant located at Castelsarrasin near Toulouse, France.

#### IV. Engineered Products

Engineered products include aluminum extrusions, forgings, castings and wire, rod and bar.

##### Extrusions

As part of the Alumax acquisition, Alcoa acquired Alumax Extrusions, Inc. (the name has subsequently been changed to Alcoa Extrusions, Inc.), a manufacturer of a broad line of soft alloy extruded products and secondary billet. Alcoa Extrusions has 12 plants located in Arkansas, Florida, Georgia, Illinois, Mississippi, North Carolina, Pennsylvania, South Dakota, Tennessee, Utah and an international operation in Monterrey, Mexico. Its shower and bath enclosures are distributed through nine service centers in California, Florida, Georgia, Iowa, North Carolina, Pennsylvania, Texas and Washington. The Monterrey, Mexico operation consists of a three-press extrusion plant with distribution facilities in Mexico City, Guadalajara, and Hermosillo. Except for the plants located in North Carolina and Monterrey, the service centers and the distribution facilities in Guadalajara and Hermosillo, which are leased, Alcoa Extrusions owns all of these plants and facilities.

The North American operations of Alcoa Extrusions have been integrated into the Alcoa Engineered Products business unit and the recently created Alcoa Extruded Construction Products business unit.

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Alcoa Engineered Products has nine operating locations, five of which are Alumax Extrusion locations.

- Chandler, Arizona - hard alloy extrusions, tube and forge stock
- Morris, Illinois - industrial and distribution common alloy extrusions
- Lafayette, Indiana - hard alloy extrusions and tube
- Baltimore, Maryland - large press extrusions
- Massena, New York - cast rod, mechanical-grade redraw rod, wire and cold-finished rod and bar extrusions
- Catawba, North Carolina - specialized extrusions
- Cressona, Pennsylvania - industrial and distribution common alloy extrusions
- Elizabethton, Tennessee - industrial and distribution common alloy extrusions
- Spanish Fork, Utah - industrial and distribution common alloy extrusions

These facilities are supported by sales and administration centers in Illinois, Indiana and Pennsylvania. These operations market and sell extrusions to the service center and transportation and aerospace customers. They also service key original equipment manufacturers' accounts in the machinery and equipment, electrical switchgear and transmission, recreation, medical and consumer durables markets.

Alcoa Extruded Construction Products has nine operating locations: Arkansas, Florida, Georgia (2), Illinois, Louisiana, Mississippi, South Dakota and Mexico. These facilities manufacture and sell soft alloy extruded products. They are supported by eight distribution centers that manufacture, fabricate and sell bath and shower enclosures. Representative products include window and door frames, bath and shower enclosures, patio and pool enclosures, stadium seating, light poles and flag poles, bridges, rail and decking, and colored architectural shapes. Alcoa announced the closure of the Illinois facility in February 1999.

Aluminio and a subsidiary in Argentina manufacture aluminum extruded products. Aluminio operates the former Alcan extrusion assets in Brazil, which include four plants and eight extrusion presses.

Alcoa Extrusions Hannover GmbH & Co. KG produces and markets high-strength aluminum extrusions and rod and bar to serve European transportation and defense markets.

The subsidiaries of Alcoa Nederland Holding B.V. produce extrusions, common alloy sheet products and a variety of finished products for the building industry, such as aluminum windows, doors and aluminum ceiling systems. These companies also manufacture products for agricultural applications, such as automated greenhouse systems.

Aluminum East ZA0, through its Building Systems International branch, assembled and sold aluminum windows and doors in Russia. Alcoa, however, has discontinued this business.

Alcoa Italia S.p.A. produces and markets industrial extrusions through plants in Bolzano, Fossanova, Feltre and Iglesias, Italy. Also part of Alcoa Italia S.p.A. is an extrusion die shop located in Mori, Italy.

In addition to the Company's existing extrusion plant in Spain, the Inespal acquisition also included the purchase of extrusion plants at Noblejas and La Coruna, Spain.

Alcoa also has extrusion plants in Hungary and the United Kingdom. In December 1998, Alcoa and Reynolds Metals Company announced a definitive agreement for Alcoa to purchase Reynolds' aluminum extrusion plant in Irurzun, Spain. This transaction is expected to close in the first half of 1999.

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In November 1998, Alcoa sold the assets and certain liabilities of Alcotec Wire Company, a partnership owned 70% by Alcoa and 30% by Aluminum Technology Corporation, to ESAB Group Limited, a subsidiary of the British company, Charter Group.

Alcoa also acquired Kawneer Company, Inc. (Kawneer) and Alumax Europe N.V. (Alumax Europe) in the Alumax acquisition. Kawneer designs, manufactures and markets architectural aluminum products and is a leading producer of these products in the U.S. and Canada. These products include entrances, windows, framing and curtain wall systems for the commercial building markets. Kawneer products are also engineered for use on construction projects throughout the world.

Kawneer operates five integrated architectural plants, 17 service centers and one additional manufacturing location in the U.S. Distribution is principally through dealers, most of whom are glazing contractors.

Kawneer also operates two integrated architectural plants in Canada that provide most of the product that is sold for large overseas projects, as well as two service centers.

Alumax Europe was organized in 1997 to manage Alumax's operations in the United Kingdom, France, Germany, Poland and the Netherlands. It also participates in a joint venture in Morocco. Two manufacturing plants located in France and one each in England and Germany, three of which are owned and one of which is leased, provide architectural aluminum products very similar to those produced by Kawneer operations in the U.S. These products are marketed under the Kawneer name throughout Europe. Alumax Europe's Kawneer subsidiaries also operate service centers in France, Poland and Morocco. Other operations of Alumax Europe include custom extrusion plants in the United Kingdom and the Netherlands, and an aluminum recycling facility in the Netherlands that produces soft alloy extrusion billet.

#### Forgings and Castings

The plant in Cleveland, Ohio produces aluminum forgings, sold principally in the aerospace, automotive, commercial transportation and defense markets. It also produces aluminum forged wheels for passenger automobiles, sport utility vehicles and light trucks and wheels for the Class 8 heavy-duty truck industry. Alcoa's plant in Szekesfehervar, Hungary manufactures forged aluminum truck wheels for the European market. The plant also manufactures wheels for export to Asian, South American and other geographic markets that use European-style wheels.

Alcoa has a 50% interest in a partnership, A-CMI, with a subsidiary of CMI International, Inc. to produce cast and forged aluminum automotive parts. A-CMI's plants are located in Fruitport, Michigan, Hawesville, Kentucky and Lista, Norway. The Lista plant is located near the 50%-owned Elkem Aluminium ANS smelter, which delivers molten aluminum to the plant.

Alcoa also designs and builds specialized die-casting machines through a subsidiary in Montreal, Canada.

Alumax Engineered Metal Processes, Inc. (AEMP) produces automotive components with operations in Jackson, Tennessee and Bentonville, Arkansas using a semi-solid forging process. In December 1998, Alcoa announced a binding letter of intent to sell the Jackson, Tennessee facility to the management of AEMP. Alcoa has closed the Bentonville, Arkansas plant.

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#### V. Other

This category includes the production and sale of high performance

body structures for cars, electrical, plastic and composite materials products, manufacturing and packaging equipment, gold, magnesium products and steel and titanium forgings.

## High Performance Automotive Body Structures

Alcoa Automotive Structures GmbH produces aluminum components and sub-assemblies for aluminum automotive spaceframes. Aluminum spaceframes represent a significant departure from the traditional method and material used to manufacture primary auto body structures.

In 1993, Alcoa began operating a unique multi-million dollar plant in Soest, Germany to supply aluminum components and subassemblies to its first customer, Audi AG. The Audi A8 luxury sedan was the first production automobile to utilize a complete aluminum spaceframe body structure. Audi began marketing the A8 in Europe in 1994 and in the U.S. in late 1996. The aluminum spaceframe of the A8 is a result of a cooperative effort between Alcoa and Audi that began in 1981. Alcoa produces the components and sub-assemblies for the spaceframe. The Soest plant also produces the front end module for the new Mercedes-Benz A Class car.

Alcoa has worked closely with Ferrari on the development of the all-aluminum body structure for its 360 Modena model that was unveiled at the 1999 Geneva International Motor Show. This body structure, build on-site inside Ferrari's Scaglietti Works, uses extruded and die-cast components from the Soest plant and sheet components from Alcoa Mill Products in Danville, Illinois.

Alcoa also operates design and engineering offices in Esslingen (Stuttgart), Germany, Detroit, Michigan, and Alcoa Technical Center, near Pittsburgh, Pennsylvania. The Company designs aluminum auto body structures for a variety of European car manufacturers at these locations.

Alcoa is working with several other automobile manufacturers in North America and Japan to develop new automotive applications for aluminum products. For example, DaimlerChrysler's Plymouth Prowler, a roadster, entered initial, low-volume production in 1997. Carrying 900 pounds of aluminum (or approximately one-third of its weight), the Prowler has an all-aluminum frame and body as well as aluminum for brake rotors and suspension components. Alcoa and Chrysler designed the car's spaceframe, and Alcoa provides aluminum sheet stock for stamping into body panels and bumper assemblies. Alcoa's plant in Northwood, Ohio manufactures the Prowler frame and a variety of aluminum structural assemblies for the U.S. automotive industry, including the Corvette windshield surround.

## Alcoa Fujikura Ltd. (AFL)

AFL produces and markets electronic and electrical distribution systems (EDS) for the automotive industry, as well as fiber optic products and systems for selected electric utilities, telecommunications, cable television and datacom markets. AFL supplies EDS to:

- Ford
- Subaru
- PACCAR
- Audi
- Volkswagen and
- DaimlerChrysler.

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AFL owns Michels GmbH & Co. K.G. (Michels), a European manufacturer of EDS for automobiles. AFL also owns the Stribel group of companies, European manufacturers of electromechanical and electronic components for the European automotive market. The European facilities are located in Germany, Hungary, Ireland and the United Kingdom.

AFL and Aluminio have a joint venture, AFL do Brasil Ltda., that manufactures and sells EDS in Brazil. AFL also has an EDS manufacturing facility in Venezuela.

Significant competitive factors in the EDS markets include price, quality and full service supplier capability, as automakers increasingly require support from selected suppliers on a global basis.

In mid-1997, AFL's telecommunications division acquired the assets of Six "R" Communications Inc., a Monroe, North Carolina-based provider of EF&I services (engineer, furnish and install) to the telecom, CATV and electric utility industries. Six "R" Communications, L.L.C., a majority-owned entity, now operates this business.

In March 1998, Six "R" Communications, L.L.C. acquired T.I.C.S. Corporation, a leading provider of network solutions for voice and data applications. In the fourth quarter of 1998, AFL also acquired an 80.1% ownership interest in two companies that provide EF&I services, MinTel Communications, L.L.C. and Quality Control Services, L.L.C.

## Packaging and Closures

Alcoa Closure Systems International, Inc. (ACSI), the world's

largest producer of plastic closures, manages all of Alcoa's worldwide closures businesses other than in South America. ACSI coordinates its business from Indianapolis, Indiana. The Company's South American closures business and PET (polyethylene terephthalate) plastic bottles manufacturing facilities are managed independently by Aluminio from Sao Paulo, Brazil.

The use of plastic closures has surpassed that of aluminum closures for beverage containers in the U.S. and in many other countries. Alcoa has plastic closure, PET plastic bottles, closure molding equipment and packaging equipment design and assembly facilities at the following locations:

#### Packaging and Closures Facilities

Crawfordsville, Indiana	Santiago, Chile	Nogi, Japan
Olive Branch, Mississippi	Tianjin, China	Saltillo, Mexico
Buenos Aires, Argentina	Bogota, Colombia	Lima, Peru
Manama, Bahrain	Szekesfehervar, Hungary	Lyubuchany, Russia
Barueri, Itapissuma, Lages and	Ensenada, Mexico	Barcelona, Spain
Queimados, Brazil	San Jose, Costa Rica	Worms, Germany

The Alcoa Packaging Equipment business unit designs, manufactures and services:

- bodymakers
- decoration equipment
- registered embossers
- end conversion presses
- a variety of testing equipment for the can making industry and
- plastic and aluminum closure handling, orientation, inspection and capping equipment for the food and beverage industry.

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The Alcoa Advanced Technologies division of this business unit supplies advanced material products to the semiconductor equipment industry.

#### Other Aluminum Products

In March 1998, Aluminio sold the assets of its aluminum truck body division.

Aluminio and Phelps Dodge Corporation have a joint venture that produces aluminum electric cable and copper wiring and cables in Brazil. The venture, Phelps Dodge & Alcoa Fios e Cabos Eletricos S.A., is owned 60% by Phelps Dodge and 40% by Aluminio. Production takes place at the venture's plant in Pocos de Caldas.

Alcoa Building Products, Inc. (ABP) manufactures and markets residential aluminum siding and other aluminum building products. ABP sells these products principally to wholesale distributors.

ACSI produces aluminum closures for bottles at Worms, Germany, Nogi and Ichikawa, Japan, and Barcelona, Spain. In October 1998, the Company signed a letter of intent to sell substantially all of the assets and certain liabilities of Capsulas Metalicas, S.A., its metal beverage closures business in Spain, to Alucapvit, SPA.

Alcoa also owns a 36% interest in American Trim, L.L.C., a joint venture that manufactures primarily auto parts and appliance control panels.

#### Other Nonaluminum Products

ABP produces vinyl siding and accessories and other nonaluminum building products for the building and construction markets.

Northwest Alloys, Inc., in Addy, Washington, produces magnesium from minerals in the area owned by the Company. Alcoa uses the magnesium for certain aluminum alloys and also sells it to third parties.

Aluminio owns 40% and affiliates of Alcatel of France own 60% of a joint venture, called Alcatel Cabos Brazil. The venture manufactures, in Brazil, and sells telecommunication cables and related accessories in South America.

In November 1998, Hedges Gold Pty. Ltd., a subsidiary, completed the sale of the Hedges gold mine in Western Australia and the corresponding mining leases to Boddington Gold Mine joint venturers. The gold processing plant was not included in the sale.

The Alcoa facility at Cleveland, Ohio produces large press steel, titanium and special super alloy forgings. Aerospace and commercial customers are the principal purchasers of these products.

## Competition

The markets for most aluminum products are highly competitive. Price, quality and service are the principal competitive factors in most of these markets. Where aluminum products compete with other materials, the diverse characteristics of aluminum are also a significant factor, particularly its light weight and recyclability.

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The aluminum industry is highly cyclical, and the LME-based prices of primary aluminum influence the Company's results of operations. This price sensitivity impacts a portion of the Company's alumina sales and many of the Company's aluminum products. There is, however, less impact on the more specialized and value-added products.

The Company continues to examine all aspects of its operations and activities and redesign them where necessary to enhance effectiveness and achieve cost reductions. Alcoa believes that it enhances its competitive position through its improved processes, extensive facilities and willingness and ability to commit capital where necessary to meet growth in important markets, and by the capability of its employees. This includes implementation of Alcoa Business System (ABS) and the Alcoa Production System (APS). Research and development has led to improved product quality and production techniques, new product development and cost control.

ABS is based upon the integration of the Company's mission, vision and values with its business processes and measures in order to create maximum value. APS is the manufacturing component of ABS. APS's basic tenets are (1) produce for use, not for inventory, (2) eliminate waste and (3) recognize that people are the linchpin of the system.

Alcoa has made significant achievements to date through the implementation of APS at several of its businesses, including:

- reduction of inventory and flow-time and
- increase in output

Alcoa believes that ABS and APS will in time substantially improve its profitability relative to its peers. In July 1998, Alcoa announced a \$1.1 billion cost reduction initiative to be achieved by January 1, 2001. The Company intends to realize a significant portion of this reduction through ABS and APS.

## Risk Factors

In addition to the risks inherent in its operations, Alcoa is exposed to financial, market, political and economic risks. The following discussion, which provides additional detail regarding Alcoa's exposure to the risks of changing commodity prices, foreign exchange rates and interest rates, includes forward-looking statements that involve risk and uncertainties. Actual results could differ materially from those projected in these forward-looking statements.

## Commodity Price Risks

Alcoa is a leading global producer of aluminum ingot and aluminum fabricated products. As a condition of sale, customers often require Alcoa to commit to fixed-price contracts that sometimes extend a number of years into the future. Customers will likely require Alcoa to enter into similar arrangements in the future. These contracts expose Alcoa to the risk of fluctuating aluminum prices between the time the order is accepted and the time that the order ships.

In the U.S., Alcoa is net metal short and is subject to the risk of higher aluminum prices for the anticipated metal purchases required to fulfill the long-term customer contracts noted above. To hedge this risk, Alcoa enters into long positions, principally using futures and options. Alcoa follows a stable pattern of purchasing metal; therefore, it is highly likely that anticipated metal requirements will be met. At December 31, 1998 and 1997, these contracts totaled approximately 933,000 mt and 1,084,000 mt, respectively. These contracts act to fix the purchase price for these metal purchase requirements, thereby reducing Alcoa's risk to rising metal prices.

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A hypothetical 10% change from the 1998 year-end, three-month LME aluminum ingot price of \$1,244 per mt would result in a pre-tax gain or loss to future earnings of \$110 million related to all of the futures and options contracts noted above. However, it should be noted that any change in the value of these contracts, real or hypothetical, would be significantly offset by an inverse change in the value of the underlying metal purchase transactions.

Earnings were selected as the measure of sensitivity due to the historical relationship between aluminum ingot prices and Alcoa's earnings. The hypothetical change of 10% was calculated using a parallel shift in the existing December 31, 1998 forward price curve for aluminum ingot. The price curve takes into account the time value of money, as well as future expectations regarding the price of aluminum ingot. The model also assumes there will be no aluminum smelter capacity restarted by Alcoa.

The futures and options contracts noted above are with creditworthy counterparties and are further supported by cash, treasury bills or irrevocable letters of credit issued by carefully chosen banks.

The expiration dates of the options and the delivery dates of the futures contracts noted above do not always coincide exactly with the dates on which Alcoa is required to purchase metal to meet its contractual commitments with customers. Accordingly, some of the futures and options positions will be rolled forward. This may result in significant cash inflows if the hedging contracts are "in-the-money" at the time they are rolled forward. Conversely, there could be significant cash outflows if metal prices fall below the price of contracts being rolled forward.

In addition to the above noted aluminum positions, Alcoa had 29,000 mt and 259,000 mt of futures and options contracts outstanding at year-end 1998 and 1997, respectively, that cover long-term, fixed-price commitments to supply customers with metal from internal sources. Accounting convention requires that these contracts be marked-to-market, which resulted in after-tax charges to earnings of \$45 million in 1998, \$13 million in 1997 and \$57 million in 1996. A hypothetical 10% change in aluminum ingot prices from the year-end 1998 level of \$1,244 per mt would result in a pre-tax gain or loss of \$3 million related to these positions. The hypothetical gain or loss was calculated using the same model and assumptions noted earlier.

Alcoa also purchases certain other commodities, such as gas and copper, for its operations and enters into futures contracts to eliminate volatility in the prices of such products. None of these contracts are material. For additional information on financial instruments, see Notes A and T to the Financial Statements.

#### Foreign Exchange Risks

Alcoa is subject to significant exposure from fluctuations in foreign currencies. As a matter of company policy, foreign currency exchange contracts, including forwards and options, are sometimes used to limit the risk of fluctuating exchange rates. A hypothetical 10% change in applicable 1998 year-end forward rates would result in a pre-tax gain or loss of approximately \$135 million related to these positions. However, it should be noted that any change in the value of these contracts, real or hypothetical, would be significantly offset by an inverse change in value of the underlying hedged item. The model assumes a parallel shift in the forward curve for the applicable currencies and includes the foreign currency impact of Alcoa's cross-currency interest rate swaps. See Notes A and T to the Financial Statements for information related to the accounting policies and fair market values of Alcoa's foreign exchange contracts at December 31, 1998 and 1997.

In early 1999, Brazil experienced a devaluation of its currency, the real. Based on information currently available, Alcoa does not believe that the devaluation will have a material impact on its 1999 results of operations.

#### Interest Rate Risks

Alcoa attempts to maintain a reasonable balance between fixed- and floating-rate debt and uses interest rate swaps and caps to keep financing costs as low as possible. At December 31, 1998 and 1997, Alcoa had \$3,489 million and \$1,952 million of debt outstanding at effective interest rates of 6% and 7%, respectively, after the impact of interest rate swaps and caps is taken into account. A hypothetical change of 10% in Alcoa's effective interest rate from year-end 1998 levels would increase or decrease interest expense by \$21 million. The interest rate effect of Alcoa's cross-currency interest rate swaps has been included in this analysis. For more information related to Alcoa's use of interest rate instruments, see Notes A and T to the Financial Statements.

#### Risk Management

All of the aluminum and other commodity contracts, as well as the various types of financial instruments, are straightforward and are held for purposes other than trading. They are used primarily to mitigate uncertainty and volatility, and principally cover underlying exposures.

Alcoa's commodity and derivative activities are subject to the management, direction and control of the Strategic Risk Management Committee (SRMC). SRMC is composed of the chief executive officer, the president, the chief financial officer and other officers and employees that the chief executive officer may select from time to time. SRMC reports to the board of directors at each of its scheduled meetings on the scope of its derivative activities.

#### Material Limitations

The disclosures, with respect to aluminum prices and foreign exchange risk, do not take into account the underlying anticipated purchase obligations and the underlying transactional foreign exchange

exposures. If the underlying items were included in the analysis, the gains or losses on the futures and options contracts may be offset. Actual results will be determined by a number of factors that are not under Alcoa's control and could vary significantly from those disclosed.

## Year 2000 Issue

Alcoa, like other businesses, is facing the Year 2000 issue. The Year 2000 issue arises from the past practice of utilizing two digits (as opposed to four) to represent the year in some computer programs and software. If uncorrected, this could result in computational errors as dates are compared across the century boundary.

As a basic materials supplier, the vast majority of the products produced and sold by Alcoa are unaffected by Year 2000 issues in use or operation since they contain no microprocessors.

Alcoa is addressing the Year 2000 issue through a formal program that reports to the Company's chief information officer. Alcoa's methodology encompasses four phases: Awareness/Inventory; Assessment; Remediation and Compliance Testing. Ongoing leadership is provided by a Global Program Office, which is directly linked into Alcoa's business units and resource units, including the newly-acquired Alumax facilities. The Global Program Office provides processes and tools to the business units and monitors progress through systematic reporting and on-site verification reviews in cooperation with the Company's internal auditors. Progress is reported regularly to the Company's senior executives and to the Audit Committee of Alcoa's board of directors.

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Internally, computer- and microprocessor-based systems such as mainframe, minicomputer and personal computer systems and the software they utilize have been assessed. Operational support, process control, facilities, infrastructure and mechanical systems are being addressed as well. These systems assist in the control of Alcoa's operations by performing such functions as maintaining manufacturing parameters, monitoring environmental conditions and assisting with facilities management and security. Many of these systems rely on software or contain embedded electronic components that could be affected by Year 2000 compliance issues. Since many of these systems are common across operating locations, information sharing and efficiencies have been realized in the Year 2000 efforts. Priority for any required remediation efforts has been assigned based on the criticality of the system or business process affected.

As of December 31, 1998, the remediation phase had been completed for 90% of Alcoa's critical components with 86% of all critical components having completed compliance testing. Individual exceptions providing for completion during 1999 have been approved by business unit and resource unit management and reviewed by the Year 2000 Global Program Office and the chief information officer. These, along with all other critical systems, will be specifically addressed within Alcoa's contingency planning process. Alcoa does not believe that this limited rescheduling will adversely affect its overall Year 2000 readiness. It is presently expected that compliance testing will be completed for 99% of critical systems by the third quarter.

Alcoa relies on numerous third-party vendors and suppliers for a wide variety of goods and services, including raw materials, telecommunications and utilities such as water and electricity. Many of the Company's operating locations would be adversely affected if these supplies and services were curtailed as a result of a supplier's Year 2000 noncompliance. Alcoa has surveyed its vendors and suppliers using questionnaires and, based on the response and significance to the Company's operations, may initiate follow up meetings. If Alcoa concludes that a third party trading partner presents a substantial risk of a Year 2000 based business disruption, an effort will be made to resolve the issue. If necessary, a new provider of the affected goods or services will be qualified and secured. Communication with suppliers and other third parties regarding Year 2000 issues is a continuing process.

Alcoa and certain of its trading partners utilize electronic data interchange (EDI) to effect business communications. The Company's EDI system software has been upgraded to support transactions in a Year 2000 compliant format. Migration of EDI transactions to this new format will occur as existing EDI transaction formats are modified by Alcoa and its EDI trading partners on a case-by-case basis. Some Alcoa customers have indicated that they will not modify EDI transaction sets but will rely on other techniques to achieve Year 2000 capability.

Alcoa's Year 2000 program utilizes on-site verification of Year 2000 efforts at its various operating locations. Using audit-like techniques, the Year 2000 Global Program Office and the Company's internal auditors verify that business and resource units have followed the prescribed processes and methodologies and also samples local Year 2000 readiness. Each of Alcoa's business units will receive at least one verification audit during 1999 with more than sixty reviews planned.

Based on current information, Alcoa believes that the most likely worst case scenario to result from a Year 2000 failure by Alcoa, its suppliers or customers would be a short term reduction in manufacturing

capability at one or more of Alcoa's operations and a temporary limitation on Alcoa's ability to deliver products to customers. Based on internal efforts and formal communications with third parties, Alcoa does not believe that Year 2000 issues are likely to result in significant operational problems or have a material adverse impact on its consolidated financial position, operations or cash flow. Nonetheless, failures of suppliers, third party vendors or customers resulting from Year 2000 issues could result in a short term material adverse effect.

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In 1998, Alcoa incurred \$38 million of direct costs in connection with its Year 2000 program. These costs include external consulting costs and cost of hardware and software replaced as a result of Year 2000 issues. Direct costs for 1999 are estimated to be between \$35 million and \$60 million.

## Employees

Alcoa had 103,500 employees worldwide at year-end 1998. Approximately 38% of the employees are in the U.S.

Alcoa and its unions ratified new six-year labor agreements covering the majority of Alcoa's U.S. production workers in mid-1996. As part of the agreements, Alcoa and the unions agreed to an unprecedented partnership mandating that they work cooperatively on customer requirements, business objectives and shareholder and union interests. The agreements set broad, new goals for employee safety, job security, and influence, control, and accountability for the work environment. Other major provisions include wage increases over the first five years, enhanced pension benefits, increases in sickness and accident insurance, life insurance and dental benefits and the amount of income a spouse may earn before sharing medical benefit costs.

The new agreements have five years of defined provisions. At the end of the fifth year, Alcoa and the unions will reopen the entire contract. If the parties cannot reach agreement, they will submit the economic provisions to arbitration.

Agreements negotiated under guidelines established by a national industrial relations authority cover wages for AWA - Australia employees.

Aluminio negotiates wages for both hourly and salaried employees annually in compliance with government guidelines. Each Aluminio location, however, has a separate compensation package for its employees.

## Research and Development

Alcoa, a technology leader in the aluminum industry, engages in research and development programs that include process and product development, and basic and applied research. Alcoa conducts these activities within its business units, and at Alcoa Technical Center. Expenditures for R&D activities were \$128 million in 1998, \$143 million in 1997 and \$166 million in 1996. The Company funds substantially all R&D expenses.

## Environmental

Alcoa's Environment, Health and Safety Policy confirms its commitment to operate worldwide in a manner that protects the environment and the health and safety of employees and of the citizens of the communities where the Company operates.

Alcoa continues its efforts to develop and implement modern technology, and standards and procedures, to meet its Environment, Health and Safety goals. The Company spent approximately \$105 million during 1998 for new or expanded facilities for environmental control. Capital expenditures for such facilities will approximate \$115 million in 1999. These figures do not include the costs of operating

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these facilities. Remediation expenses are continuing at many of the Company's facilities. See Environmental Matters on pages 34 through 35 in the Annual Report to Shareholders and "Item 3 -- Legal Proceedings" below.

Alcoa's operations worldwide, like those of others in manufacturing industries, have in recent years become subject to increasingly stringent legislation and regulations intended to protect human health and safety, and the environment. The Company expects this trend to continue. Compliance with new laws, regulations or policies could require substantial expenditures by the Company in addition to those mentioned above.

Alcoa supports the use of sound scientific research and realistic risk criteria to analyze environmental and human health and safety effects and to develop effective laws and regulations in all countries



where it operates. The Company also relies on internal standards that it applies worldwide to ensure that its facilities operate with minimal adverse environmental, health and safety impacts, even where no regulatory requirements exist. Alcoa recognizes that recycling and pollution prevention offer real solutions to many environmental problems, and it continues vigorously to pursue efforts in these areas.

## Item 2. Properties.

See "Item 1 - Business." Alcoa believes that its facilities are suitable and adequate for its operations.

## Item 3. Legal Proceedings.

In the ordinary course of its business, Alcoa is involved in a number of lawsuits and claims, both actual and potential, including some which it has asserted against others. While the amounts claimed may be substantial, the ultimate liability cannot now be determined because of the considerable uncertainties that exist. It is possible that results of operations or liquidity in a particular period could be materially affected by certain contingencies. Management believes, however, that the disposition of matters that are pending or asserted will not have a material adverse effect on the financial position of the Company.

### Environmental Matters

Alcoa is involved in proceedings under the Superfund or analogous state provisions regarding the usage, disposal, storage or treatment of hazardous substances at a number of sites in the U.S. The Company has committed to participate, or is engaged in negotiations with Federal or state authorities relative to its alleged liability for participation, in clean-up efforts at several such sites.

In response to a unilateral order issued under Section 106 of the Comprehensive Environmental Compensation and Liability Act of 1980 (CERCLA) by the U.S. Environmental Protection Agency (EPA) Region II regarding releases of hazardous substances, including polychlorinated biphenyls (PCBs), into the Grasse River near its Massena, New York facility, Alcoa has been conducting investigations and studies of the river under order from the EPA issued under CERCLA. The Company is continuing to gather additional information through further studies and tests and expects to provide EPA with additional information as it becomes available.

Representatives of various Federal and state agencies and a Native American tribe, acting in their capacities as trustees for natural resources, have asserted that Alcoa may be liable for loss or damage to such resources under Federal and state law based on Alcoa's operations at its Massena facility. While formal proceedings have not been instituted, the Company continues to actively investigate these claims.

In March 1994, Alcoa and Region VI of the EPA entered into an administrative order on consent, EPA Docket No. 6-11-94, concerning the Alcoa (Pt. Comfort)/Lavaca Bay National Priorities List site that includes portions of Alcoa's Pt. Comfort, Texas bauxite refining operations and portions of Lavaca Bay, Texas, adjacent to the Company's plant. The administrative order requires the Company to conduct a remedial investigation and feasibility study under EPA oversight. Work under the administrative order is proceeding, including actions to fortify an offshore dredge disposal island that may include the removal of certain mercury-contaminated sediments adjacent to Alcoa's plant in and near routinely dredged navigation channels. The Company and certain Federal and state natural resource trustees, who previously served Alcoa with notice of their intent to file suit to recover damages for alleged loss or injury of natural resources in Lavaca Bay, have entered into several agreements to cooperatively identify restoration alternatives and approaches for Lavaca Bay. Efforts under those agreements are ongoing.

In March 1997, Alcoa Italia received an order from Italian governmental authorities relating to several environmental deficiencies at its Fusina Plant. Alcoa Italia and the governmental authorities commenced discussions that resulted in a plan for sampling certain emission points. During 1998, Alcoa Italia sampled air emissions at the Fusina Plant. The results of the samples, which indicated that the emissions are within the authorized limits, have been sent to the Italian governmental authorities. Alcoa Italia is awaiting official confirmation of compliance.

On May 13, 1998, an action was filed in the Superior Court of Riverside County, California allegedly on behalf of more than 500 plaintiffs who currently live, or formerly lived, in the Glen Avon, California area, who claim to have suffered personal injuries, both physical and emotional, as well as property damage, as a result of air and water contamination due to the escape of toxic wastes from the Stringfellow disposal site. The complaint, which names Alcoa, Alumax Inc. and more than 130 other companies as defendants, was served on Alcoa and Alumax in October 1998. The Company is preparing its response.

In October 1998, Region V of the EPA referred various alleged environmental violations at Alcoa's Warrick Operations to the civil division of the U.S. Department of Justice (DOJ). The alleged violations stem from an April 1997 multi-media environmental inspection of Warrick Operations by the EPA. The alleged violations relate to water permit exceedances as reported on monthly discharge monitoring reports, wastewater toxicity issues and alleged opacity violations. Alcoa and the DOJ have entered into a series of tolling agreements to suspend the statute of limitations related to the alleged violations in this matter. The current agreement expires on March 19, 1999 and the parties are actively engaged in settlement discussions.

On October 5, 1998, the West Chicago facility of Alumax Extrusions, Inc. received an order for compliance and an administrative complaint and proposed assessment of a Class II administrative penalty from Region V of the EPA. The complaint, which alleges discharges in excess of the limits imposed by the facility's wastewater permit and the pretreatment standards for chromium, hexavalent chromium, zinc, oil and grease, seeks civil penalties and compliance with discharge requirements. In November 1998, Alcoa filed its response to the complaint and requested an informal settlement conference. Settlement discussions between the parties are ongoing.

In 1998, Region V of the EPA has referred various alleged environmental violations at Alcoa's Lafayette Operations to the civil division of the DOJ. The alleged violations relate to water permit exceedances as reported on monthly discharge monitoring reports. Alcoa and the DOJ entered into a

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tolling agreement to suspend the statute of limitations related to the alleged violations in order to facilitate settlement discussions with the DOJ and EPA that are ongoing at this time.

#### Other Matters

Alcoa initiated a lawsuit in King County, Washington in December 1992 against nearly 100 insurance companies that provided insurance coverage for environmental property damage at Alcoa plant sites between the years 1956 and 1985. The trial for the first three sites concluded in October 1996 with a jury verdict partially in Alcoa's favor and an award of damages to Alcoa. In its post-trial decisions, the trial court substantially reduced the amount that Alcoa will be able to recover from its insurers on the three test sites. Alcoa appealed these rulings to the Washington Court of Appeals, which, upon completion of briefing, certified the appeal to the Washington Supreme Court. Oral argument is expected in 1999.

In March 1996, Alcoa received a subpoena from the U.S. Department of Commerce in connection with the export of potassium fluoride by a subsidiary for use at its alumina refineries in Jamaica and Suriname. Following a review of records provided by the Company, the Department of Commerce has charged that the Company made shipments between 1991 and 1995 without export licenses, which had been required since 1991 as a result of a regulatory change. Following an administrative hearing in December 1998, the Under Secretary of Commerce, on February 19, 1999, imposed an administrative penalty of \$750,000.

On August 17, 1995, Alumax filed suit in the United States District Court for the Eastern District of Arkansas against Hot Metal Molding, Inc. alleging infringement of a process patent held by Alumax that is used in semi-solid forming applications. The litigation was expanded by order of the Court to include Ormet Primary Aluminum Corporation (Ormet), the exclusive North American licensee of Pechiney Corporation's technology for casting thixotropic billet, and by Alumax's motion to add certain subsidiaries and affiliates of Buhler AG, a Swiss manufacturer of die casting machines, as defendants in the action. Ormet filed counterclaims alleging that the patent is invalid, void and unenforceable and seeking a declaratory judgment that the patent would not be infringed by the use of Ormet's billet in any die casting application. On October 3, 1997, certain defendants filed counterclaims against Alumax, alleging violations of the Sherman and Clayton Acts for which they seek injunctive relief and treble damages in an unspecified amount. The Court granted all parties leave to amend their pleadings in January 1998, and trial was scheduled to begin in early July 1998. On May 14, 1998, Alumax and Hot Metal Molding entered into a settlement agreement whereby Hot Metal Molding was granted a nonexclusive license, retroactively to January 1, 1992, in respect of the patent and certain other Alumax patents. On June 14, 1998, Alumax entered into a similar agreement with Buhler AG. Hot Metal Molding and Buhler AG dismissed all claims and counterclaims. Alumax voluntarily dismissed its contributory infringement claim against Ormet and moved to challenge Ormet's standing to pursue antitrust counterclaims against Alumax, which was denied at a hearing on June 26, 1998. A trial date had been set for August 1999; however, in late 1998, the parties settled the matter on mutually agreeable terms.

In April 1997, German customs authorities conducted a search of the offices of Alcoa VAW Hannover Presswerk GmbH & Co. KG (Alcoa VAW) in Hannover, Germany, seeking materials relating to export transactions dating from 1992. In November 1997, German customs authorities reported 53 documentary customs violations, and in January 1998, the local district attorney opened legal proceedings on the matter. Discussions between Alcoa VAW and German customs authorities continue.

Alcoa, along with various asbestos manufacturers, distributors and

other businesses, is a defendant in numerous individual lawsuits filed in the State of Texas on behalf of persons claiming injury as a result of occupational exposure to asbestos at various Alcoa facilities. In two of these cases, jury verdicts were returned against the Company, and they will be appealed.

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Following the March 9, 1998 announcement of the proposed acquisition of Alumax by Alcoa and AMX Acquisition Corporation, five putative class actions on behalf of stockholders of Alumax were filed in the Delaware Court of Chancery against Alumax and certain of Alumax's directors. Four of these actions also named Alcoa as a defendant. The plaintiffs in those actions alleged, among other things, that the director defendants agreed to a buyout of Alumax at an inadequate price, that they failed to provide Alumax's stockholders with all necessary information about the value of Alumax, that they failed to make an informed decision as no market check of Alumax's value was obtained and the acquisition is structured to ensure that stockholders will tender their shares and is coercive. In addition, the plaintiffs alleged that the Schedules 14D-1 and 14D-9 filed by Alcoa, AMX Acquisition Corporation and Alumax, respectively, failed to disclose certain information necessary for Alumax's stockholders to make an informed decision regarding the offer and the other transactions contemplated by the merger agreement. Plaintiffs seek to enjoin the acquisition or to rescind it in the event that it is consummated and to cause Alumax to implement a "full and fair" auction for Alumax. Plaintiffs also seek compensatory damages in an unspecified amount, costs and disbursements, including attorneys' fees, and such other relief as the Delaware Court of Chancery may deem appropriate. The matter is still pending, but there have been no developments since the close of the tender offer and merger in mid-1998.

The Internal Revenue Service (IRS) asserted that Alumax and certain of its subsidiaries were improperly included in the 1984, 1985, and 1986 consolidated income tax returns of AMAX Inc. and on that basis assessed a Federal income tax deficiency against Alumax of \$129 million. Alumax filed a petition in the United States Tax Court seeking a redetermination of the purported deficiency. On September 30, 1997, the Tax Court decided in favor of the IRS, stating that AMAX Inc. did not have the 80% control necessary to consolidate. On October 27, 1997, Alumax paid an aggregate of \$411 million to the IRS, representing the deficiency and accrued interest. On December 24, 1997, Alumax filed a notice of appeal of the Tax Court's decision to the United States Court of Appeals for the Eleventh Circuit. A decision affirming the Tax Court's decision was handed down by the Court of Appeals on January 21, 1999. The Company is requesting rehearing of the issue. Under the terms of a Tax Disaffiliation Agreement executed by Alumax and AMAX in connection with the merger of AMAX into Cyprus Minerals Company and the public distribution of all of Alumax's shares in November 1993, Alumax assumed responsibility for all proceedings relating to the above-described deficiency and payment of any additional taxes, along with interest that may ultimately be due; and Cyprus Amax Minerals Company will share certain tax benefits that will become available to it in the event of a final adverse determination.

#### Item 4. Submission of Matters to a Vote of Security Holders.

No matters were submitted to a vote of the Company's security holders during the fourth quarter of 1998.

#### Item 4A. Executive Officers of the Registrant.

The names, ages, positions and areas of responsibility of the executive officers of the Registrant as of March 1, 1999 are listed below.

Paul H. O'Neill, 63, Chairman of the Board and Chief Executive Officer. Mr. O'Neill was elected a director of Alcoa in 1986 and became Chairman of the Board and Chief Executive Officer in June 1987. Before joining Alcoa, Mr. O'Neill had been an officer since 1977 and President and a director since 1985 of International Paper Company.

Alain J. P. Belda, 55, Director, President and Chief Operating Officer. Mr. Belda was elected to Alcoa's Board of Directors in September 1998 and President and Chief Operating Officer in January 1997. Mr. Belda was elected Executive Vice President in 1994 and Vice Chairman in 1995. He was

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President of Alcoa Aluminio S.A. in Brazil from 1979 to March 1994. Mr. Belda was elected Vice President of Alcoa in 1982 and, in 1989, was given responsibility for all of Alcoa's interests in Latin America (other than Suriname). In August 1991 he was named President - Latin America for the Company.

George E. Bergeron, 57, Executive Vice President - Allied Products. Mr. Bergeron was named President - Alcoa Closure Systems International in 1982 and was elected Vice President and General Manager - Rigid Packaging Division in July 1990. He was appointed President - Rigid Packaging Division in 1991. Mr. Bergeron was elected Executive Vice President of Alcoa in January 1998.

Michael Coleman, 48, Vice President and President - Alcoa Rigid Packaging Division. Mr. Coleman joined Alcoa in January 1998. He had been Vice President - Operations of North Star Steel from 1993 to 1994, Executive Vice President - Operations from 1994 to 1996 and President from 1996 through 1997. Mr. Coleman joined North Star Steel in 1982.

Richard L. Fischer, 62, Executive Vice President - Chairman's Counsel. Mr. Fischer was elected Vice President and General Counsel in 1983 and became Senior Vice President in 1984. He was given the additional responsibility for Corporate Development in 1986 and in 1991 named to his present position. In his current assignment, Mr. Fischer is responsible for Corporate Development and the expansion and integration of Alcoa's international business activities.

L. Patrick Hassey, 53, Vice President and President - Alcoa Europe. Mr. Hassey joined Alcoa in 1967 and was named Davenport Works Manager in 1985. In 1991, he was elected a Vice President of Alcoa and appointed President - Aerospace/Commercial Rolled Products Division. He was appointed President - Alcoa Europe in November 1997.

Patricia L. Higgins, 49, Vice President and Chief Information Officer. Ms. Higgins joined Alcoa in January 1997 and is responsible for the integration and implementation of the Company's computer initiatives. She began her career at American Telephone & Telegraph Co. in 1977 and was Vice President of International Sales Operations in Network Systems before joining Nynex Corporation in 1991 as Group Vice President, Manhattan Market Area. In 1995, Ms. Higgins joined Unisys Corporation where she was President, Communications Market Sector Group.

Richard B. Kelson, 52, Executive Vice President and Chief Financial Officer. Mr. Kelson was elected Assistant General Counsel in 1989, Senior Vice President - Environment, Health and Safety in 1991 and Executive Vice President and General Counsel in May 1994. He was named to his current position in May 1997.

Frank L. Lederman, 49, Vice President and Chief Technical Officer. Mr. Lederman was Senior Vice President and Chief Technical Officer of Noranda, Inc., a Canadian-based, diversified natural resource company, from 1988-1995. He joined Alcoa as a Vice President in May 1995 and became Chief Technical Officer in December 1995. In his current position Mr. Lederman directs operations of the Alcoa Technical Center.

G. John Pizze, 53, Vice President and President, Alcoa World Alumina. Mr. Pizze joined Alcoa of Australia Limited in 1970 and was appointed to the board of Alcoa of Australia as Executive Director - Victoria Operations and Managing Director of Portland Smelter Services in 1986. He was named President - Bauxite and Alumina Division of Alcoa in 1994 and President - Primary Metals Division of Alcoa in 1995. Mr. Pizze was elected a Vice President of Alcoa in 1996 and was appointed President - Alcoa World Alumina in November 1997.

Lawrence R. Purtell, 51, Executive Vice President - Environment, Health and Safety and General Counsel. Mr. Purtell joined Alcoa in November 1997. He had been Corporate Secretary and Associate General Counsel of United Technologies Corporation from 1989 to 1992. Mr. Purtell was

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Vice President and General Counsel of Carrier Corporation, a unit of United Technologies Corporation and international designer, manufacturer and marketer of heating, ventilating and air conditioning equipment and services, from 1992 to 1993. He was Senior Vice President and General Counsel and Corporate Secretary of McDermott International, Inc. from 1993 to 1996. In 1996, Mr. Purtell joined Koch Industries, Inc. as Senior Vice President, General Counsel and Corporate Secretary.

Robert F. Slagle, 58, Executive Vice President, Human Resources and Communications. Mr. Slagle was elected Treasurer in 1982 and Vice President in 1984. In 1986, he was named Vice President - Industrial Chemicals and, in 1987, Vice President - Industrial Chemicals and U.S. Alumina Operations. Mr. Slagle served as Vice President - Raw Materials, Alumina and Industrial Chemicals in 1989, and Vice President of Alcoa and Managing Director - Alcoa of Australia Limited in 1991. He was named President - Alcoa World Alumina in 1996 and was elected to his current position in November 1997.

G. Keith Turnbull, 63, Executive Vice President - Alcoa Business System. Dr. Turnbull was appointed Assistant Director of Alcoa Laboratories in 1980. He was named Director - Technology Planning in 1982, Vice President - Technology Planning in 1986 and Executive Vice President - Strategic Analysis/Planning and Information in 1991. In January 1997 he was named to his current position, with responsibility for company-wide implementation of the Alcoa Business System.

## PART II

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

Dividend per share data, high and low prices per share and the principal exchanges on which the Company's common stock is traded are set forth on pages 63 through 64 of the 1998 Annual Report to Shareholders (Annual Report) and are incorporated herein by reference.

On January 8, 1999, the Board of Directors declared a two-for-one common stock split, distributed on February 25, 1999 to shareholders of record at the close of business on February 8, 1999. In this report, all per-share amounts and number of shares have been restated to reflect the stock split.

At February 8, 1999 (the record date for the Company's 1999 annual shareholders meeting), there were approximately 119,000 Alcoa shareholders, including both record holders and an estimate of the number of individual participants in security position listings.

#### Item 6. Selected Financial Data.

The comparative table showing selected financial data for the Company is on page 28 of the Annual Report and is incorporated herein by reference.

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

Management's review and comments on the consolidated financial statements are on pages 29 through 37 of the Annual Report and are incorporated herein by reference.

#### Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

The information regarding quantitative and qualitative disclosures about market risk is on pages 33 through 34 of the Annual Report and is incorporated herein by reference.

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#### Item 8. Financial Statements and Supplementary Data.

The Company's consolidated financial statements, the notes thereto and the report of the independent public accountants are on pages 38 through 53 of the Annual Report and are incorporated herein by reference.

#### Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

### PART III

#### Item 10. Directors and Executive Officers of the Registrant.

The information regarding Directors is contained under the caption "Board of Directors" on pages 5 through 11 of the Registrant's definitive Proxy Statement dated March 8, 1999 (Proxy Statement) and is incorporated herein by reference.

The information regarding executive officers is set forth in Part I, Item 4A under "Executive Officers of the Registrant."

The information required by Item 405 of Regulation S-K contained under the caption "Compliance With Section 16(a) Reporting" on page 12 of the Proxy Statement is incorporated herein by reference.

#### Item 11. Executive Compensation.

This information is contained under the caption "Executive Compensation" on pages 14 through 20 of the Proxy Statement and is incorporated herein by reference. The performance graph and Report of the Compensation Committee shall not be deemed to be "filed."

#### Item 12. Security Ownership of Certain Beneficial Owners and Management.

This information is contained under the caption "Alcoa Stock Ownership and Performance" on pages 12 through 13 of the Proxy Statement and is incorporated herein by reference.

#### Item 13. Certain Relationships and Related Transactions.

This information is contained under the caption "Transactions with Directors' Companies" on page 5 of the Proxy Statement and is incorporated herein by reference.

### PART IV

#### Item 14. Exhibits, Financial Statement Schedule and Reports on Form 8-K.

(a) The consolidated financial statements, financial statement schedule and exhibits listed below are filed as part of this report.

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(1) The Company's consolidated financial statements, the notes thereto and the report of the independent public accountants are on pages 38 through 53 of the Annual Report and are incorporated herein by

reference.

(2) The following report and schedule should be read with the Company's consolidated financial statements in the Annual Report:

Independent Accountant's Report of PricewaterhouseCoopers LLP dated January 8, 1999 on the Company's financial statement schedule filed as a part hereof for the fiscal years ended December 31, 1998, 1997 and 1996.

Schedule II - Valuation and Qualifying Accounts - for the fiscal years ended December 31, 1998, 1997 and 1996.

(3) Exhibits

Exhibit Number	Description *
2.	Agreement and Plan of Merger among the Company, AMX Acquisition Corp. and Alumax Inc. dated as of March 8, 1998, incorporated by reference to exhibit 2 to the Company's Annual Report on Form 10-K for the year ended December 31, 1997.
3(a).	Articles of the Registrant as amended.
3(b).	By-Laws of the Registrant as amended.
10(a).	Long Term Stock Incentive Plan (restated) effective January 1, 1997, as amended January 1, 1998, incorporated by reference to exhibit 10(a) to the Company's Annual Report on Form 10-K for the year ended December 31, 1997.
10(b).	Employees' Excess Benefit Plan, Plan A, incorporated by reference to exhibit 10(b) to the Company's Annual Report on Form 10-K for the year ended December 31, 1980.
10(c).	Incentive Compensation Plan, as amended effective January 1, 1993, incorporated by reference to exhibit 10(c) to the Company's Annual Report on Form 10-K for the year ended December 31, 1992.
10(d).	Employees' Excess Benefit Plan, Plan C, as amended and restated in 1994, effective January 1, 1989, incorporated by reference to exhibit 10(d) to the Company's Annual Report on Form 10-K for the year ended December 31, 1994.
10(e).	Employees' Excess Benefit Plan, Plan D, as amended effective October 30, 1992, incorporated by reference to exhibit 10(e) to the Company's Annual Report on Form 10-K for the year ended December 31, 1992 and exhibit 10(e)(1) the Company's Annual Report on Form 10-K for the year ended December 31, 1994.
10(f).	Employment Agreement of Paul H. O'Neill, as amended through February 25, 1993, incorporated by reference to exhibit 10(h) to the Company's Annual Report on Form 10-K for the year ended December 31, 1987, exhibit 10(g) to the Company's Annual Report on Form 10-K for the year ended December 31, 1990 and exhibit 10(f)(2) to the Company's Annual Report on Form 10-K for the year ended December 31, 1992.
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10(g).	Deferred Fee Plan for Directors, as amended effective November 10, 1995, incorporated by reference to exhibit 10(g) to the Company's Annual Report on Form 10-K for the year ended December 31, 1995.
10(h).	Restricted Stock Plan for Non-Employee Directors, as amended effective March 10, 1995, incorporated by reference to exhibit 10(h) to the Company's Annual Report on Form 10-K for the year ended December 31, 1994.
10(h)(1).	Amendment to Restricted Stock Plan for Non-Employee Directors, effective November 10, 1995, incorporated by reference to exhibit 10(h)(1) to the Company's Annual Report on Form 10-K for the year ended December 31, 1995.
10(i).	Fee Continuation Plan for Non-Employee Directors, incorporated by reference to exhibit 10(k) to the Company's Annual Report on Form 10-K for the year ended December 31, 1989.
10(i)(1).	Amendment to Fee Continuation Plan for Non-Employee Directors, effective November 10, 1995, incorporated by reference to exhibit 10(i)(1) to the Company's Annual Report on Form 10-K for the year ended December 31, 1995.
10(j).	Deferred Compensation Plan, as amended effective October 30, 1992, incorporated by reference to exhibit 10(k) to the Company's Annual Report on Form 10-K for the year ended December 31, 1992.
10(j)(1).	Amendments to Deferred Compensation Plan, effective January 1, 1993, February 1, 1994 and January 1, 1995, incorporated by reference to exhibit 10(j)(1) to the Company's Annual Report on Form 10-K for the year ended December 31, 1994.

- 10(j)(2). Amendment to Deferred Compensation Plan, effective June 1, 1995, incorporated by reference to exhibit 10(j)(2) to the Company's Annual Report on Form 10-K for the year ended December 31, 1995.
- 10(k). Summary of the Executive Split Dollar Life Insurance Plan, dated November 1990, incorporated by reference to exhibit 10(m) to the Company's Annual Report on Form 10-K for the year ended December 31, 1990.
- 10(l). Dividend Equivalent Compensation Plan, effective February 3, 1997, incorporated by reference to exhibit 10(l) to the Company's Annual Report on Form 10-K for the year ended December 31, 1996.
- 10(m). Form of Indemnity Agreement between the Company and individual directors or officers, incorporated by reference to exhibit 10(j) to the Company's Annual Report on Form 10-K for the year ended December 31, 1987.
- 10(n). Revolving Credit Agreement (364-Day), dated as of August 14, 1998, incorporated by reference to Exhibit 10(n) to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 1998.
- 10(o). Revolving Credit Agreement (Five-Year), dated as of August 14, 1998, incorporated by reference to Exhibit 10(o) to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 1998.
- 10(p). Alcoa Stock Incentive Plan, effective June 1, 1999 (subject to shareholder approval).
- 10(q). Alcoa Supplemental Pension Plan for Senior Executives, effective January 1, 1999.

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- 10(r). Deferred Fee Estate Enhancement Plan for Directors, effective July 10, 1998.
- 10(s). Alcoa Deferred Compensation Estate Enhancement Plan, effective July 10, 1998.
12. Computation of Ratio of Earnings to Fixed Charges.
13. Portions of Alcoa's 1998 Annual Report to Shareholders.
21. Subsidiaries and Equity Entities of the Registrant.
23. Consent of Independent Certified Public Accountants.
24. Power of Attorney for certain directors.
27. Financial data schedule.

\*Exhibit Nos. 10(a) through 10(l) and 10(p) through 10(s) are management contracts or compensatory plans required to be filed as Exhibits to this Form 10-K.

Amendments and modifications to other Exhibits previously filed have been omitted when in the opinion of the Registrant such Exhibits as amended or modified are no longer material or, in certain instances, are no longer required to be filed as Exhibits.

No other instruments defining the rights of holders of long-term debt of the Registrant or its subsidiaries have been filed as Exhibits because no such instruments met the threshold materiality requirements under Regulation S-K. The Registrant agrees, however, to furnish a copy of any such instruments to the Commission upon request.

(b) Reports on Form 8-K. None was filed in the fourth quarter of 1998.

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#### Independent Accountant's Report

To the Shareholders and Board of Directors  
Alcoa Inc. (Alcoa)

Our report on the consolidated financial statements of Alcoa has been incorporated by reference in this Form 10-K from page 38 of the 1998 Annual Report to Shareholders of Alcoa. In connection with our audits of such financial statements, we have also audited the related financial statement schedule listed under Item 14 of this Form 10-K.

In our opinion, the financial statement schedule referred to above, when considered in relation to the basic financial statements taken as a whole, presents fairly, in all material respects, the information required to be included therein.

600 Grant Street  
Pittsburgh, Pennsylvania  
January 8, 1999

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SCHEDULE II - VALUATION AND QUALIFYING ACCOUNTS  
FOR THE YEARS ENDED DECEMBER 31  
(in millions)

Col. A	Col. B	Col. C	Col. D	Col. E
- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
		Additions		
		- - - - -		
Description	Balance at beginning of period	Charged to costs and expenses	Charged to other accounts (A)	Balance at end of period
- - - - -	- - - - -	- - - - -	Deductions (B) - - - - -	- - - - -

Notes: (A) Collections on accounts previously written off, acquisition/divestiture of subsidiaries and foreign currency translation adjustments.  
(B) Uncollectible accounts written off.  
(C) Related primarily to reductions in the valuation reserve based on a change in circumstances.

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SIGNATURE

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

ALCOA INC.

March 12, 1999 By /s/Earnest J. Edwards  
Earnest J. Edwards  
Senior Vice President and Controller  
(Also signing as Principal Accounting Officer)

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

Signature	Title	Date
/s/Paul H. O'Neill Paul H. O'Neill	Chairman of the Board and Chief Executive Officer (Principal Executive Officer and Director)	March 12, 1999
/s/Richard B. Kelson Richard B. Kelson	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	March 12, 1999

Alain J. P. Belda, Kenneth W. Dam, Joseph T. Gorman, Judith M. Gueron, Sir Ronald Hampel, Hugh M. Morgan, John P. Mulroney, Henry B. Schacht, Franklin A. Thomas and Marina v.N. Whitman, each as a Director, on March 12, 1999, by Denis A. Demblowski, their Attorney-in-Fact.\*

\*By /s/Denis A. Demblowski  
Denis A. Demblowski  
Attorney-in-Fact

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ALCOA INC.

## ARTICLES

(As Amended January 1999)

FIRST. The name of the corporation is Alcoa Inc.

SECOND. The location and post office address of the corporation's current registered office is 201 Isabella Street, Pittsburgh, Pennsylvania 15212-5858 [this paragraph reflects the change in the registered office address made August 14, 1998 by the filing of a Statement of Change of Registered Office with the Secretary of State of the Commonwealth of Pennsylvania; the prior registered office address was 1501 Alcoa Building, Mellon Square, Pittsburgh, Pennsylvania].

THIRD. The purpose or purposes of the corporation are: to acquire and dispose of deposits of and rights to bauxite, clay, ores and minerals of any sort or description, and to acquire, extract, treat and dispose of any materials recovered or recoverable therefrom; to reduce ores of aluminum and any and all other ores to their basic metals; to manufacture, alloy and fabricate any and all metals into articles of commerce; to acquire, produce, transport, trade in and dispose of goods, wares and merchandise of every class and description; to purchase, lease, or otherwise acquire improved or unimproved real property, leaseholds, easements and franchises, to manage, use, deal with and improve the same or any part thereof, and to sell, exchange, lease, sublease, or otherwise dispose of any of said property or the improvements thereon or any part thereof; to acquire, use and dispose of all land, minerals, materials, apparatus, machinery and other agencies, means and facilities, to perform all operations, and to do all things, necessary, convenient or incident to the foregoing; and to carry on any business directly or indirectly related thereto; and the corporation shall have unlimited power to engage in and to do any lawful act concerning any or all lawful business for which corporations may be incorporated under the Pennsylvania Business Corporation Law.

FOURTH. The term for which the corporation is to exist is perpetual.

FIFTH. The authorized capital of the corporation shall be 660,000 shares of Serial Preferred Stock of the par value of \$100 per share, 10,000,000 shares of Class B Serial Preferred Stock of the par value of \$1.00 per share and 600,000,000 shares of Common Stock of the par value of \$1.00 per share.

Hereinafter in this Article Fifth, the term "Preferred Stock" shall mean each of the Serial Preferred Stock and the Class B Serial Preferred Stock.

A description of each class of shares which the corporation shall have authority to issue and a statement of the rights, voting powers, preferences, qualifications, limitations, restrictions and the special or relative rights granted to or imposed upon the shares of each class and of the authority vested in the Board of Directors of the corporation to establish series of the Preferred Stock and to fix and determine the variations in the relative rights and preferences as between the series thereof are as follows:

1. Establishment of Series of Preferred Stock. Preferred Stock shall be issued in one or more series. Each series shall be designated by the Board of Directors so as to distinguish the shares thereof from the shares of all other series and classes. The Board of Directors may, by resolution, from time to time divide shares of Preferred Stock into series and fix and determine the number of shares and, subject to the provisions of this Article Fifth, the relative rights and preferences of any series so established, provided that all shares of Preferred Stock shall be identical except as to the following relative rights and preferences, in respect of any or all of which there may be variations between different series, namely: the rate of dividend (including the date from which dividends shall be cumulative and, with respect to Class B Serial Preferred Stock, whether such dividend rate shall be fixed or variable and the methods, procedures and formulas for the recalculation or periodic resetting of any variable dividend rate); the price at, and the terms and conditions on, which shares may be redeemed; the amounts payable on shares in the event of voluntary or involuntary liquidation; sinking fund provisions for the redemption or purchase of shares in the event shares of any series are issued with sinking fund provisions; and the terms and conditions on which the shares of any series may be converted in the event the shares of any series are issued with the privilege of conversion. Each share of any series of Preferred Stock shall be identical with all other shares of such series, except as to date from which dividends shall be cumulative.

2. Dividends.

(a) The holders of Serial Preferred Stock of any series shall be entitled to receive, when and as declared by the Board of Directors, out of surplus or net profits legally available therefor, cumulative dividends at the rate of dividend fixed by the Board of Directors for such series as hereinbefore provided, and no more, payable quarter yearly on the first days of January, April, July and October in each year. The dividends on any shares of Serial Preferred Stock shall be cumulative from such date as shall be fixed for that purpose by the Board of Directors prior to the issue of such shares or, if no such date shall be so fixed by the Board of Directors, from the quarter yearly dividend payment date next preceding the date of issue of such shares.

(b) The holders of Class B Serial Preferred Stock of any series shall be entitled to receive, when and as declared by the Board of Directors or any authorized committee thereof, out of funds legally available therefor, cumulative dividends at the rate of dividend fixed by the Board of Directors for such series including any such rate which may be reset or recalculated from time to time pursuant to procedures or formulas established therefor by the Board of Directors, and no more; provided, however, that no dividend shall be declared or paid on the Class B Serial Preferred Stock so long as any of the Serial Preferred Stock remains outstanding, unless all quarter yearly dividends accrued on the Serial Preferred Stock and the dividend thereon for the current quarter yearly dividend period shall have been paid or declared and a sum sufficient for the payment thereof set apart. The dividends on any shares of Class B Serial Preferred Stock shall be cumulative from such date as shall be fixed for that purpose by the Board of Directors prior to the issue of such shares or, if no such date shall be so fixed by the Board of Directors, from the dividend payment date for such series next preceding the date of issue of such shares. If full cumulative dividends on shares of a series of Class B Serial Preferred Stock have not been paid or declared and a sum sufficient for the payment thereof set apart, dividends thereon shall be declared and paid pro rata to the holders of such series entitled thereto. Accrued dividends shall not bear interest.

(c) The holders of Common Stock shall be entitled to receive dividends, when and as declared by the Board of Directors, out of surplus or net profits legally available therefor, provided, however, that no dividend shall be declared or paid on the Common Stock so long as any of the Preferred Stock remains outstanding, unless all dividends accrued on all classes of Preferred Stock and the dividend on Serial Preferred Stock for the current quarter yearly dividend period shall have been paid or declared and a sum sufficient for the payment thereof set apart.

3. Liquidation. In the event of any liquidation, dissolution or winding up of the corporation, whether voluntary or involuntary, then before any payment or distribution shall be made to the holders of Common Stock or Class B Serial Preferred Stock the holders of Serial Preferred Stock shall be entitled to be paid such amount as shall have been fixed by the Board of Directors as hereinbefore provided, plus all dividends which have accrued on the Serial Preferred Stock and have not been paid or declared and a sum sufficient for the payment thereof set apart. Thereafter, the holders of Class B Serial Preferred Stock of each series shall be entitled to be paid such amount as shall have been fixed by the Board of Directors as hereinbefore provided, plus all dividends which have accrued on the Class B Serial Preferred Stock and have not been paid or declared and a sum sufficient for the payment thereof set apart. Thereafter, the remaining assets shall belong to and be divided among the holders of the Common Stock. The consolidation or merger of the corporation with or into any other corporation or corporations or share exchange or division involving the corporation in pursuance of applicable statutes providing for the consolidation, merger, share exchange or division shall not be deemed a liquidation, dissolution or winding up of the corporation within the meaning of any of the provisions of this subdivision.

4. Voting Rights. The holders of Preferred Stock shall have no voting rights except as otherwise required by law or hereinafter provided:

(a) If at any time the amount of any dividends on Preferred Stock which have accrued and which have not been paid or declared and a sum sufficient for the payment thereof set apart shall be at least equal to the amount of four quarter yearly dividends, the holders of Preferred Stock shall have one vote per share, provided, however, that such voting rights of the holders of Preferred Stock shall continue only until all quarter yearly dividends accrued on the Preferred Stock have been paid or declared and a sum sufficient for the payment thereof set apart.

(b) Without the consent of the holders of at least a majority of the shares of Preferred Stock at the time outstanding, given in person or by proxy, either in writing or by vote at a meeting called for that purpose at which the holders of Preferred Stock shall vote as a class,

(i) no additional class of stock ranking on a parity with the Preferred Stock as to dividends or assets shall be authorized;

(ii) the authorized number of shares of Preferred Stock or of any class of stock ranking on a parity with the Preferred Stock as to dividends or assets shall not be increased; and

(iii) the corporation shall not merge or consolidate with or into any other corporation if the corporation surviving or resulting from such merger or consolidation would have after such merger or consolidation any authorized class of stock ranking senior to or on a parity with the Preferred Stock except the same number of shares of stock with the same rights and preferences as the authorized stock of the corporation immediately preceding such merger or consolidation.

(c) Except in pursuance of the provisions of subdivision 4(b) (iii) of this Article Fifth, without the consent of the holders of at least sixty-six and two-thirds (66-2/3) per cent. of the number of shares of Preferred Stock at the time outstanding, given in person or by proxy, either in writing or by a vote at a meeting called for that purpose at which the holders of Preferred Stock shall vote as a class,

(i) no change shall be made in the rights and preferences of the Preferred Stock as set forth in the Articles of Incorporation or as fixed by the Board of Directors so as to affect such stock adversely; provided, however, that if any such change would affect any series of Preferred Stock adversely as compared with the effect thereof upon any other series of Preferred Stock, no such change shall be made without the additional consent given as aforesaid of the holders of at least sixty-six and two-thirds (66-2/3) per cent. of the number of shares at the time outstanding of the Preferred Stock of the series which would be so adversely affected;

(ii) no additional class of stock ranking senior to the Preferred Stock as to dividends or assets shall be authorized;

(iii) the authorized number of shares of any class of stock ranking senior to the Preferred Stock as to dividends or assets shall not be increased; and

(iv) the corporation shall not (a) sell, lease, convey or part with control of all or substantially all of its property or business or (b) voluntarily liquidate, dissolve or wind up its affairs.

Notwithstanding the foregoing:

(i) except as otherwise required by law, the voting rights of any series of Class B Serial Preferred Stock may be limited or eliminated by the Board of Directors prior to the issuance thereof; and

(ii) provided no shares of Serial Preferred Stock are then outstanding, any series of Class B Serial Preferred Stock may be issued with such additional voting rights in the event of dividend arrearages as the Board of Directors may determine to be required to qualify such series for listing on one or more securities exchanges of recognized standing.

The holders of Common Stock of the corporation shall have one vote per share.

#### 5. Redemption.

(a) The corporation, at the option of the Board of Directors, may redeem the whole or any part of the Serial Preferred Stock, or the whole or any part of any series thereof, at any time or from time to time, at such redemption price therefor as shall have been fixed by the Board of Directors as hereinbefore provided, plus all dividends which on the redemption date have accrued on the shares to be redeemed and have not been paid or declared and a sum sufficient for the payment thereof set apart. Notice of every such redemption shall be published not less than thirty (30) days nor more than sixty (60) days prior to the date fixed for redemption in a daily newspaper printed in the English language and published and of general circulation in the Borough of Manhattan, City and State of New York, and in a daily newspaper printed in the English language and published and of general circulation in the City of Pittsburgh, Pennsylvania. Notice of every such redemption shall also be mailed not less than thirty (30) days nor more than sixty (60) days prior to the date fixed for redemption to the holders of record of the shares of Serial Preferred Stock to be redeemed at their respective addresses as the same appear upon the books of the corporation; but no failure to mail such notice or any defect therein or in the mailing thereof shall affect the validity of the proceedings for the redemption of any shares of Serial Preferred Stock. In case of a redemption of a part only of any series of the Serial Preferred Stock at the time outstanding, the corporation shall select shares so to be redeemed in such manner, whether pro rata or by lot, as the Board of Directors may determine. Subject to the provisions herein contained, the Board of Directors shall have full power and authority to prescribe the manner in which and the terms and conditions on which the Serial Preferred Stock

shall be redeemed from time to time. If notice of redemption shall have been published as hereinbefore provided and if before the redemption date specified in such notice all funds necessary for such redemption shall have been set apart so as to be available therefor, then on and after the date fixed for redemption the shares of Serial Preferred Stock so called for redemption, notwithstanding that any certificate therefor shall not have been surrendered for cancellation, shall no longer be deemed outstanding and all rights with respect to such shares shall forthwith cease and terminate except only the right of the holders thereof to receive upon surrender of certificates therefor the amount payable upon redemption thereof, but without interest; provided, however, that if the corporation shall, after the publication of notice of any such redemption and prior to the redemption date, deposit in trust for the account of the holders of the Serial Preferred Stock to be redeemed with a bank or trust company in good standing, designated in such notice, organized under the laws of the United States of America or of the State of New York or of the Commonwealth of Pennsylvania, doing business in the Borough of Manhattan, The City of New York, or in the City of Pittsburgh, Pennsylvania, and having a capital, undivided profits and surplus aggregating at least five million dollars (\$5,000,000), all funds necessary for such redemption, then from and after the time of such deposit the shares of Serial Preferred Stock so called for redemption, notwithstanding that any certificate therefor shall not have been surrendered for cancellation, shall no longer be deemed outstanding and all rights with respect to such shares shall forthwith cease and terminate except only the right of the holders of such shares to receive from such bank or trust company upon surrender of certificates therefor the amount payable upon redemption thereof, but without interest.

All shares of Serial Preferred Stock so redeemed shall be cancelled and shall not be reissued.

(b) The terms and conditions under which the whole or any part of any series of the Class B Serial Preferred Stock may be redeemed shall be established by the Board of Directors prior to the issuance thereof. Unless otherwise determined by the Board of Directors, all shares of Class B Serial Preferred Stock so redeemed or otherwise acquired by the corporation shall be returned to the status of authorized but unissued shares.

6. Preemptive Rights. Neither the holders of the Preferred Stock nor the holders of the Common Stock shall be entitled to participate in any right of subscription to any increased or additional capital stock of the corporation of any kind whatsoever.

SIXTH. In each election of directors every shareholder entitled to vote shall have the right to cast one vote for each share of stock standing in his name on the books of the Company for each of such number of candidates as there are directors to be elected, but no shareholder shall have any right to cumulate his votes and cast them for one candidate or distribute them among two or more candidates.

SEVENTH. A. In addition to any affirmative vote required by law, the Articles or the By-Laws of the corporation (the "Company"), and except as otherwise expressly provided in Section B of this Article Seventh, the Company shall not knowingly engage, directly or indirectly, in any Stock Repurchase (as hereinafter defined) from an Interested Shareholder (as hereinafter defined) without the affirmative vote of not less than a majority of the votes entitled to be cast by the holders of all then outstanding shares of Voting Stock (as hereinafter defined) which are beneficially owned by persons other than such Interested Shareholder, voting together as a single class. Such affirmative vote shall be required notwithstanding the fact that no vote may be required, or that a lesser percentage or separate class vote may be specified, by law or in any agreement with any national securities exchange or otherwise.

B. The provisions of Section A of this Article Seventh shall not be applicable to any particular Stock Repurchase from an Interested Shareholder, and such Stock Repurchase shall require only such affirmative vote, if any, as is required by law or by any other provision of the Articles or the By-Laws of the Company, or any agreement with any national securities exchange or otherwise, if the conditions specified in either of the following Paragraphs (1) or (2) are met:

(1) The Stock Repurchase is made pursuant to a tender offer or exchange offer for a class of Capital Stock (as hereinafter defined) made available on the same basis to all holders of such class of Capital Stock.

(2) The Stock Repurchase is made pursuant to an open market purchase program approved by a majority of the Continuing Directors (as hereinafter defined), provided that such repurchase is effected on the open market and is not the result of a privately negotiated transaction.

C. For the purposes of this Article Seventh:

(1) The term "Stock Repurchase" shall mean any

repurchase, directly or indirectly, by the Company or any Subsidiary of any shares of Capital Stock at a price greater than the then Fair Market Value of such shares.

(2) The term "Capital Stock" shall mean all capital stock of the Company authorized to be issued from time to time under Article FIFTH of the Articles of the Company, and the term "Voting Stock" shall mean all Capital Stock which by its terms may be voted on all matters submitted to shareholders of the Company generally.

(3) The term "person" shall mean any individual, firm, company or other entity and shall include any group comprised of any person and any other person with whom such person or any Affiliate or Associate of such person has any agreement, arrangement or understanding, directly or indirectly, for the purpose of acquiring, holding, voting or disposing of Capital Stock.

(4) The term "Interested Shareholder" shall mean any person (other than the Company or any Subsidiary and other than any savings, profit-sharing, employee stock ownership or other employee benefit plan of the Company or any Subsidiary or any trustee of or fiduciary with respect to any such plan when acting in such capacity) who is on the date in question, or who was at any time within the two year period immediately prior to the date in question, the beneficial owner of Voting Stock representing five percent (5%) or more of the votes entitled to be cast by the holders of all then outstanding shares of Voting Stock.

(5) A person shall be a "beneficial owner" of any Capital Stock (a) which such person or any of its Affiliates or Associates beneficially owns, directly or indirectly; (b) which such person or any of its Affiliates or Associates has, directly or indirectly, (i) the right to acquire (whether such right is exercisable immediately or subject only to the passage of time), pursuant to any agreement, arrangement or understanding or upon the exercise of conversion rights, exchange rights, warrants or options, or otherwise, or (ii) the right to vote pursuant to any agreement, arrangement or understanding; or (c) which is beneficially owned, directly or indirectly, by any other person with which such person or any of its Affiliates or Associates has any agreement, arrangement or understanding for the purpose of acquiring, holding, voting or disposing of any shares of Capital Stock. For the purposes of determining whether a person is an Interested Shareholder pursuant to Paragraph 4 of this Section C, the number of shares of Capital Stock deemed to be outstanding shall include shares deemed beneficially owned by such person through application of Paragraph 5 of this Section C, but shall not include any other shares of Capital Stock that may be issuable pursuant to any agreement, arrangement or understanding, or upon exercise of conversion rights, warrants or options, or otherwise.

(6) The terms "Affiliate" and "Associate" shall have the respective meanings ascribed to such terms in Rule 12b-2 under the Securities Exchange Act of 1934 as in effect on March 8, 1985 (the term "registrant" in said Rule 12b-2 meaning in this case the Company).

(7) The term "Subsidiary" shall mean any corporation of which a majority of any class of equity security is beneficially owned by the Company; provided, however, that for the purposes of the definition of Interested Shareholder set forth in Paragraph 4 of this Section C, the term "Subsidiary" shall mean only a corporation of which a majority of each class of equity security is beneficially owned by the Company.

(8) The term "Continuing Director" shall mean any member of the Board of Directors of the Company (the "Board"), while such person is a member of the Board, who is not an Affiliate or Associate or representative of the Interested Shareholder and was a member of the Board prior to the time that the Interested Shareholder became an Interested Shareholder, and any successor of a Continuing Director, while such successor is a member of the Board, who is not an Affiliate or Associate or representative of the Interested Shareholder and is recommended or elected to succeed the Continuing Director by a majority of Continuing Directors.

(9) The term "Fair Market Value" shall mean (a) in the case of cash, the amount of such cash; (b) in the case of stock, the closing sale price on the trading day immediately preceding the date in question of a share of such stock on the Composite Tape for New York Stock Exchange-Listed Stocks, or, if such stock is not quoted on the Composite Tape, on the New York Stock Exchange, or, if such stock is not listed on such Exchange, on the principal United States securities exchange registered under the Act on which such stock is listed, or, if such stock is not listed on any such exchange, the closing bid quotation with respect to a share of such stock on the trading day immediately preceding the date in question on the National Association of Securities Dealers, Inc. Automated Quotations System or any similar system then in use, or if no such quotation is available, the fair market value on the date in question of a share of such stock as determined by a majority of the Continuing Directors in good faith; and (c) in the case of property other than cash or

stock, the fair market value of such property on the date in question as determined in good faith by a majority of the Continuing Directors.

D. The Board of Directors shall have the power and duty to determine for the purposes of this Article Seventh, on the basis of information known to them after reasonable inquiry, (a) whether a person is an Interested Shareholder, (b) the number of shares of Capital Stock or other securities beneficially owned by any person, (c) whether a person is an Affiliate or Associate of another and (d) whether the consideration to be paid in any Stock Repurchase has an aggregate Fair Market Value in excess of the then Fair Market Value of the shares of Capital Stock being repurchased. Any such determination made in good faith shall be binding and conclusive on all parties.

E. Nothing contained in this Article Seventh shall be construed to relieve any Interested Shareholder from any fiduciary obligation imposed by law.

F. Notwithstanding any other provisions of the Articles or the By-Laws of the Company (and notwithstanding the fact that a lesser percentage or separate class vote may be specified by law, these Articles or the By-Laws of the Company), the affirmative vote of the holders of not less than eighty percent (80%) of the votes entitled to be cast by the holders of all then outstanding shares of Voting Stock, voting together as a single class, shall be required to amend or repeal, or adopt any provisions inconsistent with, this Article Seventh.

EIGHTH. A. The business and affairs of the corporation (the "Company") shall be managed by a Board of Directors comprised as follows:

(1) The Board of Directors shall consist of the number of persons fixed from time to time by the Board of Directors pursuant to a resolution adopted by a majority vote of the directors then in office.

(2) Beginning with the Board of Directors to be elected at the annual meeting of shareholders held in 1985, directors shall be classified with respect to the time for which they shall severally hold office by dividing them into three classes, as nearly equal in number as possible. At such meeting, each class of directors shall be elected in a separate election. Directors of the first class shall be elected for a term of office to expire at the 1986 annual meeting of shareholders, those of the second class shall be elected for a term of office to expire at the 1987 annual meeting of shareholders, and those of the third class shall be elected for a term of office to expire at the 1988 annual meeting of shareholders. At each annual election held after the 1985 annual meeting of shareholders the class of directors then being elected shall be elected to hold office for a term of office to expire at the third succeeding annual meeting of shareholders after their election. Each director shall hold office for the term for which elected and until his or her successor shall have been elected and qualified, except in the case of earlier death, resignation or removal.

(3) Nominations for the election of directors at an annual meeting of the shareholders may be made by the Board of Directors or a committee appointed by the Board of Directors or by any shareholder entitled to vote in the election of directors at the meeting. Shareholders entitled to vote in such election may nominate one or more persons for election as directors only if written notice of such shareholder's intent to make such nomination or nominations has been given either by personal delivery or by United States mail, postage prepaid, to the Secretary of the Company not later than ninety days prior to the anniversary date of the immediately preceding annual meeting. Such notice shall set forth: (a) the name and address of the shareholder who intends to make the nomination and of the persons or person to be nominated; (b) a representation that the shareholder is a holder of record of stock of the Company entitled to vote at such meeting and intends to appear in person or by proxy at the meeting to nominate the person or persons specified in the notice; (c) a description of all arrangements or understandings between the shareholder and each nominee and any other person or persons (naming such person or persons) pursuant to which the nomination or nominations are to be made by the shareholder; (d) such other information regarding each nominee proposed by such shareholder as would be required to be included in a proxy statement filed pursuant to the proxy rules of the Securities and Exchange Commission as then in effect; and (e) the consent of each nominee to serve as a director of the Company if so elected. The presiding officer of the meeting may refuse to acknowledge the nomination of any person not made in compliance with the foregoing procedure.

(4) Any director, any class of directors, or the entire Board of Directors may be removed from office by shareholder vote at any time, with or without assigning any cause, but only if shareholders entitled to cast at least 80% of the votes which all shareholders would be entitled to cast at an annual election of directors or of such class of directors shall vote in favor of such removal.

(5) Vacancies in the Board of Directors, including vacancies resulting from an increase in the number of directors, shall be filled only by a majority vote of the remaining directors then in office, though less than a quorum, except that vacancies resulting from removal from office by a vote of the shareholders may be filled by the shareholders at the same meeting at which such removal occurs. All directors elected to fill vacancies shall hold office for a term expiring at the annual meeting of shareholders at which the term of the class to which they have been elected expires. No decrease in the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.

B. Notwithstanding any other provisions of the Articles or the By-Laws of the Company (and notwithstanding the fact that a lesser percentage or separate class vote may be specified by law, these Articles or the By-laws of the Company), the affirmative vote of not less than eighty percent (80%) of the votes which all shareholders of the then outstanding shares of capital stock of the Company would be entitled to cast in an annual election of directors, voting together as a single class, shall be required to amend or repeal, or adopt any provisions inconsistent with, this Article Eighth.

NINTH. To the fullest extent that the laws of the Commonwealth of Pennsylvania, as in effect on May 15, 1987 or as thereafter amended, permit elimination or limitation of the liability of directors, no director of the corporation shall be personally liable for monetary damages for any action taken, or any failure to take any action. This Article Ninth shall not apply to any action filed prior to May 15, 1987, nor to any breach of performance of duty or any failure of performance of duty occurring prior to May 15, 1987. The provisions of this Article shall be deemed to be a contract with each director of the corporation who serves as such at any time while such provisions are in effect, and each such director shall be deemed to be serving as such in reliance on the provisions of this Article. Any amendment or repeal of this Article or adoption of any other provision of the Articles or By-laws of the corporation which has the effect of increasing director liability shall operate prospectively only and shall not affect any action taken, or any failure to act, prior to such amendment, repeal or adoption.

TENTH. Except as prohibited by law, the corporation may indemnify any person who is or was a director, officer, employee or agent of the corporation or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise (including, without limitation, any employee benefit plan) and may take such steps as may be deemed appropriate by the Board of Directors, including purchasing and maintaining insurance, entering into contracts (including, without limitation, contracts of indemnification between the corporation and its directors and officers), creating a trust fund, granting security interests or using other means (including, without limitation, a letter of credit) to ensure the payment of such amounts as may be necessary to effect such indemnification. This Article shall be effective May 15, 1987.

ARTICLE I  
IDENTIFICATION

Section 1. Principal Office. The principal office of the Company shall be in the City of Pittsburgh, Pennsylvania.

Section 2. Seal. The Company shall have a corporate seal in such form as the board of directors shall by resolution from time to time prescribe.

Section 3. Fiscal Year. The fiscal year of the Company shall end on the 31st day of December.

ARTICLE II  
SHAREHOLDERS' MEETINGS

Section 1. Place of Meetings. Meetings of the shareholders of the Company shall be held at such place within or without the Commonwealth of Pennsylvania as may be fixed by the board of directors pursuant to authority hereby granted.

Section 2. Annual Meeting. The annual meeting of the shareholders shall be held on the Friday next following the first Monday in May of each year at nine thirty o'clock A.M., local time in effect at the place of the meeting, or on such other day or at such other time as may be fixed by the board of directors pursuant to authority hereby granted.

Section 3. Chairman of the Meeting. All meetings of the shareholders shall be called to order and presided over by the chairman of the board, or in the absence of the chairman of the board, by a vice chairman of the board, the president or another director, in the order designated by the chairman of the board, or if none of these be present, by a chairman elected by a majority of the votes which all shareholders present are entitled to cast on any matter coming before the meeting.

ARTICLE III  
BOARD OF DIRECTORS

Section 1. Number. Until the board of directors has increased or decreased the number of the directors as hereinafter provided, the number of the directors shall be ten. The board is hereby authorized to increase or decrease the number of the directors from time to time without a vote of the shareholders, provided, however, that such number shall not be less than seven nor more than fifteen.

Section 2. General Powers. The board of directors shall have power in general to manage the business and affairs of the Company consistent with the law, the Articles of the Company and these By-laws, and may from time to time adopt such regulations regarding the powers and duties of the respective officers, assistant officers and agents and the conduct of the Company's business as the board may deem proper and expedient.

Section 3. Election and Nomination of Directors. Candidates for election as directors at any annual meeting of shareholders shall be nominated and elected for terms to expire not later than the third annual meeting following their election, in accordance with the Articles of the Company and applicable law.

Section 4. Annual Meeting. The board of directors shall without notice meet each year upon adjournment of the annual meeting of the shareholders at the principal office of the Company, or at such other time or place as shall be designated in a notice given to all nominees for director, for the purposes of organization, election of officers and consideration of any other business that may properly be brought before the meeting.

Section 5. Regular Meetings. Regular meetings of the board of directors shall be held at such times and places as shall be fixed by the board at any time in advance of the meeting date or designated in a notice of the meeting.

Section 6. Special Meetings. Special meetings of the board of directors may be called by the chairman of the board, a vice chairman of the board, the president or any two directors.

Section 7. Notice of Regular and Special Meetings. No notice of a regular meeting of the board of directors shall be necessary if the meeting is held at the time and place fixed by the board in advance of the meeting date. Notice of any regular meeting to be held at another time or place and of all special meetings of the board, setting forth the time and place of the meeting, shall be given by letter or other writing deposited in the United States mail or with an express mail or private courier service not later than during the second day immediately preceding the day for such meeting, or by word of mouth,



telephone, facsimile or other oral or written means received not later than during the day immediately preceding the day for such meeting.

Section 8. Quorum. A majority of the directors in office shall be necessary to constitute a quorum for the transaction of business at a meeting of the board of directors, but if at any meeting a quorum shall not be present the meeting may adjourn from time to time until a quorum shall be present.

Section 9. Executive Committee. The board of directors may, by resolution adopted by a majority of the whole board, designate three or more of the directors to constitute an executive committee which to the extent provided in a resolution adopted by a majority of the whole board shall have and exercise the authority of the board in the management of the business and affairs of the Company except as otherwise limited by law.

Section 10. Audit Committee. The board of directors shall, by resolution adopted by a majority of the whole board, designate three or more of the directors to constitute an audit committee. Audit committee members shall not be officers or full time employees of the Company or its subsidiaries. The audit committee shall have such authority and shall perform such duties as shall be provided from time to time in accordance with resolutions of the board.

Section 11. Compensation Committee. The board of directors may, by resolution adopted by a majority of the whole board, designate three or more of the directors to constitute a compensation committee which to the extent provided in such resolution or other action by the board shall have and exercise the authority (a) to fix and determine, and change from time to time, the compensation of all officers of the Company elected by the board, including, but not restricted to, monthly or other periodic compensation and incentive or other additional compensation, (b) to authorize or approve all contracts of the Company with any officer for remuneration (whether in the form of a pension, deferred compensation or otherwise) to be paid from the general funds of the Company after the termination of regular employment of such officer, and (c) to administer or perform specified functions under any one or more of the stock option or other incentive plans of the Company; provided that the said committee shall not exercise any of its said authority with respect to any of its members.

Section 12. Compensation of Assistant Officers and Agents. Unless otherwise determined by the board of directors, the chief executive officer of the Company shall have the authority to fix and determine, and change from time to time, the compensation of all assistant officers and agents of the Company elected or appointed by the board or by the chief executive officer, including, but not restricted to, monthly or other periodic compensation and incentive or other additional compensation.

Section 13. Limitation Regarding Pension and Incentive Plans. Nothing contained in the foregoing two sections of this Article III shall be construed to vest, or to authorize vesting, in the compensation committee or the chief executive officer of the Company any authority with respect to any pension plan of the Company having general application, or in the chief executive officer of the Company any authority with respect to stock options or other incentives under plans which provide for administration by the board of directors or a committee thereof.

Section 14. Other Committees. In addition to the committees described in this Article III, the board of directors may, by resolution adopted by a majority of the whole board, designate one or more other committees of the board, each of which shall consist of one or more of the directors. Each such other committee shall have such authority and shall perform such other duties as may be provided from time to time in resolutions of the board.

Section 15. Substitute Committee Members. In the absence or disqualification of any member of any committee of the board of directors, the member or members thereof present at any meeting and not disqualified from voting, whether or not such member or members constitute a quorum, may unanimously appoint another director to act at the meeting in the place of any such absent or disqualified member.

Section 16. Participation by Conference Telephone. One or more directors may participate in a meeting of the board of directors or of a committee thereof by means of conference telephone or similar communications equipment by means of which all persons participating in the meeting can hear each other.

Section 17. Personal Liability of Directors. To the fullest extent that the laws of the Commonwealth of Pennsylvania, as in effect on May 15, 1987 or as thereafter amended, permit elimination or limitation of the liability of directors, no director of the Company shall be personally liable for monetary damages for any action taken, or any failure to take any action. This Section 17 shall not apply to any action filed prior to May 15, 1987, nor to any breach of performance of duty or any failure

of performance of duty occurring prior to May 15, 1987. The provisions of this Section shall be deemed to be a contract with each director of the Company who serves as such at any time while such provisions are in effect, and each such director shall be deemed to be serving as such in reliance on the provisions of this Section. Any amendment or repeal of this Section or adoption of any other By-law or provision of the Articles of the Company which has the effect of increasing director liability shall operate prospectively only and shall not affect any action taken, or any failure to act, prior to such amendment, repeal or adoption. This Section 17 may be amended or repealed only with the affirmative vote of the holders of a majority of the outstanding shares of common stock of the Company.

#### ARTICLE IV OFFICERS

Section 1. Number and Election. The board of directors at its annual meeting shall elect a president, a secretary and a treasurer, or persons who act as such, and may elect a chairman of the board, one or more vice presidents, a controller, a general counsel and such other officers and assistant officers as the board may deem appropriate. The board shall from time to time designate the chief executive officer who shall be either the chairman of the board or the president. The board may also from time to time elect such other officers and assistant officers and appoint such agents as it may deem appropriate. Assistant officers and agents also may be appointed by the chief executive officer.

Section 2. Qualifications. The chairman of the board shall be a member of the board of directors but the other officers need not be directors.

Section 3. Term of Office. Each officer and assistant officer shall hold office until the annual meeting of the board of directors next following the meeting of the board at which such officer or assistant officer is elected, except in the case of earlier death, resignation or removal.

Section 4. Chairman of the Board. The chairman of the board shall preside at all meetings of the board of directors at which such chairman is present. In the absence of the chairman of the board, a vice chairman of the board, the president or another director, in the order designated by the chairman of the board, shall preside at meetings of the board of directors. If the chairman of the board is not the chief executive officer, the chairman of the board shall have such powers and perform such other duties as the president may from time to time delegate to such chairman, except as otherwise determined by the board.

Section 5. President. If the president is not the chief executive officer, the president shall have such powers and perform such other duties as the chairman of the board may from time to time delegate to the president, except as otherwise determined by the board.

Section 6. Vice Presidents. Each vice president, including any vice president designated as executive, senior or otherwise, shall have such powers and perform such duties as the chairman of the board or the president may from time to time delegate to such vice president, except as otherwise determined by the board of directors.

Section 7. Secretary. The secretary shall attend meetings of the shareholders, the board of directors and the executive committee, shall keep minutes thereof in suitable books, and shall send out all notices of meetings as required by law or these By-laws. The secretary shall be ex officio an assistant treasurer. The secretary shall, in general, perform all duties incident to the office of secretary.

Section 8. Treasurer. The treasurer shall receive all money paid to the Company and keep or cause to be kept accurate accounts of all money received or payments made in books kept for that purpose. The treasurer shall deposit all money received by the treasurer in the name and to the credit of the Company in banks or other places of deposit. The treasurer shall disburse the money of the Company by checks or vouchers. The treasurer shall be ex officio an assistant secretary. The treasurer shall, in general, perform all duties incident to the office of treasurer.

Section 9. Controller. The controller shall be responsible for the implementation of accounting policies and procedures, the installation and supervision of all accounting records, including the preparation and interpretation of financial statements, the compilation of production costs and cost distributions and the taking and valuation of physical inventories. The controller shall also be responsible for the maintenance of adequate records of authorized appropriations and the approval for payment of all checks and vouchers. The controller shall, in general, perform all duties incident to the office of controller.

Section 10. General Counsel. The general counsel shall advise the Company on legal matters affecting the Company and its

activities and shall supervise and direct the handling of all such legal matters. The general counsel shall, in general, perform all duties incident to the office of general counsel.

Section 11. Assistant Officers. Each assistant officer shall have such powers and perform such duties as may be delegated to such assistant officer by the officer to whom such assistant officer is an assistant or, in the absence or inability to act of such officer, by the officer to whom such officer reports or by the chief executive officer.

## ARTICLE V INDEMNIFICATION

Section 1. Indemnification Granted. Every person who is or was a director, officer or employee of the Company or of any other corporation, partnership, joint venture, trust or other enterprise which such person serves or served as such at the request of the Company (hereinafter referred to as an "eligible person") shall in accordance with this Article V, but not if prohibited by law, be indemnified by the Company as hereinafter provided against reasonable expense and any liability paid or incurred by such person in connection with or resulting from any claim in which such person may be involved, as a party or otherwise, by reason of such person's being or having been a director, officer or employee of the Company or such other enterprise, whether or not such person continues to be such at the time such liability or expense shall have been paid or incurred.

Section 2. Certain Definitions. As used in this Article V, the term "claim" shall mean any threatened or actual claim, action, suit or proceeding (whether brought by or in the right of the Company or such other enterprise or otherwise), whether civil, criminal, administrative or investigative; the term "expense" shall mean counsel fees and disbursements and all other expenses (except any liability) incurred in connection with any claim; and the term "liability" shall mean amounts of judgments, fines or penalties against, and amounts paid in settlement by, an eligible person with respect to any claim.

Section 3. Expense Reimbursement to the Extent Successful. Any eligible person who has been wholly successful, on the merits or otherwise, with respect to any claim shall be reimbursed by the Company for such person's reasonable expense. Any eligible person who has been partially successful shall be proportionately reimbursed by the Company for such person's reasonable expense.

Section 4. Indemnification Where Not Wholly Successful. Any eligible person who has been partially unsuccessful and any other eligible person not described in Section 3 of this Article V shall be reimbursed by the Company for such person's reasonable expense and for any liability if a Referee shall deliver to the Company the written finding of such Referee that such person acted in good faith and in a manner such person reasonably believed to be in, or not opposed to, the best interests of the Company, and in addition with respect to any criminal action or proceeding, had no reasonable cause to believe the conduct of such person was unlawful. Where such person is found by the Referee to have met the foregoing standards of conduct with respect to one or more but not all the claims made against such person, such person shall be entitled to indemnification for such expense and liability in such proportion as the Referee shall determine. The termination of any claim by judgment, order, settlement (whether with or without court approval), adverse decision, or conviction after trial or upon a plea of guilty or of nolo contendere or its equivalent, shall not of itself create a presumption that an eligible person did not meet the foregoing standards of conduct. The person claiming indemnification shall, at the request of the Referee, appear before the Referee and answer questions which the Referee deems relevant and shall be given ample opportunity to present to the Referee evidence upon which such person relies for indemnification; and the Company shall at the request of the Referee, make available to the Referee facts, opinions or other evidence in any way relevant for the Referee's finding which are within the possession or control of the Company. As used in this Article V, the term "Referee" shall mean independent legal counsel (who may be regular independent legal counsel of the Company), or other disinterested person or persons, selected to act as such hereunder by the board of directors of the Company, whether or not a disinterested quorum exists.

Section 5. Advancement of Expenses. Any expense incurred with respect to any claim may be advanced by the Company prior to the final disposition thereof upon receipt of an undertaking by or on behalf of the recipient to repay such amount if it is ultimately determined that such recipient is not to be indemnified under this Article V.

Section 6. Article V Not Exclusive; Survival of Rights. The rights of indemnification provided in this Article V shall be in addition to any rights to which any eligible person may otherwise be entitled by contract or as a matter of law; and in the event of such person's death, such rights shall extend to the heirs and legal representatives of such person.

ARTICLE VI  
SHARE CERTIFICATES AND TRANSFERS

Section 1. Share Certificates. Share certificates shall be in such form as the board of directors may from time to time determine. Each certificate shall be signed by the chairman of the board, the president, the treasurer or the secretary of the Company, by manual or facsimile signature.

Section 2. Transfer Agent and Registrar. The board of directors may from time to time appoint one or more transfer agents and may appoint one or more registrars of transfer, each to act with respect to such preferred and common shares of the Company as the board of directors may designate. No share certificate of the Company shall be valid or binding unless countersigned, manually or by facsimile signature, by a transfer agent if one has been appointed to act with respect to the shares evidenced by such certificate, and registered before issue by a registrar if one has been appointed to act with respect to the shares evidenced by such certificate.

Section 3. Signatures by Former Corporate Officers or Agents. In case any officer of the Company, or any authorized signatory of any transfer agent or registrar, who has signed, or whose facsimile signature has been placed upon, any share certificate shall have ceased to be such officer or authorized signatory because of death, resignation or otherwise, before the certificate is issued, it may be issued with the same effect as if the officer or authorized signatory had not ceased to be such at the date of its issue.

ARTICLE VII  
AMENDMENTS

These By-laws may be altered, amended, added to or repealed by the board of directors at any meeting of the board duly convened with or without notice of that purpose, subject to the power of the shareholders to change such action.

ARTICLE VIII  
INDEMNIFICATION FOR DIRECTORS

Section 1. Right to Indemnification. Except as prohibited by law, every director of the Company shall be entitled as of right to be indemnified by the Company against expenses and any liability paid or incurred by such person in connection with any actual or threatened claim, action, suit or proceeding, civil, criminal, administrative, investigative or other, whether brought by or in the right of the Company or otherwise, in which he or she may be involved, as a party or otherwise, by reason of such person being or having been a director of the Company or by reason of the fact that such person is or was serving at the request of the Company as a director, officer, employee, fiduciary or other representative of another corporation, partnership, joint venture, trust, employee benefit plan or other entity (such claim, action, suit or proceeding hereinafter being referred to as a "claim"); provided, that no such right of indemnification shall exist with respect to a claim brought by a director against the Company except as provided in the last sentence of this Section 1. Indemnification hereunder shall include the right to have expenses incurred by such person in connection with a claim paid in advance by the Company prior to final disposition of such claim, subject to any obligation which may be imposed by law, By-law, agreement or otherwise to reimburse the Company in certain events. As used herein, "expenses" shall include fees and expenses of counsel selected by any such director and "liability" shall include amounts of judgments, excise taxes, fines, penalties and amounts paid in settlement. With respect to any claim brought by a director or other person against the Company, the director or other person shall be entitled to be indemnified for expenses incurred in connection with such claim pursuant to this Section 1 only (i) if the claim is a suit brought as a claim for indemnity under Section 2 of this Article VIII or otherwise, (ii) if the director or other person is successful in whole or in part in the claim for which expenses are claimed or (iii) if the indemnification for expenses is included in a settlement of the claim or is awarded by a court.

Section 2. Right of Claimant to Bring Suit. If a claim under Section 1 of this Article VIII is not paid in full by the Company within thirty days after a written claim has been received by the Company, the claimant may at any time thereafter bring suit against the Company to recover the unpaid amount of the claim and, if successful in whole or in part, the claimant shall also be entitled to be paid the expense of prosecuting such claim. It shall be a defense to any such suit to recover indemnification that the claimant's conduct was such that under Pennsylvania law the Company is prohibited from indemnifying the claimant for the amount claimed, but the burden of proving such defense shall be on the Company. Neither the failure of the Company (including its board of directors, legal counsel and its shareholders) to have made a determination prior to the commencement of such suit that indemnification of the claimant is proper in the circumstances, nor an actual determination by the

Company (including its board of directors, legal counsel or its shareholders) that the claimant's conduct was such that indemnification is prohibited by law, shall be a defense to the suit to recover indemnification or create a presumption that the claimant's conduct was such that indemnification is prohibited by law. The only defense to any such suit to receive payment of expenses in advance shall be failure to make an undertaking to reimburse if such an undertaking is required by law, By-law, agreement or otherwise.

Section 3. Insurance and Funding. The Company may purchase and maintain insurance to protect itself and any person eligible to be indemnified hereunder against any liability or expense asserted or incurred by such person in connection with any claim, whether or not the Company would have the power to indemnify such person against such liability or expense by law or under the provisions of this Article. The Company may create a trust fund, grant a security interest, cause a letter of credit to be issued or use other means (whether or not similar to the foregoing) to ensure the payment of such sums as may become necessary to effect indemnification as provided herein.

Section 4. Non-Exclusivity; Nature and Extent of Rights. The right of indemnification provided for in this Article VIII(i) shall not be deemed exclusive of any other rights, whether now existing or hereafter created, to which those seeking indemnification hereunder may be entitled under any provision of the Articles or By-laws, or any agreement, vote of shareholders or directors or otherwise, (ii) shall be deemed to create contractual rights in favor of persons entitled to indemnification hereunder, (iii) shall continue as to persons who have ceased to have the status pursuant to which they were entitled or were denominated as entitled to indemnification hereunder and shall inure to the benefit of the heirs and legal representatives of persons entitled to indemnification hereunder and (iv) shall be applicable to claims commenced after the adoption hereof, whether arising from acts or omissions occurring before or after the adoption hereof. The right of indemnification provided for herein may not be amended or repealed so as to limit in any way the indemnification provided for herein with respect to any acts or omissions occurring prior to any such amendment or repeal.

## ALCOA STOCK INCENTIVE PLAN

SECTION 1. PURPOSE. The purposes of the Alcoa Stock Incentive Plan are to encourage selected employees of the Company and its Subsidiaries to acquire a proprietary and vested interest in the long-term growth and financial success of the Company, to generate an increased incentive to promote its well-being and profitability, to link the interests of such employees to the long-term interests of shareholders and to enhance the ability of the Company and its Subsidiaries to attract and retain individuals of exceptional managerial, technical and professional talent upon whom, in large measure, the sustained progress, growth and profitability of the Company depend.

SECTION 2. DEFINITIONS. As used in the Plan, the following terms have the meanings set forth below:

"Award" means any Option, Stock Appreciation Right, Contingent Stock Award, Performance Share, Performance Unit, Other Stock Unit Award, or any other right, interest, or option relating to Shares or other property granted pursuant to the provisions of the Plan.

"Award Agreement" means any written agreement, contract, or other instrument or document evidencing any Award granted by the Committee hereunder, which may, but need not, be executed or acknowledged by both the Company and the Participant.

"Beneficial Owner" means beneficial owner as defined in Rule 13d-3 under the Exchange Act.

"Board" means the Board of Directors of the Company.

"Change in Control" means the first to occur of any of the following events:

(a) An Entity, other than a trustee or other fiduciary of securities held under an employee benefit plan of the Company or any of its Subsidiaries, is or becomes a Beneficial Owner, directly or indirectly, of stock of the Company representing 20% or more of the total voting power of the Company's then outstanding stock and securities; provided, however, that for purposes of this subsection (a), the following acquisitions shall not constitute a Change of Control: (i) any acquisition directly from the Company, (ii) any acquisition by the Company, (iii) any acquisition by any employee benefit plan (or related trust) sponsored or maintained by the Company or any corporation controlled by the Company or (iv) any acquisition by any corporation pursuant to a transaction that complies with clauses (i) or (ii) of subsection (c) of this definition;

(b) individuals who, as of the date hereof, constitute the Board (the "Incumbent Board"), cease for any reason to constitute a majority thereof; provided, however, that any individual becoming a director whose election, or nomination for election by the Company's shareholders, was approved by a vote of at least 75% of the directors then comprising the Incumbent Board shall be considered as though such individual was a member of the Incumbent Board, but excluding, for this purpose, any such individual whose initial assumption of office occurs as a result of an actual or threatened election contest with respect to the election or removal of directors or other actual or threatened solicitation of proxies or consents by or on behalf of an Entity other than the Board;

(c) there is consummated a merger, consolidation or other corporate transaction, other than (i) a merger, consolidation or transaction that would result in the voting securities of the Company outstanding immediately prior to such merger, consolidation or transaction continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving Entity or any parent thereof) at least 55% of the combined voting power of the stock and securities of the Company or such surviving Entity or any parent thereof outstanding immediately after such merger, consolidation or transaction, or (ii) a merger, consolidation or transaction effected to implement a recapitalization of the Company (or similar transaction) in which no Entity is or becomes the Beneficial Owner, directly or indirectly, of stock and securities of the Company representing more than 20% of the combined voting power of the Company's then outstanding stock and securities;

(d) the sale or disposition by the Company of all or substantially all of the Company's assets other than a sale or disposition by the Company of all or substantially all of the assets to an Entity at least 55% of the combined voting power of the stock and securities of which is owned by Persons in substantially the same proportions as their ownership of the Company's voting stock immediately prior to

such sale; or

(e) the shareholders of the Company approve a plan of complete liquidation or dissolution of the Company.

"Change in Control Price" means the higher of (a) the highest reported sales price, regular way, of a Share in any transaction reported on the New York Stock Exchange Composite Tape or other national exchange on which Shares are listed or on NASDAQ during the 60-day period prior to and including the date of a Change in Control or (b) if the Change in Control is the result of a tender or exchange offer or a merger, consolidation or other corporate transaction, the highest price per Share paid in such tender or exchange offer or corporate transaction. To the extent that the consideration paid in any such transaction described above consists all or in part of securities or other non-cash consideration, the value of such securities or other non-cash consideration shall be determined in the sole discretion of the Board.

"Code" means the Internal Revenue Code of 1986, as amended from time to time, and any successor thereto.

"Committee" means the Compensation Committee of the Board, or any successor to such committee, or a subcommittee thereof, composed of no fewer than two directors, each of whom is a Non-Employee Director and an "outside director" within the meaning of Section 162(m) of the Code, or any successor provision thereto.

"Company" means Alcoa Inc., a Pennsylvania corporation.

"Contingent Stock" means any Share issued with the contingency or restriction that the holder may not sell, transfer, pledge or assign such Share and with such other contingencies or restrictions as the Committee, in its sole discretion, may impose (including, without limitation, any contingency or restriction on the right to vote such Share and the right to receive any cash dividends), which contingencies and restrictions may lapse separately or in combination, at such time or times, in installments or otherwise, as the Committee may deem appropriate.

"Contingent Stock Award" means an award of Contingent Stock under Section 8 hereof.

"Covered Employee" means a "covered employee" within the meaning of Section 162(m)(3) of the Code, or any successor provision thereto.

"Employee" means any employee of the Company or of any Subsidiary.

"Entity" means any individual, entity, person (within the meaning of Section 3(a)(9) of the Exchange Act) or group (within the meaning of Section 13(d)(3) or 14(d)(2) of the Exchange Act), other than (a) any employee plan established by the Company, (b) any affiliate (as defined in Rule 12b-2 promulgated under the Exchange Act) of the Company, (c) an underwriter temporarily holding securities pursuant to an offering of such securities, or (d) a corporation owned, directly or indirectly, by shareholders of the Company in substantially the same proportions as their ownership of the Company.

"Exchange Act" means the Securities Exchange Act of 1934, as amended.

"Fair Market Value" means, with respect to any property, the market value of such property determined by such methods or procedures as shall be established from time to time by the Committee.

"Non-Employee Director" has the meaning set forth in Rule 16b-3(b)(3) under the Exchange Act, or any successor definition adopted by the Securities and Exchange Commission.

"Option" means any right granted to a Participant under the Plan allowing such Participant to purchase Shares at such price or prices and during such period or periods as the Committee shall determine. All Options granted under the Plan are intended to be nonqualified stock options for purposes of the Code.

"Other Stock Unit Award" means any right granted to a Participant by the Committee pursuant to Section 10 hereof.

"Participant" means an Employee who is selected by the Committee to receive an Award under the Plan.

"Performance Award" means any Award of Performance Shares or Performance Units pursuant to Section 9 hereof.

"Performance Period" means that period established by the Committee at the time any Performance Award is granted or at any time thereafter during which any performance goals specified by the Committee with respect to such Award are to be measured. A Performance Period may not be less than one year.

"Performance Share" means any grant pursuant to Section 9

hereof of a unit valued by reference to a designated number of Shares, which value may be paid to the Participant by delivery of such property as the Committee shall determine, including, without limitation, cash, Shares or any combination thereof, upon achievement of such performance goals during the Performance Period as the Committee shall establish at the time of such grant or thereafter.

"Performance Unit" means any grant pursuant to Section 9 hereof of a unit valued by reference to a designated amount of property other than Shares, which value may be paid to the Participant by delivery of such property as the Committee shall determine, including, without limitation, cash, Shares or any combination thereof, upon achievement of such performance goals during the Performance Period as the Committee shall establish at the time of such grant or thereafter.

"Person" means any individual, corporation, partnership, association, joint stock company, trust, unincorporated organization or government or political subdivision thereof.

"Plan" means this Alcoa Stock Incentive Plan.

"Prior Plan" means the Company's Long Term Stock Incentive Plan.

"Reload Option" means an Option described in Section 6(e) of the Plan, granted in connection with the exercise of an option under the Prior Plan or an Award under the Plan (an "antecedent award"). As a condition to the grant of a Reload Option, a Participant must elect at the time of exercise of the antecedent award that a designated portion, as determined by the Committee, of the Shares issued upon exercise of the antecedent award shall be restricted in terms of transfer for such period of time as the Committee may determine at the time of grant of the Reload Option or at a later date.

"Shares" means the shares of common stock of the Company, \$1.00 par value.

"Stock Appreciation Right" means any right granted to a Participant pursuant to Section 7 hereof to receive, upon exercise by the Participant, the excess of (a) the Fair Market Value of one Share on the date of exercise or, if the Committee shall so determine, at any time during a specified period before the date of exercise over (b) the grant price of the right on the date of grant, or if granted in connection with an outstanding Option on the date of grant of the related Option, as specified by the Committee in its sole discretion, which, except in the case of Substitute Awards or in connection with an adjustment provided in Section 4(g), shall not be less than the Fair Market Value of one Share on such date of grant of the right or the related Option, as the case may be. Any payment by the Company in respect of such right may be made in cash, Shares, other property or any combination thereof, as the Committee, in its sole discretion, shall determine.

"Subsidiary" means any corporation in which the Company owns, directly or indirectly, stock possessing 50 percent or more of the total combined voting power of all classes of stock in such corporation, and any corporation, partnership, joint venture, limited liability company or other business entity as to which the Company possesses a significant ownership interest, directly or indirectly, as determined by the Committee.

"Substitute Awards" means Awards granted or Shares issued by the Company in assumption of, or in substitution or exchange for, awards previously granted, or the right or obligation to make future awards, by a company acquired by the Company or any of its Subsidiaries or with which the Company or any of its Subsidiaries combines.

SECTION 3. ADMINISTRATION. The Plan shall be administered by the Committee. The Committee shall have full power and authority, subject to such orders or resolutions not inconsistent with the provisions of the Plan as may from time to time be adopted by the Board, to: (i) select the Employees of the Company and its Subsidiaries to whom Awards may from time to time be granted hereunder; (ii) determine the type or types of Award to be granted to each Participant hereunder; (iii) determine the number of Shares to be covered by each Award granted hereunder; (iv) determine the terms and conditions, not inconsistent with the provisions of the Plan, of any Award granted hereunder; (v) determine whether, to what extent and under what circumstances Awards may be settled in cash, Shares or other property or canceled or suspended; (vi) determine whether, to what extent and under what circumstances cash, Shares and other property and other amounts payable with respect to an Award under this Plan shall be deferred either automatically or at the election of the Participant; (vii) interpret and administer the Plan and any instrument or agreement entered into under the Plan; (viii) establish such rules and regulations and appoint such agents as it shall deem appropriate for the proper administration of the Plan; and (ix) make any other determination and take any other action that the Committee deems necessary or desirable for administration of the Plan. Decisions of the Committee shall be final, conclusive and binding upon all persons, including the



Company, any Participant, any shareholder and any Employee.

#### SECTION 4. SHARES SUBJECT TO THE PLAN.

(a) Subject to the adjustment provisions of Section 4(g) below and the provisions of Section 4(b) through (f), up to 14 million Shares may be issued under the Plan.

(b) In addition to the Shares authorized by Section 4(a), the following Shares may be issued under the Plan:

(i) Shares that were authorized to be issued under the Prior Plan, but that are not issued under that plan because of the cancellation, termination or expiration of awards under the Prior Plan shall be available for issuance under this Plan.

(ii) If a Participant tenders, or has withheld, Shares in payment of all or part of the option price under a stock option granted under the Plan or the Prior Plan, or in satisfaction of withholding tax obligations thereunder, the Shares tendered by the Participant or so withheld shall become available for issuance under the Plan.

(iii) If Shares that are the issued under the Plan are subsequently forfeited in accordance with the terms of the Award or an Award Agreement, the forfeited Shares shall become available for issuance under the Plan.

(iv) If the Company repurchases any Shares and, in connection therewith, the Board designates that any or all of the repurchased Shares shall be available for issuance under the Plan, those repurchased Shares allocated to the Plan shall become available for issuance under the Plan.

(c) Subject to the adjustment provisions of Section 4(g), not more than one million Shares shall be issued under Awards other than Options and Stock Appreciation Rights.

(d) If an Award may be paid only in Shares or in either cash or Shares, the Shares shall be deemed to be issued hereunder only when and to the extent that payment is actually made in Shares. However, the Committee may authorize a cash payment under an Award in lieu of Shares if there are insufficient Shares available for issuance under the Plan.

(e) Any Shares issued hereunder may consist, in whole or in part, of authorized and unissued shares, treasury shares or shares purchased in the open market or otherwise.

(f) Shares issued or granted in connection with Substitute Awards shall not reduce the Shares available for issuance under the Plan or to a Participant in any calendar year.

(g) In the event of any merger, reorganization, consolidation, recapitalization, stock dividend, stock split, reverse stock split, spin-off or similar transaction or other change in corporate structure affecting the Shares, such adjustments and other substitutions shall be made to the Plan and to Awards as the Committee in its sole discretion deems equitable or appropriate, including, without limitation, such adjustments in the aggregate number, class and kind of securities that may be delivered under the Plan, in the aggregate or to any one Participant, in the number, class, kind and option or exercise price of securities subject to outstanding Options, Stock Appreciation Rights or other Awards granted under the Plan, and in the number, class and kind of securities subject to Awards granted under the Plan (including, if the Committee deems appropriate, the substitution of similar options to purchase the shares of, or other awards denominated in the shares of, another company) as the Committee may determine to be appropriate in its sole discretion; provided that the number of Shares subject to any Award shall always be a whole number.

SECTION 5. ELIGIBILITY. Any Employee shall be eligible to be selected as a Participant.

SECTION 6. STOCK OPTIONS. Options may be granted hereunder to Participants either alone or in addition to other Awards granted under the Plan. Any Option granted under the Plan may be evidenced by an Award Agreement in such form as the Committee from time to time approves. Any such Option shall be subject to the terms and conditions required by this Section 6 and to such additional terms and conditions, not inconsistent with the provisions of the Plan, as the Committee may deem appropriate in each case.

(a) Option Price. The purchase price per Share purchasable under an Option shall be determined by the Committee in its sole discretion; provided that, except in connection with an adjustment provided for in Section 4(g), such purchase price shall not be less than the Fair Market Value of the Share on the date of the grant of the Option.

(b) Option Period. The term of each Option shall be fixed by the Committee in its sole discretion, not to exceed ten years from the date the Option is granted.

(c) Exercisability. Options shall be exercisable at such time or times as determined by the Committee at or subsequent to grant.

(d) Method Of Exercise. Subject to the other provisions of the Plan, any Option may be exercised by the Participant in whole or in part at such time or times, and the Participant may make payment of the option price in such form or forms, including, without limitation, payment by delivery of cash, Shares or other consideration (including, where permitted by law and the Committee, Awards) having a Fair Market Value on the exercise date equal to the total option price, or by any combination of cash, Shares and other consideration as the Committee may specify in the applicable Award Agreement.

(e) Reload Options. The Committee shall have the authority to specify, either at the time of grant of an Option or at a later date, that upon exercise of all or a portion of that Option a Reload Option shall be granted under specified conditions. A Reload Option entitles the Participant to purchase Shares (i) that are covered by an antecedent award at the time of its exercise, but are not issued upon such exercise, or (ii) whose aggregate grant price equals the purchase price of the exercised antecedent award and any related tax withholdings. The grant price per Share of the Reload Option shall be the Fair Market Value per Share at the time of grant. The duration of a Reload Option shall not extend beyond the expiration date of the antecedent award. The specific terms and conditions applicable to Reload Options shall be determined by the Committee and shall be set forth in rules adopted by the Committee and/or in agreements or other documentation evidencing such Options.

(f) Transferability of Options. Notwithstanding the provisions of Section 14(a) of the Plan, at the discretion of the Committee and in accordance with rules it establishes from time to time, Participants may be permitted to transfer some or all of their Options to one or more immediate family members.

SECTION 7. STOCK APPRECIATION RIGHTS. Stock Appreciation Rights may be granted hereunder to Participants either alone or in addition to other Awards granted under the Plan and may, but need not, relate to a specific Option granted under Section 6. The provisions of Stock Appreciation Rights need not be the same with respect to each recipient. Any Stock Appreciation Right related to an Option may be granted at the same time such Option is granted or at any time thereafter before exercise or expiration of such Option. In the case of any Stock Appreciation Right related to any Option, the Stock Appreciation Right or applicable portion thereof shall terminate and no longer be exercisable upon the termination or exercise of the related Option, except that a Stock Appreciation Right granted with respect to less than the full number of Shares covered by a related Option shall not be reduced until the exercise or termination of the related Option exceeds the number of Shares not covered by the Stock Appreciation Right. Any Option related to any Stock Appreciation Right shall no longer be exercisable to the extent the related Stock Appreciation Right has been exercised. The Committee may impose such conditions or restrictions on the exercise of any Stock Appreciation Right as it shall deem appropriate.

#### SECTION 8. CONTINGENT STOCK

(a) Issuance. A Contingent Stock Award shall be subject to contingencies or restrictions imposed by the Committee during a period of time specified by the Committee (the "Contingency Period"). Contingent Stock Awards may be issued hereunder to Participants, for no cash consideration or for such minimum consideration as may be required by applicable law, either alone or in addition to other Awards granted under the Plan. The provisions of Contingent Stock Awards need not be the same with respect to each recipient.

(b) Registration. Any Contingent Stock issued hereunder may be evidenced in such manner as the Committee in its sole discretion shall deem appropriate, including, without limitation, book-entry registration or issuance of a stock certificate or certificates. In the event any stock certificate is issued in respect of shares of Contingent Stock awarded under the Plan, such certificate shall be registered in the name of the Participant and shall bear an appropriate legend referring to the terms, conditions, contingencies and restrictions applicable to such Award.

(c) Forfeiture. Except as otherwise determined by the Committee at the time of grant or thereafter, upon termination of employment for any reason during the Contingency Period, all Shares of Contingent Stock still subject to contingency or restriction shall be forfeited by the Participant and reacquired by the Company. Noncontingent Shares, evidenced in such manner as the Committee shall deem appropriate, shall be issued to the Participant promptly after the Contingency Period, as determined or modified by the Committee, shall expire.

(d) Minimum Vesting Condition. The minimum Contingency Period applicable to any Contingent Stock Award that is not subject to performance conditions restricting transfer shall be

three (3) years from the date of grant; provided, however, that a Contingency Period of less than three (3) years may be approved for such Awards with respect to up to 100,000 Shares under the Plan.

SECTION 9. PERFORMANCE AWARDS. Performance Awards may be granted hereunder to Participants, for no cash consideration or for such minimum consideration as may be required by applicable law, either alone or in addition to other Awards granted under the Plan. The performance criteria to be achieved during any Performance Period and the length of the Performance Period shall be determined by the Committee upon the grant of each Performance Award. Except as provided in Section 11, Performance Awards will be paid only after the end of the relevant Performance Period. Performance Awards may be paid in cash, Shares, other property or any combination thereof in the sole discretion of the Committee at the time of payment. The performance levels to be achieved for each Performance Period and the amount of the Award to be paid shall be conclusively determined by the Committee. Performance Awards may be paid in a lump sum or in installments following the close of the Performance Period or, in accordance with procedures established by the Committee, on a deferred basis.

#### SECTION 10. OTHER STOCK UNIT AWARDS.

(a) Other Awards of Shares and other Awards that are valued in whole or in part by reference to, or are otherwise based on, Shares or other property ("Other Stock Unit Awards") may be granted hereunder to Participants, either alone or in addition to other Awards granted under the Plan. Other Stock Unit Awards may be paid in Shares, cash or any other form of property as the Committee shall determine. Subject to the provisions of the Plan, the Committee shall have sole and complete authority to determine the Employees of the Company and its Subsidiaries to whom, and the time or times at which, such Awards shall be made, the number of Shares to be granted pursuant to such Awards and all other conditions of the Awards. The provisions of Other Stock Unit Awards need not be the same with respect to each recipient.

(b) Subject to the provisions of this Plan and any applicable Award Agreement, Awards and Shares subject to Awards granted under this Section 10, may not be sold, assigned, transferred, pledged or otherwise encumbered prior to the date on which the Shares are issued, or, if later, the date on which any applicable contingency, restriction, performance or deferral period lapses. For any Award or Shares subject to any Award granted under this Section 10 the transferability of which is conditioned only on the passage of time, such restriction period shall be a minimum of three (3) years. Shares (including securities convertible into Shares) subject to Awards granted under this Section 10 may be issued for no cash consideration or for such minimum consideration as may be required by applicable law. Shares (including securities convertible into Shares) purchased pursuant to a purchase right granted under this Section 10 thereafter shall be purchased for such consideration as the Committee shall in its sole discretion determine, which shall not be less than the Fair Market Value of such Shares or other securities as of the date such purchase right is granted.

#### SECTION 11. CHANGE IN CONTROL PROVISIONS.

(a) Impact of Event. Notwithstanding any other provision of the Plan to the contrary, unless the Committee shall determine otherwise at the time of grant with respect to a particular Award, in the event of a Change in Control:

(i) any Options and Stock Appreciation Rights outstanding as of the date such Change in Control is determined to have occurred, and which are not then exercisable and vested, shall become fully exercisable and vested to the full extent of the original grant;

(ii) the contingencies, restrictions and deferral limitations applicable to any Contingent Stock shall lapse, and such Contingent Stock shall become free of all contingencies, restrictions and limitations and become fully vested and transferable to the full extent of the original grant;

(iii) all Performance Awards shall be considered to be earned and payable pro rata and shall be immediately settled or distributed. The pro rata portion of a Performance Award shall be calculated by multiplying the number of Shares or other property underlying the Performance Award by a fraction, the numerator of which is the number of days from the beginning of the applicable Performance Period to the date of the Change in Control and the denominator of which is the number of days originally determined by the Committee as the term of the applicable Performance Period. Any deferral, contingency or other restriction applicable to such Performance Awards shall lapse.

(iv) the contingencies, restrictions and deferral limitations and other conditions applicable to any Other Stock Unit Awards or any other Awards shall lapse, and such Other Stock Unit Awards or such other Awards shall become free of all

contingencies, restrictions, limitations or conditions and become fully vested and transferable to the full extent of the original grant; and

(v) the restrictions applicable to any Shares received in connection with the grant of a Reload Option shall lapse and such Shares shall be freely and fully transferable.

(b) Change In Control Settlement. Notwithstanding any other provision of the Plan, during the 60-day period from and after a Change in Control (the "Change in Control Election Period"), a Participant holding an Option or Stock Appreciation Right shall have the right, whether or not the Option or Stock Appreciation Right is fully exercisable and in lieu of the payment of the purchase price for the Shares being purchased under the Option or Stock Appreciation Right and by giving notice to the Company, to elect (within the Change in Control Election Period) to surrender all or part of the Option or Stock Appreciation Right to the Company and to receive cash, within 30 days of such notice, in an amount equal to the amount by which the Change in Control Price per Share on the date of such election shall exceed the purchase price per Share under the Option or Stock Appreciation Right multiplied by the number of Shares granted under the Option or Stock Appreciation right as to which the right granted under this Section 11(b) shall have been exercised.

(c) Alternate Settlement. Notwithstanding any other provision of this Plan, if any right granted pursuant to this Plan would make a Change in Control transaction ineligible for pooling-of-interests accounting under APB No. 16 (or any successor standard), that (after giving effect to any other actions taken to cause such transaction to be eligible for such pooling-of-interests accounting treatment) but for the nature of such right would otherwise be eligible for such accounting treatment, the Committee shall have the ability to substitute for the cash payable pursuant to such right Shares with a Fair Market Value equal to the cash that would otherwise be payable pursuant thereto.

(d) Other Forms of Settlement. The foregoing provisions of this Section 11 shall not preclude other forms of settlement of outstanding Awards in the event of a Change in Control, including a conversion or exchange of Awards for awards or securities of any person that is a party to or initiates the Change in Control transaction; provided that no Participant shall be required to accept any such substituted or exchanged award or security without such Participant's written consent.

#### SECTION 12. CODE SECTION 162(m) PROVISIONS.

(a) Notwithstanding any other provision of this Plan, if the Committee determines at the time Contingent Stock, a Performance Award or an Other Stock Unit Award is granted to a Participant that such Participant is, or is likely to be as of the end of the tax year in which the Company would claim a tax deduction in connection with such Award, a Covered Employee, then the Committee may provide that this Section 12 is applicable to such Award.

(b) If an Award is subject to this Section 12, then the lapsing of contingencies or restrictions thereon and the distribution of cash, Shares or other property pursuant thereto, as applicable, shall be subject to the achievement of one or more objective performance goals established by the Committee, which shall be based on the attainment of specified levels of one or any combination of the following: cumulative net income or cumulative net income per share during the performance period; return on sales; return on assets; return on shareholders' equity; cash flow; economic value added; cumulative operating income; total shareholders' return; cost reductions; or achievement of environment, health & safety goals of the Company or the Subsidiary or business unit of the Company for or within which the Participant is primarily employed. Such performance goals shall be set by the Committee within the time period prescribed by, and shall otherwise comply with the requirements of Section 162(m) of the Code, or any successor provision thereto, and the regulations thereunder.

(c) Notwithstanding any provision of this Plan other than Section 11, with respect to any Award that is subject to this Section 12, the Committee may adjust downwards, but not upwards, the amount payable pursuant to such Award, and the Committee may not waive the achievement of the applicable performance goals.

(d) The Committee shall have the power to impose such other restrictions on Awards subject to this Section 12 as it may deem necessary or appropriate to ensure that such Awards satisfy all requirements for "performance-based compensation" within the meaning of Section 162(m)(4)(C) of the Code, or any successor provision thereto.

(e) Notwithstanding any provision of this Plan other than Section 4(g), no Participant may be granted Options and/or Stock Appreciation Rights in any calendar year with respect to more than two million (2,000,000) Shares or Contingent Stock Awards or Performance Share Awards covering more than 25,000 Shares. The

maximum dollar value payable with respect to Performance Units and/or Other Stock Unit Awards that are valued with reference to property other than Shares and granted to any Participant in any one calendar year is \$2,000,000.

SECTION 13. AMENDMENTS AND TERMINATION. The Board may amend, alter, suspend, discontinue or terminate the Plan or any portion thereof at any time; provided that no such amendment, alteration, suspension, discontinuation or termination shall be made without (i) shareholder approval if such approval is necessary to qualify for or comply with any tax or regulatory requirement for which or with which the Board deems it necessary or desirable to qualify or comply or (ii) the consent of the affected Participant, if such action would impair the rights of such Participant under any outstanding Award. Notwithstanding anything to the contrary herein, the Committee may amend the Plan in such manner as may be necessary so as to have the Plan conform to local rules and regulations in any jurisdiction outside the United States.

The Committee may amend the terms of any Award theretofore granted, prospectively or retroactively, but no such amendment shall impair the rights of any Participant without his or her consent. Notwithstanding any provision of this Plan, the Committee may not amend the terms of any Option to reduce the option price.

#### SECTION 14. GENERAL PROVISIONS.

(a) Nontransferability of Awards. Unless the Committee determines otherwise at the time the Award is granted or thereafter and except for transfers of Options permitted by Section 6(f) of the Plan: (i) no Award, and no Shares subject to Awards described in Section 10 which have not been issued or as to which any applicable contingency, restriction, performance or deferral period has not lapsed, may be sold, assigned, transferred, pledged or otherwise encumbered, except by will or by the laws of descent and distribution; provided that, if so determined by the Committee, a Participant may, in the manner established by the Committee, designate a beneficiary to exercise the rights of the Participant with respect to any Award upon the death of the Participant, and (ii) each Award shall be exercisable, during the Participant's lifetime, only by the Participant or, if permissible under applicable law, by the Participant's guardian or legal representative.

(b) Award Term. The term of each Award shall be for such period of months or years from the date of its grant as may be determined by the Committee.

(c) Award Entitlement. No Employee or Participant shall have any claim to be granted any Award under the Plan and there is no obligation for uniformity of treatment of Employees or Participants under the Plan.

(d) Requirement of an Award Agreement. The prospective recipient of any Award under the Plan shall not, with respect to such Award, be deemed to have become a Participant, or to have any rights with respect to such Award, until and unless such recipient shall have executed an agreement or other instrument evidencing the Award and delivered a copy thereof to the Company and otherwise complied with the then applicable terms and conditions.

(e) Award Adjustments. Except as provided in Section 12, the Committee shall be authorized to make adjustments in Performance Award criteria or in the terms and conditions of other Awards in recognition of unusual or nonrecurring events affecting the Company or its financial statements or changes in applicable laws, regulations or accounting principles. The Committee may correct any defect, supply any omission or reconcile any inconsistency in the Plan or any Award in the manner and to the extent it shall deem desirable to carry it into effect.

(f) Committee Right to Cancel. The Committee shall have full power and authority to determine whether, to what extent and under what circumstances any Award shall be canceled or suspended. In particular, but without limitation, all outstanding Awards to any Participant shall be canceled if the Participant, without the consent of the Committee, while employed by the Company or after termination of such employment, becomes associated with, employed by, renders services to or owns any interest in (other than any nonsubstantial interest, as determined by the Committee) any business that is in competition with the Company or with any business in which the Company has a substantial interest as determined by the Committee or otherwise takes any action that in the judgment of the Committee is not in the best interests of the Company.

(g) Stock Certificate Legends. All certificates for Shares delivered under the Plan pursuant to any Award shall be subject to such stock transfer orders and other restrictions as the Committee may deem advisable under the rules, regulations, and other requirements of the Securities and Exchange Commission, any stock exchange upon which the Shares are then listed and any applicable Federal or state securities law, and the Committee may

cause a legend or legends to be put on any such certificates to make appropriate reference to such restrictions.

(h) Compliance with Securities Laws. No Award granted hereunder shall be construed as an offer to sell securities of the Company, and no such offer shall be outstanding, unless and until the Committee in its sole discretion has determined that any such offer, if made, would be in compliance with all applicable requirements of the U.S. Federal securities laws and any other laws to which such offer, if made, would be subject.

(i) Award Deferrals; Dividends. The Committee shall be authorized to establish procedures pursuant to which the payment of any Award may be deferred. Subject to the provisions of the Plan and any Award Agreement, the recipient of an Award (including, without limitation, any deferred Award) may, if so determined by the Committee, be entitled to receive, currently or on a deferred basis, cash dividends, or cash payments in amounts equivalent to cash dividends on Shares ("Dividend Equivalents"), with respect to the number of Shares covered by the Award, as determined by the Committee, in its sole discretion, and the Committee may provide that such amounts (if any) shall be deemed to have been reinvested in additional Shares or otherwise reinvested.

(j) Consideration for Awards. Except as otherwise required in any applicable Award Agreement or by the terms of the Plan, recipients of Awards under the Plan shall not be required to make any payment or provide consideration other than the rendering of services.

(k) Delegation of Authority by Committee. The Committee may delegate to one or more executive officers (as that term is defined in Rule 3b-7 under the Exchange Act) or a committee of executive officers the right to grant Awards to Employees who are not executive officers or directors of the Company and to cancel or suspend Awards to Employees who are not executive officers or directors of the Company.

(l) Withholding Taxes. The Company shall be authorized to withhold from any Award granted or payment due under the Plan the amount of withholding taxes due in respect of an Award or payment hereunder and to take such other action as may be necessary in the opinion of the Company to satisfy all obligations for the payment of such taxes. The Committee shall be authorized to establish procedures for election by Participants to satisfy such obligations for the payment of such taxes by delivery of or transfer of Shares to the Company or by directing the Company to retain Shares otherwise deliverable in connection with the Award.

(m) Other Compensatory Arrangements. Nothing contained in this Plan shall prevent the Board from adopting other or additional compensation arrangements, subject to shareholder approval if such approval is required; and such arrangements may be either generally applicable or applicable only in specific cases.

(n) Governing Law. The validity, construction, and effect of the Plan and any rules and regulations relating to the Plan shall be determined in accordance with the laws of the Commonwealth of Pennsylvania and applicable Federal law.

(o) Severability. If any provision of this Plan is or becomes or is deemed invalid, illegal or unenforceable in any jurisdiction, or would disqualify the Plan or any Award under any law deemed applicable by the Committee, such provision shall be construed or deemed amended to conform to applicable laws or if it cannot be construed or deemed amended without, in the determination of the Committee, materially altering the intent of the Plan, it shall be stricken and the remainder of the Plan shall remain in full force and effect.

(p) Awards to NonU.S. Employees. Awards may be granted to Employees who are foreign nationals or employed outside the United States, or both, on such terms and conditions different from those applicable to Awards to Employees employed in the United States as may, in the judgment of the Committee, be necessary or desirable in order to recognize differences in local law or tax policy. The Committee also may impose conditions on the exercise or vesting of Awards in order to minimize the Company's obligation with respect to tax equalization for Employees on assignments outside their home countries.

(q) Repricing Prohibited. The repricing of Options or Stock Appreciation Right Awards under the Plan is expressly prohibited. "Repricing" means the grant of a new Option, Stock Appreciation Right or other Award in consideration of the exchange, cancellation or forfeiture of an Award that has a higher grant price than the new Award or the amendment of an outstanding Award to reduce the grant price; provided, that the grant of a Substitute Award shall not be considered to be repricing.

SECTION 15. TERM OF PLAN. The Plan shall be effective as of June 1, 1999. No Award shall be granted pursuant to the Plan after May 31, 2009, but any Award theretofore granted may extend beyond that date.

SECTION 16. TERMINATION OF PRIOR PLAN. No stock options or other awards may be granted under the Prior Plan after May 31, 1999, but all such awards theretofore granted shall extend for the full stated terms thereof.

## ALCOA SUPPLEMENTAL PENSION PLAN FOR SENIOR EXECUTIVES

Pursuant to due authorization by the Compensation Committee of the Board of Directors, Aluminum Company of America has adopted the following Alcoa Supplemental Pension Plan for Senior Executives for the exclusive benefit of select management and highly compensated employees (1) whose Pension Service terminates on or after January 1, 1999, (2) who are participants in the IC Rules adopted under the Employees' Retirement Plan of Aluminum Company of America, Plan I and/or in Employees' Excess Benefits Plan B of Aluminum Company of America, (3) who meet the requirements for participation hereunder, and (4) whose monthly retirement benefits under other benefit plans are less than the monthly retirement benefits calculated under this Plan.

## ARTICLE I - DEFINITIONS

1.1 The following terms have the specified meanings.

A. "Annual Compensation" means the total payments which includes 100% of Performance Pay and Incentive Compensation Awards, made by the Company, and by any Subsidiaries or affiliates of Alcoa, for any period of Pension Service, for services rendered as a salaried employee, except as otherwise provided by contractual agreement. Annual Compensation does not include living and similar allowances, premium pay, and payments made for specific purposes as determined under supplemental rules adopted by Alcoa. Annual Compensation includes any amounts by which the Participant has elected to reduce his or her salary under the Alcoa Savings Plan, and also includes amounts deferred under any non-qualified deferred compensation arrangement that would otherwise meet the definition of Annual Compensation.

B. "Average Final Compensation" means the average Annual Compensation received during the five highest paid calendar years out of the ten calendar years (including the calendar year in which such compensation was discontinued if this would increase Average Final Compensation), immediately preceding the Participant's termination of Pension Service by virtue of employment termination, retirement or death.

C. "Board of Directors" means the Board of Directors of the Company.

D. "Company" means Aluminum Company of America.

E. "Compensation Committee" means the Committee created by the Board of Directors.



F. "Excess Plan B" means the Employees' Excess Benefits Plan B of Aluminum Company of America as now in effect and as from time to time amended hereafter.

G. "IC Rules" means the IC Rules adopted under Employees' Retirement Plan of Aluminum Company of America, Plan I as now in effect and as from time to time amended hereafter.

H. "Other Plan or Plans" means the IC Rules, any other defined benefit retirement plan of the Company or any Subsidiary, Employees' Excess Benefits Plan A of the Company, Excess Plan B, and Employees' Benefits Plan C.

I. "Participant" means any employee (1) whose Pension Service terminates on or after January 1, 1999, (2) who is a participant in the IC Rules or Excess Plan B, and (3) who has a job grade of 27 or higher, as determined by the Company.

J. "Pension Benefits" means any and all retirement benefits provided under the Other Plan or Plans, excluding the Special Retirement Pension or Supplemental Pension provided under the IC Rules or the equivalent thereof provided under Excess Plan B.

K. "Pension Service" means the service used to calculate the Participant's monthly retirement benefit under the Other Plan or Plans.

L. "Plan" means the Alcoa Supplemental Pension Plan for Senior Executives adopted by the Company as described herein or from time to time amended hereafter.

M. "Plan Benefits" means the monthly benefits payable under this Plan at such time as the Participant's monthly Pension Benefits, are determinable under the Other Plan or Plans. Subject to Section 2.1, the Plan Benefits are calculated in the following manner:

(1) On and after Age 62:

(a) 1.1% of Average Final Compensation times each year of Pension Service up to the Social Security "Covered Compensation" amount as defined in the IC Rules, plus

(b) 1.475% of Average Final Compensation in excess of Covered Compensation for each year of Pension

Service.

(2) Before Age 62:

(a) 1.475% of Average Final Compensation for each year of Pension Service, reduced by

(b) For Participants who retire prior to attaining age 62 on any type of pension provided under the Other Plan or Plans (other than a 55/10 pension under the IC Rules, or 55/10 pension equivalent under Excess Plan B), the Plan Benefits calculated as described in 2(a) above is reduced by 1% for each year, prorated monthly for a partial year, their retirement precedes age 62.

(3) The Plan Benefits calculated in paragraphs (1) or (2) above are reduced by any and all applicable reductions and offsets in accordance with the provisions of the Other Plan or Plans, (i.e., actuarial reductions and any other percentage reduction made in order to create a joint and survivor annuity, offsets for social security benefits, offsets for other pensions, etc.)

(4) The Plan Benefits for the Participant's Surviving Spouse equals 50% of the Participant's Plan Benefits, determined in accordance with the Surviving Spouse Pension provision in the Other Plan or Plans. If the Participant's death occurs prior to his or her attainment of age 62, the Participant's Plan Benefits, for the purpose of determining the Plan Benefits for the Surviving Spouse, are not be subject to the foregoing paragraph (2)(b).

N. "Subsidiary" means a corporation at least 50% of whose outstanding voting stock is owned or controlled by the Company and/or one or more other Subsidiaries, and any noncorporate business entity in which the Company and/or one or more other Subsidiaries have at least a 50% interest in capital or profits.

O. "Surviving Spouse" means a deceased Participant's spouse who is entitled to receive surviving spouse benefits under the Other Plan or Plans.

## ARTICLE II - BENEFITS

2.1 The Plan Benefits payable under this Plan for any month are the excess, if any, of (1) the Plan Benefits calculated for the month for the Participant or Surviving Spouse over (2) the aggregate amount of Pension Benefits in pay status and payable

for the month to the Participant or Surviving Spouse under the Other Plan or Plans.

Where the Pension Benefits under the Other Plan or Plans are not payable solely in the form of monthly Pension Benefits over the same time periods (for example, where a benefit is payable in a lump sum) the benefits payable under this Plan are adjusted so that the Participant or Surviving Spouse is neither advantaged nor disadvantaged for pension purposes.

2.2 Benefits are payable to a Participant or Surviving Spouse under this Plan only in conjunction with monthly Pension Benefits, payable under the Other Plan or Plans and will commence concurrently with monthly Pension Benefits payable to the Participant or Surviving Spouse under the Other Plan or Plans. Upon the cessation of payment of monthly Pension Benefits to a Participant or Surviving Spouse under the Other Plan or Plans, benefits payable under this Plan will concurrently cease.

2.3 This Plan is not to be construed as conferring any rights upon any Participant for continuation of employment with the Company or any Subsidiary, nor will it interfere with the rights of the Company or any Subsidiary to terminate the employment of any Participant and/or to take any personnel action affecting any Participant without regard to the effect which such action might have upon such Participant or Surviving Spouse as a prospective recipient of benefits under this Plan.

2.4 No benefit under this Plan may be assigned, transferred, pledged or encumbered or be subject in any manner to alienation or anticipation.

#### ARTICLE III - CONTRIBUTIONS

3.1 Benefits payable hereunder are payable out of the general assets of the Company, no segregation of assets for such benefits will be made, and the right of a Participant, Surviving Spouse and/or beneficiary to receive benefits under this Plan is that of an unsecured claim against those assets, except as the Company in its sole discretion otherwise provides.

#### ARTICLE IV - ADMINISTRATION OF EXCESS PLAN

4.1 The general administration of this Plan is by the Compensation Committee, which has the discretionary authority to make all decisions regarding this Plan. The resolution of any matter concerning this Plan is final and binding upon the Company and any Participant, Surviving Spouse and/or beneficiary affected thereby.

#### ARTICLE V - AMENDMENT AND TERMINATION

5.1 This Plan may be amended, suspended or terminated at any time by the Board of Directors or any other entity approved by the board, provided, however, that no such amendment, suspension or termination will reduce or in any manner adversely affect any Participant's rights with respect to benefits that are payable or may become payable under Article II as of the date of such amendment, suspension or termination. This Plan may also be amended, from time to time by the Board of Directors' Inside Director Committee, except for amendments which have more than a minimal effect upon the Company's cost of providing benefits for Company employees at the officer level.

#### ARTICLE VI - CONSTRUCTION

6.1 This Plan is construed, regulated and administered under the laws (except the law of conflicts) of the Commonwealth of Pennsylvania except as modified by any applicable law.

ALUMINUM COMPANY OF AMERICA  
DEFERRED FEE ESTATE ENHANCEMENT  
PLAN FOR DIRECTORS

Article I  
INTRODUCTION

Aluminum Company of America (the "Company") is establishing this Deferred Fee Estate Enhancement Plan for Directors (the "Plan") to provide Directors (as hereinafter defined) with an alternative to the Aluminum Company of America Deferred Fee Plan for Directors whereby an estate enhancement option is provided. Accordingly, participants' account balances in the Aluminum Company of America Deferred Fee Plan for Directors will be transferred to this Plan.

Article II  
DEFINITIONS

2.1 Definitions. As used herein the following words and phrases shall have the meaning assigned to them, unless the context clearly indicates otherwise:

"Alcoa Stock Option" means the Investment Option established hereunder with reference to the Alcoa Stock fund under the Savings Plan.

"Alternative Death Benefit" means a Company-paid death benefit paid by the Company to the Participant's Death Benefit Beneficiary pursuant to an Alternative Death Benefit Election under Section 5.5.

"Alternative Death Benefit Amount" means, with respect to a Participant, an amount that, after subtracting any Company federal, state, and local income tax savings resulting from the deductibility of the payment for corporate tax purposes, is equal to the Participant's Coverage Amount; provided, that for purposes of this definition, the Participant's Coverage Amount shall be the amount that would be payable to the Death Benefit Beneficiary of the Participant under Section 5.4 if there was no Alternative Death Benefit Election. The Alternative Death Benefit Amount shall be determined at the time the payment is to be made, based on the Company's federal, state and local income tax rate (calculated at the marginal tax rate then applicable to the Company, but net of any federal deduction for state and local taxes) at the time of the payment, and shall be determined by the Plan Administrator or its designee.

"Alternative Death Benefit Election" means an election made by the Participant pursuant to Section 5.5.

"Assignee" means that person or entity designated as such in a Participant's Assignment of Rights Agreement, or the person(s) or entity to which the Participant assigns his or her interest under this Plan.

"Board of Directors" means the Board of Directors of the Company.

"Committee" means the Inside Director Committee of the Board.

"Company" means Aluminum Company of America.

"Company Death Benefit" means the portion of the Policy's death benefit payable to the Company as provided in Section 5.4.

"Credited Amount" means the portion of the Participant's Elected Amount for which the Company has paid a Premium in accordance with the provisions of Section 5.2(a) as of the time the determination is made.

"Credits" means amounts credited to a Participant's Deferred Fee Account, with all Investment Option units valued by reference to the comparable fund offered under the Company's principal savings plan for salaried employees ("Savings Plan").

"Death Benefit Beneficiary" means the person or persons designated in writing on the Death Benefit Agreement Beneficiary Designation Form in accordance with the provisions of Article V of the Plan.

"Deferred Fee Account Beneficiary" means the person or persons designated in writing by a Participant, in accordance with Article IV of this Plan, to receive benefits in the event of the Participant's death.

"Deferred Fee Account" means a bookkeeping account established by the Company in the name of a Director for Fees deferred hereunder and Interest accrued thereon.

"Director" means a member of the Board of Directors. Any

Director who is a director or chairman of the board of directors of a subsidiary or affiliate of the Company shall not, by virtue thereof, be deemed to be an employee of the Company or such subsidiary or affiliate for purposes of eligibility under this Plan.

"Effective Date" means July 10, 1998.

"Elected Amount" means the total amount of the Participant's Plan account balance and future Deferred Fee Plan awards identified by the Participant in the Participant's Election.

"Election" means the Participant's Estate Enhancement Option Election made pursuant to the provisions of the Plan.

"Estate Enhancement Option Election" means an election made by a Participant pursuant to the terms of Article V of the Plan.

"Face Value Beneficiary" means the person or persons designated in writing on the Insurance Agreement for ADEEP Plan form in accordance with the provisions of Article V of the Plan.

"Frozen Deferred Fee Account Beneficiary" means the person or persons designated in writing on the Frozen Deferred Compensation/Fee Beneficiary Designation Form in accordance with the provisions of Article V of the Plan.

"Fees" means all amounts payable to a Director for services rendered as a Director and which are specifically designated as fees, including, but not limited to, annual or quarterly retainer fees, fees (if any) paid for attending meetings of the Board of Directors or any committee thereof and any per diem fees.

"Interest" means the amount of interest credited to a Director's Deferred Fee Account pursuant to Section 3.5.

"Insurer" means, with respect to a Participant's Policy, the insurance company issuing the Policy on the Participant's life (or on the lives of the Participant and the Participant's spouse, in the case of a Survivorship Policy) pursuant to the provisions of the Plan.

"Investment Option" means the respective options established hereunder with reference to the comparable funds under the Savings Plan, except as otherwise determined by the Committee for any fund added to the Savings Plan after January 1, 1993

"Participant's Coverage Amount" means the portion of the Policy's death benefit payable to the Death Benefit Beneficiary of the Participant as provided in Section 5.4(b).

"Participant" means a Director who has elected to participate in the Plan, and who are eligible to participate in the Aluminum Company of America Deferred Fee Plan for Directors.

"Plan" means the Aluminum Company of America Deferred Fee Estate Enhancement Plan for Directors, adopted by the Company as described herein or as from time to time hereafter amended.

"Plan Administrator" means the Committee, or the Committee's designee.

"Policy" means the life insurance coverage acquired on the life of the Participant (or on the lives of the Participant and the Participant's spouse, in the case of a Survivorship Policy) by the Company.

"Policy Owner" means the Company.

"Premium" means, with respect to a Policy on the life of a Participant (or the lives of a Participant and a Participant's spouse, if the Policy is a Survivorship Policy), the amount the Company is obligated, pursuant to the terms of this Plan, to pay to the Insurer with respect to such Policy.

"Secretary" means the Secretary of the Company.

"Survivorship Policy" means a Policy insuring the lives of the Participant and a Participant's spouse, with the death benefit payable at the death of the last survivor of the Participant and his or her spouse.

"Unforeseeable Emergency" means a severe financial hardship resulting from extraordinary and unforeseeable circumstances arising as a result of one or more recent events beyond the control of the Participant, which cannot be eliminated by other reasonably available resources of the Participant.

"Zero Investment Account" means the vehicle which is deemed to hold amounts related to Participants' Estate Enhancement Option Elections.

### Article III DEFERRAL OF COMPENSATION

3.1 Amount of Deferral. A Director may elect to defer receipt of all Fees, or of all Fees of one or more types, or a specified portion (in 10% increments) of either of the foregoing,

otherwise payable to him or her.

3.2 Manner of Electing Deferral. A Director may elect, or modify a prior election, to defer the receipt of all or certain Fees by giving written notice to the Secretary on a form provided by the Company. Such notice shall include:

- (a) the type(s) of Fees to be deferred,
- (b) an election of a lump sum or of the number of annual or quarterly installments, not to exceed 15 annual or 60 quarterly installments, for the payment of the deferred Fees, and
- (c) the date of the first such payment, which shall not be later than the first day of the first calendar quarter subsequent to the Participant's attainment of age 70 (or such other age as may supersede the age referred to in Section 403 (f)(1)(B) of Title 42 United States Code as in effect in July 1984) in which the Participant shall not be serving as a Director.

3.3 Time of Election of Deferral; Revocation. An election to defer Fees shall be made prior to the beginning of the calendar quarter in which the Fees will be earned; provided, however, that an election made within 30 days after a person first becomes a Director shall be effective for Fees earned after such election is made. An election shall continue in effect until the end of the Participant's service as a Director or until the Secretary is notified in writing of a cancellation or modification of the election pursuant to this Section 3.3, whichever shall occur first; provided, however, that unless and then only to the extent that the Committee, in its sole discretion, determines that an Unforeseeable Emergency exists, the election deferring receipt of payment may not be canceled or modified except with regard to Fees to be earned in the quarter(s) beginning after the date the election is so canceled or modified.

3.4 Deferred Fee Account. There shall be established for each Participant a Deferred Fee Account. A Participant's deferred Fees, or Credits, shall be credited to his or her Deferred Fee Account on the date such deferred Fees would have been payable to such Participant but for an election to defer receipt thereof; provided, however, that Fees which are otherwise payable in the first month of a calendar quarter shall be credited to a Participant's Deferred Fee Account as of the first day of the quarter. All Elections under Article V will be credited to the Zero Investment Account.

3.5 Interest. Deferred Fee Accounts will earn interest during each calendar quarter at a rate equal to one-fourth of the per annum yield on 90-day U.S. Treasury Bills as of the first business day of the quarter as reported by Solomon Brothers Inc. in "An Analytic Record of Yields and Yield Spreads" or a similar source. Interest will be credited to Deferred Fee Accounts as of the last day of each calendar quarter and will be based upon the amount credited to a Participant's Deferred Fee Account on the first day of the calendar quarter, less any distributions payable to a Participant on or about the first day of the quarter. Zero Investment Accounts earn no Interest.

3.6 Deferring Fees. A Participant shall designate the portion of his or her deferred Fees to be invested in one or more of the Investment Options. For each calendar year, all Fees deferred by a Participant shall be invested in the Alcoa Stock Option until one-half of the amount of the annual retainer fee to which such Participant is entitled for such year has been so invested. Thereafter, designations of other Investment Options by a Participant may be made or shall be given effect. A Participant's deferred Fees shall be credited to the designated Investment Option(s) at the end of the month in which such deferred Fees would have been payable to such Participant but for an election to defer receipt of those Fees, except that the retainer fees shall be credited as of the first day of January, April, July and October of the year in which they are earned. Such Fees shall be credited to a Participant's Deferred Fee Account as Credits for "units" in the Participant's Deferred Fee Account. As of any specified date the value per unit shall be deemed to be the value determined for the comparable fund under the Savings Plan.

3.7 Transfers. A Participant may elect to designate a different Investment Option for all or any portion of the Credits for units in the various Investment Options in his or her Deferred Fee Account, except that Credits for units in the Alcoa Stock Option may not be transferred to any other Investment Option. A written election for transfer on a form provided by the Company must be received by the Secretary prior to 4:00 p.m. Eastern Time the business day when it is to become effective. Such election shall be subject to reasonable administrative minimums, and any restrictions recommended by counsel to assure that the Alcoa Stock Option does not become subject to Section 16 of the Securities Exchange Act of 1934 and/or to assure compliance with the provisions thereof.

3.8 Method of Payment.

(a) All payments with respect to a Participant's Deferred Fee Account shall be made in cash, and no Participant shall have the right to demand payment in shares of Company stock or in any other medium.

(b) Payments shall be made in a lump sum or, at the election of the Participant, in annual or quarterly installments. The date of the first such payment shall not be later than the first day of the first calendar quarter subsequent to the Participant's attainment of age 70 in which the Participant shall not be serving as a Director.

(c) An election to receive installment payments in lieu of a lump sum must be made at least one year before the Participant's service as a Director terminates.

3.9 Designation of Deferred Fee Account Beneficiary. Each Participant may designate from time to time any person or persons, natural or otherwise, as his Deferred Fee Account Beneficiary to whom the amounts credited to his or her Deferred Fee Account are to be paid if he or she dies before all such amounts have been paid to the Participant. Each Deferred Fee Account Beneficiary designation shall be made on a form prescribed by the Company and shall be effective only when filed with the Secretary during the Participant's lifetime. Each Deferred Fee Account Beneficiary designation filed with the Secretary shall revoke all Deferred Fee Account Beneficiary designations previously made. The revocation of a Deferred Fee Account Beneficiary designation shall not require the consent of any Deferred Fee Account Beneficiary. In the absence of an effective Deferred Fee Account Beneficiary designation or if payment can be made to no Deferred Fee Account Beneficiary, payment shall be made to the Participant's estate.

Notwithstanding the foregoing, any amount in the Zero Investment Account will be payable under the provisions of Article V.

#### Article IV WITHDRAWALS

4.1 Payment of Deferred Fees. No payment may be made from a Director's Deferred Fee Account except as provided in this Article, unless and then only to the extent that an Unforeseeable Emergency exists as determined by the Committee in its sole discretion. In the latter case the Committee shall determine when and to what extent Credits in a Participant's Deferred Fee Account may be paid to such Participant prior to or after termination as a Director.

4.2 Payment Upon Termination as Director. The value of a Participant's Deferred Fee Account shall be payable in cash in a lump sum on or about the first day of the calendar quarter succeeding the quarter in which the Participant terminates his or her service as a Director, or, if elected in advance under Section 3.8 hereof, in a lump sum or annual or quarterly installments beginning as specified in the election. If installments are elected, the amount of each payment shall be a fraction of the value of the Participant's Deferred Fee Account on the last day of the calendar quarter preceding payment, the numerator of which is one and the denominator of which is the total number of installments elected minus the number of installments previously paid. Such installment payments shall be made on or about the first day of each succeeding year or quarterly period until said Account is exhausted, except as provided in Section 4.1 or Section 4.3.

4.3 Payment Upon Participant's Death. If a Participant dies with any amount credited to his or her Deferred Fee Account, the value of said Account (including Interest for the quarter in which death shall occur) shall be paid in a single payment(s) to the Deferred Fee Account Beneficiary or estate, as the case may be, on or about the first day of the calendar quarter next following the date of death or such later date as shall be selected by the Participant with the consent of the Committee.

4.4 Payment of Zero Investment Account. Notwithstanding the foregoing, amounts in the Zero Investment Account will be administered in accordance with the provisions of Article VI.

#### Article V ESTATE ENHANCEMENT OPTION

##### 5.1. Estate Enhancement Option Election.

(a) A Plan Participant may make an Estate Enhancement Option Election with regard to all or a portion of the value of his or her account at the time of such election. The Participant must make an Election using a form provided by the Company, the terms of which are hereby incorporated by reference in the Plan.

(b) The Company shall pay life insurance premiums on a Policy on the life of the Participant, or the lives of the Participant and the Participant's spouse if so elected by the



Participant. The premiums of the Policy will be equal in amount to the amount subject to the Participant's Election.

(c) As of the time of the Participant's Election, the value of the portion of the Participant's account subject to such election will be transferred to the Zero Investment Account and there will be no further Interest with respect to such amounts.

(d) Any amounts in a Participant's account which are subject to the Election will be paid in a single sum to the Frozen Deferred Fee Account Beneficiary designated by the Participant, with the payment to be made by the Company as soon as administratively practical following the death of the Participant (or after the death of the last survivor of the Participant and the Participant's spouse, if the insurance policy is a survivorship policy insuring the Participant and the Participant's spouse). The Frozen Deferred Fee Account Beneficiary for amounts subject to an Election will be separately designated on a form provided by the Company, and may be changed by the Participant in accordance with procedures established by the Company.

(e) The Participant may designate a trust or other entity or individual(s) to own the Participant's rights under the Plan, or assign any such rights to a trust or other entity or individual(s).

(f) If the Insurer cancels the Participant's Policy pursuant to Policy provisions related to suicide of the Participant (or Participant's spouse if the Policy insures both the Participant and the Participant's spouse) or material misstatement of information, then the Participant's Election will be null and void as of the time the Policy is canceled. In this event, the Company will recover an amount equivalent to the cumulative amount of Premiums paid from amounts subject to the Election held in the Zero Investment Account but which have not yet been used to pay Premiums.

(g) Except as may be otherwise provided in a Participant's Death Benefit Agreement, an Election will be irrevocable.

## 5.2 Payments of Premiums.

(a) Company Payments. Within thirty (30) days of the issue of the Participant's Policy, the Company shall pay a Premium equal to the amount of the Participant's Plan account balance subject to the Participant's Election.

(b) Participant Payments. Except as otherwise provided in this Plan, a Participant shall not be required to pay any portion of the Premium due on the Policy.

## 5.3 Policy Ownership.

(a) Ownership. The Company shall be the owner of the Policy and shall be entitled to exercise the rights of ownership, except that the following rights shall be exercisable by the Participant: (i) the right to designate the Death Benefit Beneficiary to receive payment of that portion of the death benefit under such Policy equal to the Participant's Coverage Amount unless there is an Alternative Death Benefit Election in effect; (ii) the right to reduce the face amount of the Policy pursuant to the provisions of Section 5.6; and (iii) the right to assign any part or all of the Participant's rights under the Policy to any person, entity or trust. The Company shall not borrow from, hypothecate, or withdraw cash value from, surrender in whole or in part, cancel, or in any other manner encumber the Policy without the prior written consent of the Participant. Notwithstanding any other provision of the Plan, both the Participant and the company have separate and full right to reduce the Policy face amount pursuant to Section 8.6.

(b) Possession of Policy. The Company shall keep possession of the Policy. The Company agrees to make the Policy available to the Participant or to the Insurer at such times, and on such terms as the Company determines for the sole purpose of endorsing or filing any change of Death Benefit Beneficiary or Face Value Beneficiary, or assignment on the Policy.

(c) Investment of Policy Cash Values. If the Policy provides the Policy Owner with a choice of investment funds for the Policy cash values, the Company shall invest the cash values in the funds selected by and in the proportions specified by the Participant, unless otherwise specified in this Plan. The Company agrees to submit an investment election to the Insurer within thirty (30) days after a written investment request by the Participant or other person or entity designated in the Plan.

5.4. Death Benefit. Upon the death of the Participant or last survivor of the Participant and the Participant's spouse, the death benefit under the Policy shall be divided as follows:

(a) The Company shall be entitled to receive as the Company Death Benefit an amount equal to the greater of: (i) the Policy cash accumulation value immediately prior to the death of the Participant or survivor of the Participant and the Participant's spouse, and before any surrender charges; or (ii) 200 percent of

the cumulative Premiums paid, plus any extraordinary costs incurred, by the Company under the Policy. If the Policy provides for a death benefit equal to the sum of the face amount of the Policy and any cash account or accumulation value, any Company Death Benefit should first be paid from the cash account or accumulation value portion of the death benefit.

(b) The Death Benefit Beneficiary of the Participant shall be entitled to receive the Participant's Coverage Amount, which shall consist of the excess, if any, of the Policy's death benefit over the Company Death Benefit less any unforeseen extraordinary expenses incurred by the Company under this Plan if not recoverable under any other agreement. These unforeseen expenses may include taxes or extraordinary administrative expenses as determined by the Company.

The Company agrees to execute an endorsement to the Policy issued to it by the Insurer providing for the division of the Policy death benefit in accordance with the provisions of this Section.

Notwithstanding the provisions of this Section, if the Policy death benefit becomes payable while there is an Alternative Death Benefit Election in effect pursuant to Section 5.5, then the entire Policy death benefit shall be paid to the Company.

5.5. Alternative Death Benefit Election. Subject to the discretion of the Plan Administrator, the Assignee may elect an Alternative Death Benefit in lieu of the insurance benefit provided under this Plan. Any such election shall be filed with the Plan Administrator in such form as may be prescribed by the Plan Administrator. The Alternative Death Benefit shall be paid by the Company from the general funds of the Company, and will not constitute an insurance benefit. It will be paid by the Company to the Participant's Death Benefit Beneficiary at the time the Participant's insurance death benefit would have been paid (at the Participant's death for single life coverage, or at the death of the survivor of the Participant and the Participant's spouse if the Policy is a Survivorship Policy). The amount of the payment shall be equal to the Alternative Death Benefit Amount. As long as an Alternative Death Benefit Election is in effect, the Death Benefit Beneficiary of the Participant shall receive only the Alternative Death Benefit, and shall not be entitled to receive any portion of any death benefits that would become payable under the Participant's Policy, and the Participant shall cooperate with the Company in effecting a change of Death Benefit Beneficiary of the Participant's Policy to achieve such result. An Alternative Death Benefit Election (or an election to revoke such an election) shall be effective when any necessary documentation is submitted to and accepted by the Insurer. The Company will promptly submit any required forms or documents to the Insurer when an Alternative Death Benefit Election is made or revoked.

5.6. Election to Reduce Policy Face Amount. The Participant or the Company may elect to reduce the Policy face amount, except that the Policy face amount shall not be reduced to an amount less than the Company Death Benefit. Within sixty (60) days of receipt of a written request from the Participant, the Company shall complete and submit the necessary forms to the Insurer to reduce the Policy face amount in accordance with the Participant's request. Within sixty (60) days of receipt of a written request from the Company, the Participant shall cooperate to complete any necessary forms in accordance with the Company's request.

5.7. Termination as a Director. Upon a Termination as a Director:

(a) The Company's obligation to pay further Premiums for the Participant's Policy will terminate, except that the Company will be obligated to pay any Premium it is obligated to pay under Section 5.2(a) with respect to any amounts credited to the Participant's Plan account prior to the Participant's ceasing to be a Director for which a Premium has not yet been paid.

(b) The Policy face amount will be reduced by an amount determined by multiplying the initial Policy face amount by a fraction, the numerator of which will be equal to the Credited Amount (including any Premium payable under Section 5.7(a) and the denominator of which will be equal to the Election Amount. Provided, however, that the face amount reduction determined pursuant to the preceding sentence will be reduced by the amount of any face amount reduction already applied pursuant to Section 5.6.

(c) Within thirty (30) days after the Participant ceases to be a Director, the Participant may make a Policy premium payment to the Insurer. If such a premium is paid, the amount will be considered a Credited Amount for the purpose of Section 5.7(b).

5.8. Taxes. All participants remain liable for any taxes which are or will be applicable to the amounts payable under this contract including (but not limited to) social security taxes, federal income taxes and state and local income taxes. In addition, if the Internal Revenue should determine that amounts

payable are includable at any point prior to payment, the participants remain solely liable for such taxes and any penalties associated with such taxes. If the participants transfer any right in this benefit, the participants shall be solely liable for determining the value of the amounts subject to gift tax and the resulting amount of gift tax, if applicable.

#### 5.9. Company Default.

(a) Company Default. A Company Default shall be deemed to have occurred with respect to the Policy if the Company fails to pay a Premium on the Policy as required under the terms of the Plan within sixty (60) days after the due date for such Premium, or if the Company processes or attempts to process a policy loan, or a complete or partial surrender, or a cash value withdrawal without the prior written approval from the Participant.

(b) Rights Upon Company Default. In the event of a Company Default as described in Section 5.9(a), the Participant will have the right to require the Company to cure the Company Default by notifying the Company in writing within sixty (60) days after the Company Default occurs, or if later, within thirty (30) days after the Participant becomes aware of the Company Default. If the Company fails to cure the Company Default within sixty (60) days after being notified by the Participant of the Company Default, the Participant will have the right to require the Company to transfer its interest in the Participant's Policy to the Participant. The Participant may exercise the right by notifying the Company, in writing within sixty (60) days after the Company Default occurs. Upon receipt of such notice, the Company will immediately transfer its rights in the Policy to the Participant and the Company will thereafter have no rights with respect to such Policy. A Participant's failure to exercise its rights under this Section shall not be deemed to release the Company from any of its obligations under this Plan, and will not preclude the Participant from seeking other remedies with respect to the Company Default. Also, a Participant's failure to exercise its rights under this Section will not preclude the Participant from exercising such rights upon a later Company Default.

(c) Notices. All notices hereunder will be in writing and sent by first class mail with postage prepaid. Any notice to the Company shall be addressed to the attention of the Plan Administrator at the principal office of the Company at Alcoa Corporate Center, 201 Isabella Street, Pittsburgh, PA 15212-5858. Any notice to the Participant will be addressed to the Participant at the address on file with the Company. Any party may change its address by giving written notice of such change to the other party pursuant to this Section.

#### Article VI MISCELLANEOUS

6.1 Participant's Rights Unsecured. The right of any Participant to receive payments from his or her Deferred Fee Account shall be a claim against the general assets of the Company as an unsecured general creditor. The Company may, in its absolute discretion, establish one or more trusts or reserves which may be funded by reference to amounts of Credits standing in Participants' Deferred Fee Accounts hereunder or otherwise.

6.2 Non-assignability. The right of any Participant or Deferred Fee Account Beneficiary to the payment of Credits in a Deferred Fee Account shall not be assigned, transferred, pledged or encumbered and shall not be subject in any manner to alienation or anticipation. The foregoing does not prevent the assignment of any separate right under the Estate Enhancement Option Election.

6.3 Administration and Interpretation. The Plan shall be administered by the Committee which shall have authority to adopt rules and regulations for carrying out the Plan and to interpret, construe and implement its provisions. In the administration of this Plan, the Plan Administrator from time to time may employ agents and delegate to them or to others such administrative duties as it sees fit. The Plan Administrator from time to time may consult with counsel, who may be counsel to the Company. All costs and expenses incurred in administering the Plan, including the expenses of the Plan Administrator, the fees and expenses of the Trustee, the fees and charges payable under the investment arrangements, and other legal and administrative expenses, shall be paid by the Plan.

The Company will indemnify and hold harmless the Plan Administrator and any employees of the Company to whom administrative duties are delegated, against any and all claims, loss, damage, expense or liability arising from any action or failure to act with respect to this Plan, except in the case of gross negligence or willful misconduct by the Plan Administrator.

6.4 Business Days. If any date specified herein falls on a Saturday, Sunday or legal holiday, such date shall be deemed to refer to the next business day thereafter.

6.5 Amendment and Termination. The Plan may be amended,

modified or terminated at any time by the Board of Directors. No amendment, modification or termination shall, without the consent of a Participant, adversely affect such Participant's rights with respect to amounts theretofore credited to his or her Deferred Fee Account or earlier effect the payment of Fees already deferred.

6.6 Notices. All notices to the Company under the Plan shall be in writing and shall be given to the Secretary or to an agent or other person designated by the Secretary.

6.7 Governing Law. This Plan shall be construed in accordance with and governed by the laws of the Commonwealth of Pennsylvania, excluding any choice of law provisions which may indicate the application of the laws of another jurisdiction.

ALCOA DEFERRED COMPENSATION  
ESTATE ENHANCEMENT PLAN

ADOPTED BY

ALUMINUM COMPANY OF AMERICA

The Compensation Committee of the Board of Directors of Aluminum Company of America has adopted this Alcoa Deferred Compensation Estate Enhancement Plan for the exclusive benefit of select officers and employees (1) who are actively at work for the Company or a subsidiary on or after July 10, 1998, (2) who meet the requirements for participation hereunder, and (3) who are not in a collective bargaining unit. The purposes of this Plan are to promote the growth and profitability of the Company, to attract and retain employees and to provide eligible employees with certain benefits under the terms and conditions as set forth herein. This Plan is designed as an alternative to the Alcoa Deferred Compensation Plan, to provide an estate enhancement option to eligible officers and other employees. Accordingly, participants' account balances in the Alcoa Deferred Compensation Plan will be transferred to this Plan.

## ARTICLE I - DEFINITIONS

1.1 The following terms have the specified meanings.

"Additional Salary Reduction Credits" means any amounts deemed to be credited to a Participant's account equivalent to the dollar amount by which a Participant elected to reduce his or her salary up to a whole percentage of not more than 14%. A Participant who is authorized by the Inside Director Committee may elect to reduce his or her salary up to a whole percentage of not more than 20%.

"Affiliate" means any non-corporate business entity which the Company and/or one or more Subsidiaries control in fact.

"Alternative Death Benefit" means a Company-paid death benefit paid by the Company to the Participant's Death Benefit Beneficiary pursuant to an Alternative Death Benefit Election under Section 8.5.

"Alternative Death Benefit Amount" means, with respect to a Participant, an amount that, after subtracting any Company federal, state, and local income tax savings resulting from the deductibility of the payment for corporate tax purposes, is equal to the Participant's Coverage Amount; provided, that for purposes of this definition, the Participant's Coverage Amount shall be the amount that would be payable to the Death Benefit Beneficiary of the Participant under Section 8.4 if there was no Alternative Death Benefit Election. The Alternative Death Benefit Amount shall be determined at the time the payment is to be made, based on the Company's federal, state and local income tax rate (calculated at the marginal tax rate then applicable to the Company, but net of any federal deduction for state and local taxes) at the time of the payment, and shall be determined by the Committee or its designee.

"Alternative Death Benefit Election" means an election made by the Participant pursuant to Section 8.5.

"Assignee" means that person or entity designated as such in a Participant's Assignment of Rights Agreement, or the person(s) or entity to which the Participant or assignee assigns his or her interest under this Plan.

"Award Date" means February of the calendar year following the Award Year except as may be otherwise designated in accordance with the provisions of the Incentive Compensation Plan.

"Award Year" means the calendar year for which awards are made under the provisions of the Incentive Compensation Plan.

"Board" means the Board of Directors of the Company or any duly authorized committee thereof.

"Committee" means the Compensation Committee or its designee..

"Company" means Aluminum Company of America.

"Company Death Benefit" means the portion of the Policy's death benefit payable to the Company as provided in Section 8.4.

"Company Stock" means Company Stock as defined in the Savings Plan.

"Continuous Service" means, except as modified by the balance of this definition, the period of continuous employment with the Company, Subsidiary or Affiliate, either as a salaried employee or as an hourly-rated employee, subject to such rules as

may be adopted from time to time by the Committee. Continuous Service shall terminate upon any quit, dismissal, discharge or any other termination of employment with the Company, Subsidiary or Affiliate; any determination by the Committee that employment with these entities has terminated shall be conclusive. Continuous Service upon reemployment does not include any Continuous Service accrued prior to a termination of Continuous Service, except that if a Participant's Continuous Service is terminated by reason of retirement, Continuous Service at the time of such termination shall be reinstated upon the date of his or her reemployment with the Company, a Subsidiary or Affiliate. Absences from such employment due to inactive status, sick leave, leave of absence or layoff shall not constitute a termination of Continuous Service, but such time lost shall not count as Continuous Service except to the extent determined by the Committee under uniform rules applicable to all employees similarly situated.

"Credited Amount" means the portion of the Participant's Elected Amount for which the Company has paid a Premium in accordance with the provisions of Section 8.2(a) as of the time the determination is made.

"Credits" means the Salary Reduction Credits, Additional Salary Reduction Credits, Incentive Compensation Deferral Credits, Excess D Deferral Credits and Matching Company Credits credited to a Participant's account with a deemed value equivalent to the unit value of the Investment Option in which each Credit is deemed to be invested.

"Death Benefit Beneficiary" means the person or persons designated in writing on the Death Benefit Agreement Beneficiary Designation Form in accordance with the provisions of Article VIII of the Plan.

"Deferred Compensation Beneficiary" means the person or persons designated in writing by a Participant, in accordance with Article VII of this Plan, to receive benefits in the event of the Participant's death.

"Earnings Credits" mean:

(a) the interest deemed to be credited to the accounts of Participants in the Equivalent Fixed Income Investment Fund,

(b) the amount of the increase or decrease in the deemed value of Participant's investments in the Equivalent Equity Investment Fund, and

(c) the deemed amount of dividends received, and gain or loss realized on, Equivalent Company Stock.

(d) zero amount for any account elected under the Estate Enhancement Option Election.

"Effective Date" means July 10, 1998.

"Elected Amount" means the total amount of the Participant's Plan account balance and future Incentive Compensation Plan awards identified by the Participant in the Participant's Election.

"Election" means the Participant's Estate Enhancement Option Election made pursuant to the provisions of the Plan.

"Eligible Employee" means all officers and other employees of the Company or a subsidiary selected from time to time by the Compensation Committee or its designee, and who are eligible to participate in the Alcoa Deferred Compensation Plan.

"Equivalent Company Stock" means the number of shares of Company Stock deemed to be credited to a Participant's account.

"Equivalent Equity Investment Fund" means the phantom investment vehicle which is deemed to be equivalent in all respects, including value, to the Equity Investment Fund established under the Savings Plan.

"Equivalent Fixed Income Fund" means the phantom investment vehicle which is deemed to be equivalent in all respects, including value, to the Fixed Income Fund established under the Savings Plan.

"Estate Enhancement Option Election" means an election made by a Participant pursuant to the terms of Article VIII of the Plan.

"Excess D Deferral Credits" means any amounts deemed to be credited to a Participant's account equivalent to the dollar amount which the Participant will have automatically credited to the Plan in accordance with the Company's Employees' Excess Benefits Plan D.

"Face Value Beneficiary" means the person or persons designated in writing on the Insurance Agreement for ADEEP Plan form in accordance with the provisions of Article VIII of the Plan.

"Frozen Deferred Account Beneficiary" means the person or persons designated in writing on the Frozen Deferred Compensation/Fee Beneficiary Designation Form in accordance with the provisions of Article VIII of the Plan.

"Incentive Compensation Deferral Credits" means any amounts deemed to be credited to a Participant's account on the applicable Award Date equivalent to the dollar amount which the Participant has elected to defer from an award which he or she is eligible to receive under the Company's Incentive Compensation Plan for the 1998 Award Year or any later Award Year.

"Incentive Compensation Plan" means the Incentive Compensation Plan of Aluminum Company of America.

"Inside Director Committee" means the Committee appointed by the Board, which has been given authority to implement certain policy decisions regarding qualified and non-qualified pension plans.

"Insurer" means, with respect to a Participant's Policy, the insurance company issuing the Policy on the Participant's life (or on the lives of the Participant and the Participant's spouse, in the case of a Survivorship Policy) pursuant to the provisions of the Plan.

"Investment Options" means the phantom investment vehicles established hereunder for either Salary Reduction Credits, Additional Salary Reduction Credits, Matching Company Credits, Incentive Compensation Deferral Credits and/or Excess D Deferral Credits with reference to the equivalent investment options under the Savings Plan, or any other such equivalent investment option later added to the Savings Plan, unless otherwise determined by the Inside Director Committee.

"Matching Company Credits" means an amount deemed to be equivalent to the dollar amount that otherwise would have been contributed by the Company to the Participant's account under the Savings Plan, had the Participant elected to contribute to the Savings Plan an amount equivalent to the Participant's elected Salary Reduction Credits under this Plan and the Participant's contribution under the Savings Plan had not been limited by the internal Revenue Code's limits on contributions to the Savings Plan.

"Other Plan" means any cash or deferred arrangements established under Section 401(k) of the Internal Revenue Code of 1986 as amended, other than the Savings Plan, under which a Participant may elect to have a portion of his or her Salary reduced.

"Participant" means any Eligible Employee who commences participation in this Plan as provided in Article II.

"Participant's Coverage Amount" means the portion of the Policy's death benefit payable to the Death Benefit Beneficiary of the Assignee as provided in Section 8.4.

"Plan" means the Alcoa Deferred Compensation Estate Enhancement Plan, adopted by the Company as described herein or as from time to time hereafter amended.

"Plan Administrator" means the Committee, or its designee.

"Policy" means the life insurance coverage acquired on the life of the Participant (or on the lives of the Participant and the Participant's spouse, in the case of a Survivorship Policy) by the Company.

"Policy Owner" means the Company.

"Premium" means, with respect to a Policy on the life of a Participant (or the lives of a Participant and a Participant's spouse, if the Policy is a Survivorship Policy), the amount the Company is obligated, pursuant to the terms of this Plan, to pay to the Insurer with respect to such Policy.

"Salary" means the regular base salary or hourly wages payable during such periods as the employee is a Participant. Where commission payments constitute all or part of an employee's monthly remuneration, the commissions actually paid as remuneration during a regular pay period will be used to determine the salary for such employee. Salary shall not include overtime, extended workweek premium, cost of living allowance where separately designated, bonus, shift or other premiums, or other payments, fees or allowances made for specific purposes as determined by the Company.

"Salary Reduction Credits" means any amounts deemed to be credited to a Participant's account equivalent to the dollar amount by which a Participant elected to reduce his or her Salary by a whole percentage of not more than 6%; provided, however, a Participant who has elected and is contributing a portion of his or her Salary under the Savings Plan, may not elect to defer any percentage of said Salary as a Salary Reduction Credit under this Plan.

"Savings Plan" means the Alcoa Savings Plan for Non-

Bargaining Employees, as now in existence or as hereafter amended.

"Subsidiary" means a corporation at least 50% of whose outstanding voting stock is owned or controlled by the Company and/or one or more other Subsidiaries, and any non-corporate business entity in which the Company and/or one or more other Subsidiaries have at least a 50% interest in capital or profits.

"Survivorship Policy" means a Policy insuring the lives of the Participant and a Participant's spouse, with the death benefit payable at the death of the last survivor of the Participant and his or her spouse.

"Termination of Service" (or "Terminates Service)" means any termination from active service.

"Year of Plan Participation" means any 12-month period extending from the first day of the month a Participant begins participation in the Savings Plan and/or this Plan if the Participant has maintained an account in the Savings Plan and/or this Plan for such 12-month period.

"Zero Investment Fund" means the phantom investment vehicle which is deemed to hold amounts related to Participants' Estate Enhancement Option Elections.

## ARTICLE II - PARTICIPATION

2.1 An Eligible Employee shall commence participation in this Plan upon the first day of his or her first full payroll period following selection by the Committee or its designee. Such Eligible Employee may only become a Participant after executing the appropriate form for authorizing payroll deductions from his or her Salary and for Selecting investment options. An Eligible Employee shall also commence participation on the Award Date applicable to the portion of any award which he or she is eligible to receive under the provisions of the Incentive Compensation Plan and has deferred for the 1998 Award Year or any later Award Year, or on such date that his or her account would have been credited with Excess D Deferral Credits.

## ARTICLE III - PARTICIPANT DEFERRALS

3.1 Commencing July 10, 1998, a Participant may by proper election reduce his or her Salary each month in an amount up to, but not more than 6% of his or her Salary, which shall be deemed to be credited to his or her account as Salary Reduction Credits. Whether or not the Participant elects any Salary Reduction Credits, Participant may by proper election reduce his or her Salary each month in an amount up to, but not more than 14% of said Salary, which shall be credited to his or her account as Additional Salary Reduction Credits. The figure 14% in the foregoing sentence is revised to read 20% for Participants whose Additional Salary Reduction Credit limitation has been increased to 20% by the Inside Director Committee.

A Participant may change a previously elected percentage of Salary reduction or terminate further deferrals in this Plan effective for the first full payroll period following the date the Company or its designee is advised of such request either orally or in writing in accordance with uniform rules established by the Committee.

3.2 In accordance with uniform rules established by the Committee, Salary Reduction Credits and Additional Salary Reduction Credits shall be deemed to be credited to the Participant's account equivalent to the amount by which the Participant's Salary is reduced in each category.

3.3 Commencing for the 1998 Award Year and later Award Years a Participant who by proper election has deferred under the Incentive Compensation Plan all or a portion of an award which he or she is eligible to receive under said Plan, shall have his or her account deemed to be credited with Incentive Compensation Deferred Credits in an amount equal to the amount of such deferral.

3.4 Excess D Deferral Credits shall be credited to Participants' accounts as applicable.

3.5 A Participant who is authorized by the Inside Director Committee and who by proper election has deferred the receipt of any "special payments" (as determined by the Company), shall have his or her account credited in an amount equal to the amount of such deferral. Such special payment credits shall be treated as Incentive Compensation Deferral Credits

## ARTICLE IV - MATCHING COMPANY CREDIT

4.1 A Participant who has elected to reduce his or her Salary under this Plan shall have his or her account deemed to be credited with Matching Company Credits for which he or she is eligible.

## ARTICLE V - INVESTMENTS



5.1 (a) Salary Reduction Credits, Additional Salary Reduction Credits, Excess D Deferral Credits and Incentive Compensation Deferral Credits shall be deemed to be invested in 10% increments, at the election of the Participant, in one or more of the Investment Options.

A Participant may change his or her investment election, effective for the first full payroll period following the date the appropriate direction has been properly received by the Company or its designee, in accordance with uniform rules established by the Committee.

(b) Matching Company Credits shall be deemed to be invested in the phantom investment vehicle which is equivalent to the investment vehicle under the Savings Plan in which the Company's matching contributions to Participants' accounts are invested.

(c) Amounts elected under an Estate Enhancement Option Election will be deemed to be invested in the Zero Investment Fund which does not provide any earnings.

#### ARTICLE VI - TRANSFER OF CREDITS

6.1 (a) Once every month a Participant may, by appropriate direction which is properly received by the Company or its designee, in accordance with uniform rules established by the Company ("Appropriate Direction"), elect to transfer in increments of 10% all or part of the deemed value of his or her Salary Reduction Credits, Additional Salary Reduction Credits, Incentive Compensation Deferral Credits, Excess D Deferral Credits, except as may be limited by the Committee, from any one or more investment Options to any one or more other such Investment Options. Such a transfer shall not constitute a change in the Participant's current investment election.

(b) Once every month a Participant who has attained 5 Years of Plan Participation may, after Appropriate Direction, elect to transfer in increments of 10% all or part of his or her Matching Company Credits, except as may be limited by the Committee, which have been in his or her account for two full calendar years from the date that said Matching Company Credits were deemed to be allocated to the Participant's account, from the Investment Option in which such Credits are deemed to be invested, to any one or more other Investment Option.

(c) Effective Date of Transfer. The effective date of any transfer under paragraphs (a) or (b) above shall be the date for which the Appropriate Direction to the Company or its designee has been properly received in accordance with uniform rules established by the Company.

Notwithstanding any other provision, any amounts elected under the Estate Enhancement Option Election cannot be transferred from the Zero Investment Fund.

(d) Notwithstanding the foregoing, upon a Participant's termination of employment, for any reason other than retirement, he or she may not elect to transfer any part of his or her Salary Reduction Credits, Additional Salary Reduction Credits, Matching Company Credits, Incentive Compensation Deferral Credits, Excess D Deferral Credits and Earnings Credits from the investment vehicle in which such Credits were deemed to be invested on the date employment was terminated, to any other investment vehicle.

(e) The Company reserves the right to refuse to honor any Participant direction related to investments or withdrawals, including transfers among investment options, where necessary or desirable to assure compliance with applicable law including U.S. and other Securities laws. However, the Company does not assume any responsibility for compliance by officers or others with any such laws, and any failure by the Company to delay or dishonor any such direction shall not be deemed to increase the Company's legal exposure to the Participant or third parties.

#### ARTICLE VII - DISTRIBUTIONS

7.1 Except as otherwise specified in this Article VII or in Article VIII below, the amount of Credits in a Participant's account shall be distributed to the Participant upon his or her termination of Continuous Service, for any reason. If at the time of the Participant's termination of Continuous Service he or she has attained five or more years of Continuous Service, the Participant shall receive all Matching Company Credits which have been credited to his or her account. Termination of the Participant's Continuous Service prior to attaining five or more years of Continuous Service shall cause the Participant to forfeit his or her right to receive all Matching Company credits contributed to his or her account.

7.2 All distributions made pursuant to the termination of the Participant's Continuous Service by reason other than death or retirement shall be paid to the Participant as soon as administratively practical in a lump sum.

Notwithstanding the foregoing, amounts in the Zero Investment Fund will only be distributed in accordance with the Estate Enhancement Option provisions of Article VIII.

7.3 Prior to his or her retirement date, a Participant may elect that the value of his or her account be distributed either in a lump sum at retirement or in annual installments of any number designated by the Participant up to, but not more than ten (10) following his or her retirement, commencing the January 31 of the first calendar year following such retirement and each January 31 thereafter until he or she has received all installments. A Participant's election to receive installments must be made at least one year prior to his or her retirement date. The Participant's election to receive either a lump sum or annual installments shall become irrevocable one year prior to the Participant's retirement date, or at such other time as may be approved by the Committee. In the event the Participant fails to make such an election, all amounts in his or her account shall be distributed as a lump sum distribution as soon as administratively practical after his or her retirement.

7.4 The Deferred Compensation Beneficiary under this Plan shall be the Participant's spouse unless otherwise designated in writing by the Participant and such other designated Deferred Compensation Beneficiary has been agreed to in writing by the Participant's spouse on a form approved by the Committee.

Distributions from this Plan to a Deferred Compensation Beneficiary shall be in a lump sum or in annual installments of any number designated by the Participant up to, but not more than ten (10) following his or her death commencing the first January 31 after the Participant's death and each January 31 thereafter until all installments have been distributed.

In the event a Deferred Compensation Beneficiary dies prior to receiving all the annual installments which he or she is entitled to receive from this Plan, any remaining installments will be distributed as soon as administratively practical in a lump sum to the Deferred Compensation Beneficiary's estate.

7.5 This Plan shall not be construed as conferring any rights upon any Participant for continuation of employment with the Company, Subsidiary or Affiliate, nor shall it interfere with the rights of the Company, Subsidiary or Affiliate to terminate the employment of any Participant and/or to take any personnel action affecting any Participant without regard to the effect which such action may have upon such Participant as to recipient of benefits under this Plan.

7.6 No benefit under this Plan may be assigned, transferred, pledged or encumbered or be subject in any manner to alienation or anticipation. The foregoing does not prevent the assignment of any separate right under the Estate Enhancement Option Election.

7.7 (a) Benefits payable hereunder shall be payable out of the general assets of the Company, and no segregation of assets for such benefits shall be made. The right of a Participant or any Deferred Compensation Beneficiary to receive benefits under this Plan shall be an unsecured claim against said assets and shall be no greater than the rights of an unsecured general creditor to the Company. Notwithstanding the foregoing, in the event the Company establishes a trust, to which it may, but shall not be required to contribute money or other property of the Company in contemplation of paying benefits under this Plan, such money or other property shall remain subject to the claims of creditors of the Company.

(b) Notwithstanding any other provisions of this Plan, if any amounts held in a trust of the above described nature are found, due to the creation or operation of said trust, in a final decision by a court of competent jurisdiction, or under a "determination" by the Internal Revenue Service in a closing agreement in audit or a final refund disposition (within the meaning of Section 1313(a) of Internal Revenue Code of 1986, as amended), to have been includable in the gross income of a Participant or Deferred Compensation Beneficiary prior to payment of such amounts from said trust, the trustee for the trust shall, as soon as practicable, pay to such Participant or Deferred Compensation Beneficiary an amount equal to the amount determined to have been includable in gross income in such determination, and shall accordingly reduce the Participant's or Deferred Compensation Beneficiary's future benefits payable under this Plan. The trustee shall not make any distribution to a Participant or Deferred Compensation Beneficiary pursuant to this paragraph 7.7(b) unless it has received a copy of the written determination described above together with any legal opinion which it may request as to the applicability thereof.

7.8 All participants remain liable for any taxes which are or will be applicable to the amounts payable under this contract including (but not limited to) social security taxes, federal income taxes and state and local income taxes. In addition, if the Internal Revenue should determine that amounts payable are includable at any point prior to payment, the participants remain solely liable for such taxes and any penalties associated with such. If the participants transfer any right in this benefit, the participants shall be solely liable for determining the value of the amounts subject to gift tax and the resulting amount of gift tax, if applicable.

## ARTICLE VIII - ESTATE ENHANCEMENT OPTION

### 8.1. Estate Enhancement Option Election

(a) A Plan Participant may make an Estate Enhancement Option Election with regard to all or a portion of the value of his or her account at the time of such election, as well as related to amounts of Incentive Compensation Plan awards earned and deferred under the Plan after the date of the election. The Participant must make an Election using a form provided by the Company, the terms of which are hereby incorporated by reference in the Plan.

(b) The Company shall pay life insurance premiums on a life insurance policy on the life of the Participant, or the lives of the Participant and the Participant's spouse if so elected by the Participant. The premiums of the life insurance policy will be equal in amount to the amount subject to the Participant's Election.

(c) As of the time of the Participant's Election, the value of the portion of the Participant's account subject to such election will be transferred to the Zero Investment Fund and there will be no further Earnings Credits with respect to such amounts. If the Participant's Election includes Incentive Compensation Plan awards earned and deferred after the date of the Election, there will be no Earnings Credits applied to these amounts after they are credited to a Participant's account.

(d) Notwithstanding the provisions of Article VII but subject to the provision of Section 8.3(a), any amounts in a Participant's account which are subject to the Election will be paid in a single sum to the Frozen Deferred Account Beneficiary designated by the Participant, with the payment to be made by the Company as soon as administratively practical following the death of the Participant (or after the death of the last survivor of the Participant and the Participant's spouse, if the insurance policy is a survivorship policy insuring the Participant and the Participant's spouse). The Death Benefit and Face Value Beneficiary for amounts subject to an Election will be separately designated on a form provided by the Company, and may be changed by the Participant in accordance with procedures established by the Company.

(e) Notwithstanding the provisions of Section 7.6, the Participant may designate a trust or other entity or individual(s) to own the Participant's rights under the Policy issued pursuant to the Election, or assign any such rights to a trust or other entity or individual(s).

(f) If the Insurer cancels the Participant's Policy pursuant to Policy provisions related to suicide of the Participant (or Participant's spouse if the Policy insures both the Participant and the Participant's spouse) or material misstatement of information, then the Participant's Election will be null and void as of the time the Policy is canceled. In this event, the Company will recover an amount equivalent to the cumulative amount of Premiums paid from amounts subject to the Election held in the Zero Investment Account but which have not yet been used to pay Premiums.

(g) Except as may be otherwise provided in a Participant's Death Benefit Agreement, an Election will be irrevocable.

### 8.2 Payments of Premiums

(a) Company Payments. Within thirty (30) days of the issue of the Participant's Policy, the Company shall pay a Premium equal to the amount of the Participant's Plan account balance subject to the Participant's Election. With respect to an Incentive Compensation Plan award that is subject to the Participant's Election and that is credited to the Participant's Plan account balance after the issue of the Participant's Policy, the Company shall pay a Policy Premium equal to the amount credited to the Participant's account no later than thirty (30) days after the amount is credited to the Participant's Plan account.

(b) Participant Payments. Except as otherwise provided in this Plan, a Participant (or Assignee) shall not be required to pay any portion of the Premium due on the Policy.

### 8.3 Policy Ownership

(a) Ownership. The Company shall be the owner of the Policy and shall be entitled to exercise the rights of ownership, except that the following rights shall be exercisable by the Participant: (i) the right to designate the Death Benefit Beneficiary to receive payment of that portion of the death benefit under such Policy equal to the Participant's Coverage Amount unless there is an Alternative Death Benefit Election in effect, and (ii) the right to assign any part or all of the Participant's rights under the Policy to any person, entity, or trust. The Company shall not borrow from, hypothecate, or withdraw cash value from, surrender in whole or in part, cancel, or in any other manner encumber the Policy without the prior

written consent of the Participant. Notwithstanding any other provision of the Plan, both the Participant and the Company have separate and full right to reduce the Policy face amount pursuant to Section 8.6.

(b) Possession of Policy. The Company shall keep possession of the Policy. The Company agrees to make the Policy available to the Participant or to the Insurer at such times, and on such terms as the Company determines for the sole purpose of endorsing or filing any change of Death Benefit or Face Value Beneficiary or assignment on the Policy.

(c) Investment of Policy Cash Values. If the Policy provides the Policy Owner with a choice of investment funds for the Policy cash values, the Company shall invest the cash values in the funds selected by and in the proportions specified by the Participant, unless otherwise specified in this Plan. The Company agrees to submit an investment election to the Insurer within thirty (30) days after a written investment request by the Participant or other person or entity designated in the Plan.

#### 8.4. Death Benefit.

Upon the death of the Participant or last survivor of the Participant and the Participant's spouse, the death benefit under the Policy shall be divided as follows:

(a) The Company shall be entitled to receive as the Company Death Benefit an amount equal to the greater of: (i) the Policy cash accumulation value immediately prior to the death of the Participant or survivor of the Participant and the Participant's spouse, and before any surrender charges; or (ii) 200 percent of the cumulative Premiums paid by the Company under the Policy. If the Policy provides for a death benefit equal to the sum of the face amount of the Policy and any cash account or accumulation value, any Company Death Benefit should first be paid from the cash account or accumulation value portion of the death benefit.

(b) The Death Benefit Beneficiary of the Participant shall be entitled to receive the Participant's Coverage Amount, which shall consist of the excess, if any, of the Policy's death benefit over the Company Death Benefit less any unforeseen extraordinary expenses incurred by the Company under this Plan which are not recovered under any other agreement. These unforeseen expenses may include such taxes or extraordinary administrative expenses as determined by the Company.

The Company agrees to execute an endorsement to the Policy issued to it by the Insurer providing for the division of the Policy death benefit in accordance with the provisions of this Section.

Notwithstanding the provisions of this Section, if the Policy death benefit becomes payable while there is an Alternative Death Benefit Election in effect pursuant to Section 8.5, then the entire Policy death benefit shall be paid to the Company.

#### 8.5. Alternative Death Benefit Election.

Subject to the discretion of the Committee, the Participant may elect an Alternative Death Benefit in lieu of the insurance benefit provided under this Plan. Any such election shall be filed with the Committee in such form as may be prescribed by the Committee. The Alternative Death Benefit shall be paid by the Company from the general funds of the Company, and will not constitute an insurance benefit. It will be paid by the Company to the Participant's Death Benefit Beneficiary at the time the Participant's insurance death benefit would have been paid (at the Participant's death for single life coverage, or at the death of the survivor of the Participant and the Participant's spouse if the Policy is a Survivorship Policy). The amount of the payment shall be equal to the Alternative Death Benefit Amount. As long as an Alternative Death Benefit Election is in effect, the Death Benefit Beneficiary of the Participant shall receive only the Alternative Death Benefit, and shall not be entitled to receive any portion of any death benefits that would become payable under the Participant's Policy, and the Participant shall cooperate with the Company in effecting a change of Death Benefit Beneficiary of the Participant's Policy to achieve such result. An Alternative Death Benefit Election (or an election to revoke such an election) shall be effective when any necessary documentation is submitted to and accepted by the Insurer. The Company will promptly submit any required forms or documents to the Insurer when an Alternative Death Benefit Election is made or revoked.

#### 8.6. Election to Reduce Policy Face Amount.

The Participant or the Company may elect to reduce the Policy face amount, except that the Policy face amount shall not be reduced to an amount less than the Company Death Benefit. Within sixty (60) days of receipt of a written request from the Participant, the Company shall complete and submit the necessary forms to the Insurer to reduce the Policy face amount in accordance with the Participant's request. Within sixty (60) days of receipt of a written request from the Company, the

Participant shall cooperate to complete any necessary forms in accordance with the Company's request.

#### 8.7. Termination of Employment.

Upon a Termination of Service by the Participant:

(a) The Participant's Election shall terminate with respect to any Incentive Compensation Plan award amounts which have not been credited to the Participant's Plan account as of the time of the Participant's Termination of Service.

(b) The Company's obligation to pay further Premiums for the Participant's Policy will terminate, except that the Company will be obligated to pay any Premium it is obligated to pay under Section 8.2(a) with respect to any amounts credited to the Participant's Plan account prior to the Participant's Termination of Service for which a Premium has not yet been paid.

(c) The Policy face amount will be reduced by an amount determined by multiplying the initial Policy face amount by a fraction, the numerator of which will be equal to the Credited Amount (including any Premium payable under Section 8.7(b) and the denominator of which will be equal to the Election Amount. Provided, however, that the face amount reduction determined pursuant to the preceding sentence will be reduced by the amount of any face amount reduction already applied pursuant to Section 8.6.

(d) Within thirty (30) days after the Participant Terminates Service, the Participant may make a Policy premium payment to the Insurer. If such a premium is paid, the amount will be considered a Credited Amount for the purpose of Section 8.7(c).

#### 8.8. Company Default

(a) Company Default. A Company Default shall be deemed to have occurred with respect to the Policy if the Company fails to pay a Premium on the Policy as required under the terms of the Plan within sixty (60) days after the due date for such Premium, or if the Company processes or attempts to process a policy loan, or a complete or partial surrender, or a cash value withdrawal without the prior written approval from the Participant.

(b) Rights Upon Company Default. In the event of a Company Default as described in Section 8.8 (a), the Participant will have the right to require the Company to cure the Company Default by notifying the Company in writing within sixty (60) days after the Company Default occurs, or if later, within thirty (30) days after the Participant becomes aware of the Company Default. If the Company fails to cure the Company Default within sixty (60) days after being notified by the Participant of the Company Default, the Participant will have the right to require the Company to transfer its interest in the Participant's Policy to the Participant. The Participant may exercise the right by notifying the Company, in writing within sixty (60) days after the Company Default occurs. Upon receipt of such notice, the Company will immediately transfer its rights in the Policy to the Participant, and the Company will thereafter have no rights with respect to such Policy. A Participant's failure to exercise its rights under this Section shall not be deemed to release the Company from any of its obligations under this Plan, and will not preclude the Participant from seeking other remedies with respect to the Company Default. Also, a Participant's failure to exercise its rights under this Section will not preclude the Participant from exercising such rights upon a later Company Default.

(c) Notices. All notices hereunder will be in writing and sent by first class mail with postage prepaid. Any notice to the Company shall be addressed to the attention of the Committee at the principal office of the Company at Alcoa Corporate Center, 201 Isabella Street, Pittsburgh, PA 15212-5858. Any notice to the Participant will be addressed to the Participant at the address on file with the Company. Any party may change its address by giving written notice of such change to the other party pursuant to this Section.

#### ARTICLE IX - ADMINISTRATION AND EXPENSES OF THE PLAN

9.1 The general administration of this Plan shall be by the Committee. The Committee's resolution of any matter concerning this Plan shall be final and binding upon the Company, Subsidiary or Affiliate and any Participant and/or beneficiary affected thereby.

The Plan Administrator will have the authority to make, amend, interpret, and enforce all rules and regulations for the administration of this Plan and decide or resolve any and all questions, including interpretations of this Plan, as may arise in connection with the Plan in the Plan Administrator's sole discretion. In the administration of this Plan, the Plan Administrator from time to time may employ agents and delegate to them or to others such administrative duties as it sees fit. The Plan Administrator from time to time may consult with counsel,

who may be counsel to the Company. The Company will indemnify and hold harmless the Plan Administrator and any employees of the Company to whom administrative duties are delegated, against any and all claims, loss, damage, expense or liability arising from any action or failure to act with respect to this Plan, except in the case of gross negligence or willful misconduct by the Plan Administrator.

All costs and expenses incurred in administering the Plan, including the expenses of the Committee or the Plan Administrator, the fees and expenses of the Trustee, the fees and charges payable under the investment arrangements, and other legal and administrative expenses, shall be paid by the Plan. Notwithstanding, for any Affiliate of which the Company owns less than an 80% interest as defined under Internal Revenue Code Section 1504, the obligation of and liability for the deferred compensation benefits accrued under this Plan for Participants employed by such an Affiliate, shall remain the sole obligation and liability of the Affiliate by express resolution of its board or other governing body.

#### ARTICLE X - AMENDMENT AND TERMINATION

10.1 This Plan may be amended, suspended or terminated at any time by the Board; provided, however, that no such amendment, suspension or termination shall reduce or in any manner adversely affect any Participant's or assignee's rights with respect to benefits that are payable or may become payable under this Plan based upon said Participant's Credits as of the date of such amendment, suspension or termination.

#### ARTICLE XI - SUCCESSORS

11.1 The terms and conditions of the Plan will inure to the benefit of and bind the Company and the Participant and their successors, assignees (including any Assignee), and representatives. The Company will have the right to absolutely and irrevocably assign its rights, title and interest in a Policy without the consent of the Participant or Assignee.

#### ARTICLE XII - CONSTRUCTION

12.1 This Plan shall be construed, regulated and administered under the laws of the Commonwealth of Pennsylvania, including its choice of law provisions and applicable statute of limitations.

COMPUTATION OF RATIO OF EARNINGS TO FIXED CHARGES  
FOR THE YEAR ENDED DECEMBER 31  
(in millions, except ratios)

	1998	1997	1996	1995	1994
	----	----	----	----	----
Earnings:					
Income before taxes on income, and before extraordinary loss and accounting changes	\$1,604.8	\$1,601.7	\$1,081.7	\$1,470.2	\$822.5
Minority interests' share of earnings of majority-owned subsidiaries without fixed charges	(1.9)	3.0	4.1	2.0	-
Less equity (earnings) losses	(50.2)	(42.4)	(29.6)	(59.5)	(.3)
Fixed charges added to net income	244.6	181.6	170.7	150.7	138.4
Proportionate share of income (loss) of 50% owned persons	37.3	35.1	25.3	58.2	1.9
Distributed income of less than 50% owned persons	-	-	-	-	-
Amortization of capitalized interest:					
Consolidated	20.2	20.2	21.9	23.1	25.5
Proportionate share of 50% owned persons	.2	.9	1.2	.8	1.2
	-----	-----	-----	-----	-----
Total earnings	\$1,855.0	\$1,800.1	\$1,275.3	\$1,645.5	\$989.2
	=====	=====	=====	=====	=====
Fixed Charges:					
Interest expense:					
Consolidated	\$197.9	\$140.9	\$133.7	\$119.8	\$106.7
Proportionate share of 50% owned persons	3.1	3.3	4.9	6.7	7.4
	-----	-----	-----	-----	-----
	201.0	144.2	138.6	126.5	114.1
	-----	-----	-----	-----	-----
Amount representative of the interest factor in rents:					
Consolidated	43.2	37.0	31.8	24.0	23.9
Proportionate share of 50% owned persons	.4	.4	.3	.2	.4
	-----	-----	-----	-----	-----
	43.6	37.4	32.1	24.2	24.3
	-----	-----	-----	-----	-----
Fixed charges added to earnings	244.6	181.6	170.7	150.7	138.4
	-----	-----	-----	-----	-----
Interest capitalized:					
Consolidated	13.2	9.0	5.3	1.9	1.5
Proportionate share of 50% owned persons	-	-	-	-	-
	-----	-----	-----	-----	-----
	13.2	9.0	5.3	1.9	1.5
	-----	-----	-----	-----	-----
Preferred stock dividend requirements of majority-owned subsidiaries	-	-	-	4.9	13.1
	-----	-----	-----	-----	-----
Total fixed charges	\$257.8	\$190.6	\$176.0	\$157.5	\$153.0
	=====	=====	=====	=====	=====
Ratio of earnings to fixed charges	7.20	9.44	7.25	10.45	6.47
	=====	=====	=====	=====	=====

## SELECTED FINANCIAL DATA

(dollars in millions, except per-share amounts and ingot prices)

	1998	1997	1996	1995	1994
Sales	\$ 15,339.8	\$ 13,319.2	\$ 13,061.0	\$ 12,499.7	\$ 9,904.3
Income before extraordinary loss*	853.0	805.1	514.9	790.5	443.1
Extraordinary loss^	--	--	--	--	(67.9)
Net income*	853.0	805.1	514.9	790.5	375.2
Basic earnings per common share					
^^					
Before extraordinary loss^	2.44	2.33	1.47	2.22	1.24
Net income	2.44	2.33	1.47	2.22	1.05
Diluted earnings per common share^^					
Before extraordinary loss^	2.42	2.31	1.46	2.20	1.23
Net income	2.42	2.31	1.46	2.20	1.04
Alcoa's average realized price per pound for aluminum ingot	.67	.75	.73	.81	.64
Average U.S. market price per pound for aluminum ingot (Metals Week)	.66	.77	.71	.86	.71
Cash dividends paid per common share^^	.75	.488	.665	.45	.40
Total assets	17,462.5	13,070.6	13,449.9	13,643.4	12,353.2
Long-term debt (noncurrent)	2,877.0	1,457.2	1,689.8	1,215.5	1,029.8

\*Includes net after-tax gains of \$43.9 in 1997, and net after-tax charges of \$122.3 in 1996, \$10.1 in 1995 and \$50.0 in 1994. See Note D to the financial statements for additional detail. Also included in 1994 is a gain of \$300.2 related to the Alcoa/WMC transaction.

^The extraordinary loss relates to the early retirement of debentures.

^^All per-share amounts have been restated to reflect the two-for-one stock split declared on January 8, 1999.

## RESULTS OF OPERATIONS

(dollars in millions, except share amounts and ingot prices; shipments in thousands of metric tons (mt); all per-share amounts have been restated to reflect the two-for-one stock split declared on January 8, 1999)

## EARNINGS SUMMARY

Alcoa's 1998 financial highlights include:

- > Net income of \$853, 6% above 1997;
- > Aluminum shipments of 3,951 mt, up 34% from 1997;
- > Revenues of \$15,340, driven by the record volumes noted above; and
- > Return on average shareholders' equity of 16.3%.

Improved financial results for 1998 relative to 1997 were the result of higher volumes, aided in part by the Alumax and Inespal acquisitions, and continued operating improvements. Partially offsetting these positive factors were lower overall aluminum and alumina prices and the impact of higher debt levels.

Alcoa's improved financial results for 1997 also were strong, as summarized below:

- > Net income of \$805 (\$761 before special items) was 56% above 1996;
- > Aluminum shipments of 2,956 mt were the second highest in company history and 4% above 1996;
- > Revenues of \$13,319 increased 2% from 1996; and
- > Return on average shareholders' equity rose 56% to 18.1%.

Alcoa's improved 1997 financial performance came in spite of the fact that fabricated aluminum and alumina prices were lower than 1996 and well below historic highs. Revenues increased 2% above 1996 levels, as higher volumes more than offset the loss of revenues related to the sale of noncore businesses.

## SEGMENT INFORMATION

In 1998, Alcoa adopted SFAS 131, "Disclosures about Segments of an Enterprise and Related Information." Alcoa's operations consist of four worldwide segments: Alumina and chemicals, Primary metals, Flat-rolled products and Engineered products. Alcoa's management reporting system measures the after-tax operating income (ATOI) of each segment. Nonoperating items, such as interest income, interest expense, foreign exchange gains/losses and minority interest, are excluded



from segment profit. In addition, certain expenses, such as corporate general administrative expenses, depreciation and amortization on corporate assets and certain special items, are not included in segment results. Segment assets exclude cash, cash equivalents, short-term investments and all deferred taxes. Segment assets also exclude corporate items such as fixed assets, LIFO reserve, goodwill allocated to corporate and other amounts.

Segment ATOI totaled \$1,303 in 1998 compared with \$1,265 in 1997 and \$858 in 1996. See Note O to the financial statements for additional information. The following discussion provides shipment, revenue and ATOI data for each segment for the years 1996 through 1998.

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## I. ALUMINA AND CHEMICALS

	1998	1997	1996
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Third-party alumina shipments (mt)	7,130	7,223	6,406
Third-party sales	\$1,847	\$1,978	\$1,963
Intersegment sales	832	634	617
After-tax operating income	318	302	340
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This segment's activities include the mining of bauxite, which is then refined into alumina. The alumina is then sold to internal and external customers worldwide or is processed into industrial chemical products. Approximately two-thirds of the third-party sales from this segment are derived from alumina. In 1998, third-party sales of alumina fell 14% from 1997, as realized prices fell 13% and shipments fell 1%. Lower third-party shipments, as well as higher intersegment sales in 1998, were a direct result of the Alumax acquisition. Previously, sales of alumina to Alumax were classified as third-party revenues; these sales are now recorded as intersegment. Including intersegment sales, shipments were up in 1998. Third-party revenues from alumina in 1997 were 5% higher than 1996, as a 13% increase in shipments was partially offset by lower realized prices.

Third-party sales of alumina-based chemical products were unchanged compared with 1997, as higher shipments, aided by acquisitions, were offset by lower prices. In 1997, third-party sales from these products fell 3% from 1996, as lower volumes offset higher realized prices.

Despite lower prices, segment ATOI in 1998 rose 5% over 1997. Lower operating costs and the impact of the Inespal acquisition were partly offset by lower realized prices. In 1997, ATOI was \$302, down 11% from 1996. The decrease was the result of lower earnings from alumina operations, which were negatively impacted by lower realized prices. The effect of lower alumina prices was partially offset by lower labor costs, improved productivity and improved results from Alcoa's chemicals operations.

In 1997, Alcoa World Alumina and Chemicals (AWAC) received an advance payment of \$240 related to a long-term alumina supply contract with Sino Mining Alumina Ltd (SMAL). The contract entitles SMAL to purchase 400,000 mt of alumina per year for thirty years. SMAL has the option to increase its alumina purchases as its needs grow. Per-ton payments also are made under the terms of the agreement.

In 1997, AWAC announced a 440,000 mt expansion of its Wagerup alumina refinery in Western Australia. Construction is expected to be complete in the 1999 second quarter.

## II. PRIMARY METALS

	1998	1997	1996
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Third-party aluminum shipments (mt)	1,392	940	976
Third-party sales	\$2,105	\$1,600	\$1,580
Intersegment sales	2,283	1,966	1,900
After-tax operating income	331	417	313
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This group's focus is Alcoa's worldwide smelter system. Primary metals receives alumina from the alumina and chemicals segment

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and produces aluminum ingot to be used by a variety of Alcoa's other segments, as well as sold to outside customers.

In addition to ingot, powder and scrap are also sold by this segment. Aluminum ingot produced by Alcoa and used internally is transferred to other segments at prevailing market prices. Third-party sales of ingot, which make up the majority of this segment's revenues, rose 32% from 1997. The increase was the result of additional revenues from the smelting operations of acquired companies, which were partially offset by an 11% decline in realized prices. In 1997, third-party ingot sales increased 5% from 1996, as prices climbed 3% and shipments rose 2%.

Alcoa's average realized price for ingot in 1998 was 67 cents per pound, compared with 75 cents in 1997 and 73 cents in 1996. This compares with average prices on the London Metal Exchange (LME) of 63 cents per pound in 1998, 74 cents in 1997 and 70 cents in 1996.

Alcoa operated its worldwide smelting system at 88% of rated capacity in 1998 and, since 1994, has had 450,000 mt of smelting capacity idle.

Intersegment sales increased in 1998, relative to 1997, due to acquisitions. Alumax and Inespal sourced the majority of their metal needs internally, driving the increase in intersegment sales.

Primary metals ATOI fell 21% in 1998 from 1997, as lower metal prices more than offset the effect of acquired companies. Lower operating costs in 1998 helped ease the decline, muting the impact of lower prices. ATOI in 1997 rose 33% over 1996, as higher ingot prices and shipments, along with lower costs, resulted in improved performance.

III. FLAT-ROLLED PRODUCTS

	1998	1997	1996
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Third-party aluminum shipments (mt)	1,764	1,469	1,359
Third-party sales	\$4,900	\$4,188	\$4,082
Intersegment sales	59	53	21
After-tax operating income	306	268	160
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This segment's principal business is the production and sale of aluminum sheet, plate and foil. This segment includes rigid container sheet (RCS), which is used to produce aluminum beverage cans, and mill products used in the transportation and distributor markets. Slightly less than half of the third-party shipments and sales in this segment are derived from the sale of RCS, while an additional one-third is obtained from mill products. Other flat-rolled products, such as foil, comprise the remainder of this segment. Third-party sales from this segment in 1998 increased 17% over 1997, as the impact from acquisitions was partially offset by a 2% decline in prices. In 1997, third-party sales rose 3% from 1996, as an 8% increase in shipments more than offset lower prices.

Third-party sales from RCS were essentially unchanged in 1998 from 1997, as were shipments and prices. For the industry as a whole, 1998 shipments of beverage cans by can manufacturers rose 2.2% from 1997. RCS sales in 1997 were down 4% from the previous year, primarily due to the 1996 sale of Alcoa of Australia's (AofA) rolled products division, which resulted in a 29,500 mt loss of shipments for 1997 relative to 1996. Prices were down slightly from 1996, due to lower underlying metal prices.

Third-party sales from mill products were up 21% over 1997. Shipments, aided by acquisitions, increased 23%, while prices fell 2%. Overall mill products prices were lower, as lower volumes of higher priced transportation-related products were offset by higher volumes of lower value-added products. 1997 third-party sales increased 11% from 1996 as a result of a 10% increase in shipments.

This segment incurred a special item charge in 1996 totaling \$26. The net charge related to severance costs for employees who voluntarily left the company and for permanent layoff costs.

ATOI for flat-rolled products rose 14% in 1998, as increases from mill products and foil were partially offset by declines in RCS. RCS ATOI was down, as higher costs for labor and services reduced margins. Mill products ATOI rose, as acquisitions and higher prices for products used in the transportation market offset losses related to the production and sale of computer memory disks. ATOI in 1997 rose 68% from 1996, as the U.S. RCS business and Alcoa's mill products operations benefited from strong demand and lower costs.

IV. ENGINEERED PRODUCTS

	1998	1997	1996
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Third-party aluminum shipments (mt)	729	441	456
Third-party sales	\$3,110	\$2,078	\$1,869
Intersegment sales	11	9	15
After-tax operating income	184	100	46
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This segment includes hard and soft alloy extrusions, aluminum forgings and wire, rod and bar. These products serve the transportation, construction and distributor markets. Third-party shipments were up 65% from 1997, driving a 50% increase in third-party sales. Acquisitions and higher shipments of forged wheels were responsible for the increase in shipments. Average realized prices for engineered products for the 1998 period fell 10%, to \$1.93 per pound, primarily due to the addition of the Alumax extrusion businesses in the 1998 third quarter. These businesses produce primarily soft alloy extrusions, which have a lower value-added, resulting in a reduction in average realized prices. Third-party sales in 1997 rose 11% from 1996, as prices rose 14%.

Third-party sales of extruded products were up 65% from 1997, as shipments, aided by acquisitions, increased 91% from 1997 levels. Partially offsetting higher shipments were lower soft alloy prices. In 1997, extruded products revenues increased 12% from 1996, as shipments increased 19%, but prices fell 6%. Prices for hard alloy extrusions were up 7% from 1996; however, lower prices for soft alloy extrusions in the U.S. and in parts of Europe more than offset the increases.

Forged wheel sales in 1998 rose 32% from 1997, as shipments, up 38%, continue to rise. A portion of the increase is due to Alcoa's new wheel facility in Hungary, which began operations in September 1997. This facility is operating at capacity, as European demand

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for forged wheels continues to be strong. Also contributing to the increase in shipments were higher sales of forged automotive wheels, driven by strong demand for sport utility vehicles and light trucks. Shipments in 1997 rose 21% from 1996, generating an 18% increase in revenues.

Engineered products' 1998 ATOI rose 84% over the comparable 1997 period. The increase was due to acquired companies, a gain on the sale of Alcoa's interest in Alcotec, a wire fabricator, and improved operating results from European extrusion facilities. Also contributing to the increase were higher shipments of forged wheels. Results in 1997 more than doubled those recorded in 1996. Higher revenues from extruded products and wire, rod and bar, along with improved ATOI from European operations, drove the increase. Also adding to the rise in ATOI was improved performance related to forged aerospace products.

#### V. OTHER

	1998	1997	1996
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Third-party aluminum shipments (mt)	66	106	50
Third-party sales	\$3,362	\$3,458	\$3,567
Intersegment sales	--	--	--
After-tax operating income	165	177	(.9)
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This category includes Alcoa Fujikura Ltd. (AFL), which produces electrical components for the automotive industry along with telecommunications products. In addition, Alcoa's aluminum and plastic closures operations and Alcoa's residential building products operations are included in this group. Third-party sales from this group were down 3% from 1997, as higher sales of automotive electrical components were more than offset by the loss of revenues from the sale of Alcoa Aluminio's cable business in late 1997. A similar drop in third-party sales was experienced in 1997 versus 1996, as improved results from automotive electrical components were more than offset by the loss of revenues from the sale of certain noncore businesses.

Third-party sales at AFL increased 7% in 1998, due to higher volumes, while prices declined slightly. This came on top of an 18% volume related revenue gain in 1997, compared with 1996. Closures revenues for 1998 fell 1% compared with 1997, partially reversing a 15% increase in 1997 over 1996.

This group incurred a special item gain of \$71 in 1997. The gain was the result of the sale of various businesses, a majority interest in Alcoa's Brazilian cable business, and land in Japan. In 1996, this segment had a special item charge of \$104. The net charge relates to the Alcoa Electronic Packaging (AEP) shutdown, along with severance

costs for employees who voluntarily left the company and for permanent layoff costs.

ATOI for this group fell 7% from 1997, as improved results at AFL, along with a gain from the sale of Alcoa's Australian gold operations, were more than offset by special item gains in 1997 versus no special items in 1998. After-tax operating income in 1997 increased \$178 from 1996, due to improved performance by AFL. Also contributing to the turnaround were special items, which resulted in gains in 1997 versus a substantial loss in 1996.

#### SPECIAL ITEMS

There were no special items recorded in 1998. Special items in 1997 resulted in a net gain of \$96 (\$44 after tax and minority interests, or 13 cents per basic share). The fourth quarter sale of a majority interest in Alcoa's Brazilian cable business and land in Japan generated gains of \$86. In addition, the sale of equity securities resulted in a gain of \$38, while the divestiture of noncore businesses provided \$25. These gains were partially offset by charges of \$53, related to environmental and impairment matters.

Included in 1996 income from operations was a charge of \$199 (\$122 after tax and minority interests, or 35 cents per basic share) consisting of several items. A net severance charge of \$96, which included pension and OPEB curtailment credits of \$75, related to incentive costs for employees who voluntarily left the company and for permanent layoff costs. In addition, the shutdown of AEP resulted in a charge of \$65, related primarily to asset write-downs. Impairments at various manufacturing locations added another \$38 to special items in 1996.

#### COSTS AND OTHER

COST OF GOODS SOLD -- Cost of goods sold rose \$1,649, or 16%, to \$11,805 in 1998. This followed a 2% increase to \$10,156 in 1997 from 1996. The 1998 increase was primarily due to higher volumes of \$1,800, which related primarily to acquired companies. Offsetting a portion of the acquisition-driven increases were cost and operating improvements approaching \$200. The \$190 increase in 1997, relative to 1996, was due to \$175 of higher volumes partially offset by the absence of costs associated with divested businesses. Additionally, higher material costs of \$155 were nearly offset by cost improvements of \$140.

SELLING AND GENERAL ADMINISTRATIVE EXPENSES -- S&GA expenses increased 15% to \$769 in 1998. However, as a percentage of revenue, S&GA was unchanged from 1997 at 5%. The higher 1998 S&GA total was a result of acquisitions, partially offset by cost reductions. These expenses totaled \$671 in 1997, down \$38 or 5% from 1996. The decrease was the result of lower salary compensation costs resulting from a reduction in the number of employees at U.S. aluminum operations. Additionally, lower costs resulting from the divestiture of noncore businesses also had a positive impact.

RESEARCH AND DEVELOPMENT EXPENSES -- R&D expenses of \$128 in 1998 were down 10% from 1997 on top of a 13% decline in 1997 from 1996. A reduction in R&D personnel was primarily responsible for lower spending on research in the metals, castings, closures and alumina businesses.

INTEREST EXPENSE -- Interest expense rose \$57 to \$198 in 1998 from 1997. The increase was the result of 1998 borrowings of over \$1,850, the proceeds of which were used primarily to fund acquisitions.

Interest expense increased \$7 in 1997 from 1996 as a result of the full-year effect of Aluminio's 1996 debt offering and higher debt levels in 1997 at Alcoa of Australia.

INCOME TAXES -- Alcoa's effective tax rate in 1998 was 32%, three percentage points below the statutory rate of 35%. The lower rate is primarily due to lower taxes on foreign income.

Alcoa's effective tax rate in 1997 was 33%, two percentage points below the statutory rate of 35%. The lower rate is primarily due to the favorable tax effect of certain special items.

The 1996 effective tax rate was 33.3% and differs from the statutory rate due to the recognition of a tax benefit resulting from reversal of the valuation allowance on deferred tax assets at Suriname Aluminum Company, partially offset by state taxes on income.

OTHER INCOME/FOREIGN CURRENCY -- Other income declined to \$150 in 1998, an 8% decrease from 1997. The majority of the change was due to increased losses from marking-to-market certain aluminum commodity contracts. Lower interest income also contributed to the decline. Offsetting a portion of these negative factors were \$21 of increased gains related to asset sales, \$8 of higher equity income,

and a positive swing in foreign exchange. Other income totaled \$163 in 1997, more than double the 1996 amount. Reduced losses from marking-to-market aluminum commodity contracts and higher equity and interest income were responsible for the improvement.

Exchange gains (losses) included in other income were \$(3.7) in 1998, \$(9.8) in 1997 and \$3.1 in 1996. The total impact on net income, after taxes and minority interests, was \$(8.0) in 1998, \$6.9 in 1997 and \$(.3) in 1996.

## RISK FACTORS

In addition to the risks inherent in its operations, Alcoa is exposed to financial, market, political and economic risks. The following discussion, which provides additional detail regarding Alcoa's exposure to the risks of changing commodity prices, foreign exchange rates and interest rates, includes forward-looking statements that involve risk and uncertainties. Actual results could differ materially from those projected in these forward-looking statements.

COMMODITY PRICE RISKS -- Alcoa is a leading global producer of aluminum ingot and aluminum fabricated products. As a condition of sale, customers often require Alcoa to commit to fixed-price contracts that sometimes extend a number of years into the future. Customers will likely require Alcoa to enter into similar arrangements in the future. These contracts expose Alcoa to the risk of fluctuating aluminum prices between the time the order is accepted and the time that the order ships.

In the U.S., Alcoa is net metal short and is subject to the risk of higher aluminum prices for the anticipated metal purchases required to fulfill the long-term customer contracts noted above. To hedge this risk, Alcoa enters into long positions, principally using futures and options. Alcoa follows a stable pattern of purchasing metal; therefore, it is highly likely that anticipated metal requirements will be met. At December 31, 1998 and 1997, these contracts totaled

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approximately 933,000 mt and 1,084,000 mt, respectively. These contracts act to fix the purchase price for these metal purchase requirements, thereby reducing Alcoa's risk to rising metal prices.

A hypothetical 10% change from the 1998 year-end, three-month LME aluminum ingot price of \$1,244 per mt would result in a pretax gain or loss to future earnings of \$110 related to all of the futures and options contracts noted above. However, it should be noted that any change in the value of these contracts, real or hypothetical, would be significantly offset by an inverse change in the value of the underlying metal purchase transactions.

Earnings were selected as the measure of sensitivity due to the historical relationship between aluminum ingot prices and Alcoa's earnings. The hypothetical change of 10% was calculated using a parallel shift in the existing December 31, 1998 forward price curve for aluminum ingot. The price curve takes into account the time value of money, as well as future expectations regarding the price of aluminum ingot. The model also assumes there will be no aluminum smelter capacity restarted by Alcoa.

The futures and options contracts noted above are with creditworthy counterparties and are further supported by cash, treasury bills or irrevocable letters of credit issued by carefully chosen banks.

The expiration dates of the options and the delivery dates of the futures contracts noted above do not always coincide exactly with the dates on which Alcoa is required to purchase metal to meet its contractual commitments with customers. Accordingly, some of the futures and options positions will be rolled forward. This may result in significant cash inflows if the hedging contracts are "in-the-money" at the time they are rolled forward. Conversely, there could be significant cash outflows if metal prices fall below the price of contracts being rolled forward.

In addition to the above noted aluminum positions, Alcoa had 29,000 mt and 259,000 mt of futures and options contracts outstanding at year-end 1998 and 1997, respectively, that cover long-term, fixed-price commitments to supply customers with metal from internal sources. Accounting convention requires that these contracts be marked-to-market, which resulted in after-tax charges to earnings of \$45 in 1998, \$13 in 1997 and \$57 in 1996. A hypothetical 10% change in aluminum ingot prices from the year-end 1998 level of \$1,244 per mt would result in a pretax gain or loss of \$3 related to these positions. The hypothetical gain or loss was calculated using the same model and assumptions noted earlier.

Alcoa also purchases certain other commodities, such as gas and copper, for its operations and enters into futures contracts to eliminate volatility in the prices of such products. None of these contracts are material. For additional information on financial instruments, see Notes A and T to the financial statements.

FOREIGN EXCHANGE RISKS -- Alcoa is subject to significant exposure from fluctuations in foreign currencies. As a matter of company policy, foreign currency exchange contracts, including forwards and options, are sometimes used to limit the risk of fluctuating exchange rates. A hypothetical 10% change in applicable 1998 year-end forward rates would result in a pretax gain or loss of approximately \$135 related to these positions. However, it should be noted that any change in value of these contracts, real or hypothetical, would be significantly offset by an inverse change in the value of the underlying hedged item. The model assumes a parallel shift in the forward curve for the applicable currencies and includes the foreign currency impacts of Alcoa's cross-currency interest rate swaps. See Notes A and T for information related to the accounting policies and fair market values of Alcoa's foreign exchange contracts at December 31, 1998 and 1997.

In early 1999, Brazil experienced a devaluation of its currency, the real. Based on information currently available, Alcoa does not believe that the devaluation will have a material impact on Alcoa's 1999 results of operations.

INTEREST RATE RISKS -- Alcoa attempts to maintain a reasonable balance between fixed- and floating-rate debt and uses interest rate swaps and caps to keep financing costs as low as possible. At December 31, 1998 and 1997, Alcoa had \$3,489 and \$1,952 of debt outstanding at effective interest rates of 6% and 7%, respectively, after the impact of interest rate swaps and caps is taken into account. A hypothetical change of 10% in Alcoa's effective interest rate from year-end 1998 levels would increase or decrease interest expense by \$21. The interest rate effect of Alcoa's cross-currency interest rate swaps has been included in this analysis. For more information related to Alcoa's use of interest rate instruments, see Notes A and T.

RISK MANAGEMENT -- All of the aluminum and other commodity contracts, as well as the various types of financial instruments, are straightforward and are held for purposes other than trading. They are used primarily to mitigate uncertainty and volatility, and principally cover underlying exposures.

Alcoa's commodity and derivative activities are subject to the management, direction and control of the Strategic Risk Management Committee (SRMC). SRMC is composed of the chief executive officer, the president, the chief financial officer and other officers and employees that the chief executive officer may select from time to time. SRMC reports to the board of directors at each of its scheduled meetings on the scope of its derivative activities.

MATERIAL LIMITATIONS -- The disclosures, with respect to aluminum prices and foreign exchange risk, do not take into account the underlying anticipated purchase obligations and the underlying transactional foreign exchange exposures. If the underlying items were included in the analysis, the gains or losses on the futures and options contracts may be offset. Actual results will be determined by a number of factors that are not under Alcoa's control and could vary significantly from those disclosed.

ENVIRONMENTAL MATTERS Alcoa continues to participate in environmental assessments and cleanups at a number of locations, including at operating facilities and adjoining properties, at previously owned or operated facilities and at Superfund and other waste sites. A liability is recorded

for environmental remediation costs or damages when a cleanup program becomes probable and the costs or damages can be reasonably estimated. For additional information, see Notes A and U to the financial statements.

As assessments and cleanups proceed, the liability is adjusted based on progress in determining the extent of remedial actions and related costs and damages. The liability can change substantially due to factors such as the nature and extent of contamination, changes in remedial requirements and technological changes. Therefore, it is not possible to determine the outcomes or to estimate with any degree of accuracy the ranges of potential costs for certain matters. For example, there are issues related to Alcoa's Massena, New York, and Pt. Comfort, Texas plant sites that allege natural resource damage or off-site contaminated sediments, where investigations are ongoing. Based on these facts, it is possible that results of operations in a particular period could be materially affected by certain of these matters. However, based on facts currently available, management believes that the disposition of these matters will not have a materially adverse effect on the financial position or liquidity of the company.

Alcoa's remediation reserve balance at the end of 1998 was \$217.0, of which \$84.6 was classified as a current liability, and reflects the most probable costs to remediate identified environmental conditions for which costs can be reasonably estimated. About 20% of this balance relates to Alcoa's Massena, New York plant site and 16% relates to Alcoa's Pt. Comfort, Texas plant site. Remediation

expenses charged to the reserve were \$63 in 1998, \$64 in 1997 and \$72 in 1996. These include expenditures currently mandated, as well as those not required by any regulatory authority or third party.

Included in annual operating expenses are the recurring costs of managing hazardous substances and environmental programs. These costs are estimated to be about 2% of cost of goods sold.

#### LIQUIDITY AND CAPITAL RESOURCES

(dollars in millions, except share amounts)

##### CASH FROM OPERATIONS

Cash from operations rose 16% in 1998 to \$2,197, versus \$1,888 in 1997. The increase was primarily the result of higher earnings, a reduction in deferred hedging gains and lower working capital requirements. Partially offsetting these items was \$240 of cash received in 1997 related to a long-term alumina supply agreement.

Lower working capital requirements for 1998 provided net cash inflows of \$269, which was \$175 higher than 1997. The decrease in working capital requirements was essentially due to lower levels of receivables and inventories, partially offset by a decrease in accounts payable and accrued expenses.

##### FINANCING ACTIVITIES

Financing activities used \$280 of cash in 1998, versus \$989 in the 1997 period. The primary reason for the lower use of funds was the issuance of debt to fund acquisitions. In 1998, Alcoa issued \$1,100

of commercial paper, \$250 of term debt due in 2018, \$200 of term debt due in 2005 and \$300 of thirty-year bonds due in 2028. Partially offsetting these borrowings were net payments of \$350 on commercial paper and the repayment of \$950 of Alumax debt. In the 1998 third quarter, Alcoa entered into a new \$2,000 revolving-credit facility. The facility is comprised of a 364-day \$1,000 facility and a five-year \$1,000 facility. The revolving-credit facilities are used to support the Alcoa and AofA commercial paper programs.

Alcoa used \$365 of cash in 1998 to repurchase 9,774,600 shares of the company's common stock at an average price of \$37.35 per share. In 1997, Alcoa used \$604 to repurchase 16,154,534 shares of common stock. Stock purchases in 1998 and 1997 were partially offset by \$87 and \$203, respectively, of stock issued for employee stock option plans.

Dividends paid to shareholders were \$265 in 1998, an increase of \$95 from 1997. The difference was due to Alcoa's variable dividend program, which paid out 25 cents per share in addition to the base dividend of 50 cents per share in 1998. There was no variable dividend in 1997. In early January 1999, Alcoa's board of directors increased the base dividend and the threshold for payment of the variable dividend by 50%, to 75 cents per share and \$2.25 per share, respectively. This will result in a quarterly dividend of 20.125 cents per share for 1999, a 7% increase from the 1998 quarterly dividend of 18.75 cents per share. Alcoa's variable dividend program provides for the distribution in the following year of 30% of Alcoa's annual earnings in excess of \$2.25 per share.

Dividends paid and return of capital to minority interests totaled \$222 in 1998, a decline of \$121 from the prior year. The decrease is a result of AWAC and AofA returning funds to their investors in 1997. Of the \$343 cash outflow in 1997, \$206 relates to payments made by AofA, while a payment of \$96 was made by AWAC.

Payments on long-term debt during 1997 exceeded additions by \$218. During the 1997 fourth quarter, AFL issued a \$250 five-year term loan and entered into a \$250 five-year, revolving-credit facility. Higher short-term borrowings in 1997 relative to 1996 were a result of higher borrowings at Alcoa Italia.

Debt as a percentage of invested capital was 31.7% at the end of 1998, compared with 25.0% for 1997 and 25.5% for 1996.

##### INVESTING ACTIVITIES

Cash used for investing activities during 1998 totaled \$2,377, compared with \$679 in 1997. Capital expenditures totaled \$932, compared with \$912 in 1997 and \$996 in 1996. Of the total expenditures in 1998, 29% related to capacity expansion, including alumina production in Australia and automotive sheet production in the U.S. Also included are costs of new and expanded facilities for environmental control in ongoing operations totaling \$105 in 1998, \$94 in 1997 and \$68 in 1996.

Alcoa used \$1,463 in 1998 for acquisitions, notably the Alumax and Inespal transactions. Alcoa also added \$126 to its investments in 1998, primarily to acquire a stake in the Norwegian metals producer, Elkem. Acquisitions accounted for \$302 of investing cash

outflows during 1996 and included the purchase of Alumix in Italy and Alcan's extrusion operations in Brazil.

In 1998, Alcoa received \$55 from the sale of its specialty chemical, Alcotec wire, Vernon cast plate and Australian gold operations. Asset sales in 1997 generated \$265 and included the Caradco, Arctek, Alcoa Composites, Norcold, Dayton Technologies and Richmond, Indiana facilities. Also included was the sale of a majority interest in Alcoa's Brazilian cable business.

#### YEAR 2000 ISSUE

Alcoa, like other businesses, is facing the Year 2000 issue. The Year 2000 issue arises from the past practice of utilizing two digits (as opposed to four) to represent the year in some computer programs and software. If uncorrected, this could result in computational errors as dates are compared across the century boundary.

As a basic materials supplier, the vast majority of the products produced and sold by Alcoa are unaffected by Year 2000 issues in use or operation since they contain no microprocessors.

Alcoa is addressing the Year 2000 issue through a formal program that reports to the company's chief information officer. Alcoa's methodology encompasses four phases: Awareness/Inventory; Assessment; Remediation and Compliance Testing. Ongoing leadership is provided by a Global Program Office, which is directly linked into Alcoa's business units and resource units, including the newly acquired Alumax facilities. The Global Program Office provides processes and tools to the business units and monitors progress through systematic reporting and on-site verification reviews in cooperation with the company's internal auditors. Progress is reported regularly to the company's senior executives and to the Audit Committee of Alcoa's board of directors.

Internally, computer- and microprocessor-based systems, such as mainframe, minicomputer and personal computer systems and the software they utilize, have been assessed. Operational support, process control, facilities, infrastructure and mechanical systems are being addressed as well. These systems assist in the control of Alcoa's operations by performing such functions as maintaining manufacturing parameters, monitoring environmental conditions and assisting with facilities management and security. Many of these systems rely on software or contain embedded electronic components that could be affected by Year 2000 compliance issues. Since many of these systems are common across operating locations, information sharing and efficiencies have been realized in the Year 2000 efforts. Priority for any required remediation efforts has been assigned based on the criticality of the system or business process affected.

As of December 31, 1998, the remediation phase has been completed for 90% of Alcoa's critical components with 86% of all critical components having completed compliance testing. Individual exceptions providing for completion during 1999 have been approved by business unit and resource unit management and reviewed by the Year 2000 Global Program Office and the chief information officer. These, along with all other critical systems, will be specifically addressed within Alcoa's contingency planning process. Alcoa does not believe that this limited rescheduling will adversely affect its overall Year 2000 readiness. It is presently expected that compliance testing will be completed for 99% of critical systems by the third quarter.

Alcoa relies on numerous third-party vendors and suppliers for a wide variety of goods and services, including raw materials, telecommunications and utilities such as water and electricity. Many of the company's operating locations would be adversely affected if these supplies and services were curtailed as a result of a supplier's Year 2000 noncompliance. Alcoa has surveyed its vendors and suppliers using questionnaires and, based on the response and significance to the company's operations, may initiate follow-up meetings. If Alcoa concludes that a third-party trading partner presents a substantial risk of a Year 2000 based business disruption, an effort will be made to resolve the issue. If necessary, a new provider of the affected goods or services will be qualified and secured. Communication with suppliers and other third parties regarding Year 2000 issues is a continuing process.

Alcoa and certain of its trading partners utilize electronic data interchange (EDI) to effect business communications. The company's EDI system software has been upgraded to support transactions in a Year 2000 compliant format. Migration of EDI transactions to this new format will occur as existing EDI transaction formats are modified by Alcoa and its EDI trading partners on a case-by-case basis. Some Alcoa customers have indicated that they will not modify EDI transaction sets but will rely on other techniques to achieve Year 2000 capability.

Alcoa's Year 2000 program utilizes on-site verification



of Year 2000 efforts at its various operating locations. Using audit-like techniques, the Year 2000 Global Program Office and the company's internal auditors verify that business and resource units have followed the prescribed processes and methodologies and also sample local Year 2000 readiness. Each of Alcoa's business units will receive at least one verification audit during 1999 with more than sixty reviews planned.

Based on current information, Alcoa believes that the most likely worst case scenario to result from a Year 2000 failure by Alcoa, its suppliers or customers would be a short-term reduction in manufacturing capability at one or more of Alcoa's operations and a temporary limitation on Alcoa's ability to deliver products to customers. Based on internal efforts and formal communications with third parties, Alcoa does not believe that Year 2000 issues are likely to result in significant operational problems or have a material adverse impact on its consolidated financial position, operations or cash flow. Nonetheless, failures of suppliers, third-party vendors or customers resulting from Year 2000 issues could result in a short-term material adverse effect.

In 1998, Alcoa incurred \$38 of direct costs in connection with its Year 2000 program. These costs include external consulting costs and the cost of hardware and software replaced as a result of Year 2000 issues. Direct costs for 1999 are estimated to be between \$35 and \$60.

#### MANAGEMENT'S REPORT TO ALCOA SHAREHOLDERS

The accompanying financial statements of Alcoa and consolidated subsidiaries were prepared by management, which is responsible for their integrity and objectivity. The statements were prepared in accordance with generally accepted accounting principles and include amounts that are based on management's best judgments and estimates. The other financial information included in this annual report is consistent with that in the financial statements.

The company maintains a system of internal controls, including accounting controls, and a strong program of internal auditing. The system of controls provides for appropriate procedures that are consistent with high standards of accounting and administration. The company believes that its system of internal controls provides reasonable assurance that assets are safeguarded against losses from unauthorized use or disposition and that financial records are reliable for use in preparing financial statements.

Management also recognizes its responsibility for conducting the company's affairs according to the highest standards of personal and corporate conduct. This responsibility is characterized and reflected in key policy statements issued from time to time regarding, among other things, conduct of its business activities within the laws of the host countries in which the company operates and potentially conflicting outside business interests of its employees. The company maintains a systematic program to assess compliance with these policies.

/s/ Paul H. O'Neill  
Paul H. O'Neill  
Chairman of the Board and Chief Executive Officer

/s/ Richard B. Kelson  
Richard B. Kelson  
Executive Vice President and Chief Financial Officer

#### AUDIT COMMITTEE REPORT

The Audit Committee of the Board of Directors, which is composed of five independent directors, met seven times in 1998.

The Audit Committee oversees Alcoa's financial reporting process on behalf of the Board of Directors. In fulfilling its responsibility, the committee recommended to the Board the reappointment of PricewaterhouseCoopers LLP as the company's independent public accountants. The Audit Committee reviewed with the Vice President-Audit and the independent accountants the overall scope and specific plans for their respective audits. The committee reviewed with management Alcoa's annual and quarterly reporting process, and the adequacy of the company's internal controls. Without management present, the committee met separately with the Vice President-Audit and the independent accountants to review the results of their examinations, their evaluations of the company's internal controls, and the overall quality of Alcoa's financial reporting.

/s/ Henry B. Schacht  
Henry B. Schacht  
Chairman, Audit Committee

#### INDEPENDENT ACCOUNTANT'S REPORT

To the Shareholders and Board of Directors  
Alcoa Inc. (Alcoa)

In our opinion, the accompanying consolidated balance sheet and the related consolidated statements of income and shareholders' equity and of cash flows present fairly, in all material respects, the financial position of Alcoa at December 31, 1998 and 1997, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 1998, in conformity with generally accepted accounting principles. These financial statements are the responsibility of Alcoa's management; our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with generally accepted auditing standards which require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for the opinion expressed above.

/s/ PricewaterhouseCoopers LLP  
600 Grant St., Pittsburgh, Pa.  
January 8, 1999

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STATEMENT OF CONSOLIDATED INCOME Alcoa and subsidiaries  
(in millions, except per-share amounts)

For the year ended December 31	1998	1997	1996
-----			
REVENUES			
Sales (0)	\$ 15,339.8	\$ 13,319.2	\$ 13,061.0
Other income, principally interest	149.6	162.5	67.4
	-----	-----	-----
	15,489.4	13,481.7	13,128.4
-----			
COSTS AND EXPENSES			
Cost of goods sold	11,804.8	10,155.8	9,966.0
Selling, general administrative and other expenses	768.8	670.6	708.8
Research and development expenses	128.4	143.2	165.5
Provision for depreciation, depletion and amortization	842.4	734.9	747.2
Special items (D)	--	(95.5)	198.9
Interest expense (S)	197.9	140.9	133.7
Taxes other than payroll taxes	142.3	130.1	126.6
	-----	-----	-----
	13,884.6	11,880.0	12,046.7
-----			
EARNINGS			
Income before taxes on income	1,604.8	1,601.7	1,081.7
Provision for taxes on income (P)	513.5	528.7	360.7
	-----	-----	-----
Income from operations	1,091.3	1,073.0	721.0
Minority interests	(238.3)	(267.9)	(206.1)
	-----	-----	-----
NET INCOME	\$ 853.0	\$ 805.1	\$ 514.9
-----			
EARNINGS PER SHARE (M)			
Basic	\$ 2.44	\$ 2.33	\$ 1.47
Diluted	\$ 2.42	\$ 2.31	\$ 1.46
-----			

The accompanying notes are an integral part of the financial statements.

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CONSOLIDATED BALANCE SHEET Alcoa and subsidiaries  
(in millions)

December 31	1998	1997
-----		
ASSETS		
Current assets:		
Cash and cash equivalents (includes cash of \$131.1 in 1998 and \$100.8		

in 1997) (T)	\$ 342.2	\$ 800.8
Short-term investments (T)	39.4	105.6
Receivables from customers, less allowances: 1998-\$61.4; 1997-\$36.6	2,163.2	1,581.2
Other receivables	171.0	216.4
Inventories (E)	1,880.5	1,312.6
Deferred income taxes	198.0	172.3
Prepaid expenses and other current assets	230.8	228.0
-----		
Total current assets	5,025.1	4,416.9
Properties, plants and equipment (F)	9,133.5	6,666.5
Goodwill, net of accumulated amortization of \$179.3 in 1998 and \$153.5 in 1997 (C)	1,414.1	487.6
Other assets (H and T)	1,889.8	1,499.6
-----		
TOTAL ASSETS	\$ 17,462.5	\$ 13,070.6
-----		

#### LIABILITIES

##### Current liabilities:

Short-term borrowings (weighted average rate of 4.8% in 1998 and 6.3% in 1997) (T)	\$ 431.0	\$ 347.7
Accounts payable, trade	1,044.3	811.7
Accrued compensation and retirement costs	553.2	436.0
Taxes, including taxes on income	431.3	334.2
Other current liabilities	627.4	375.7
Long-term debt due within one year (G and T)	181.1	147.2
-----		
Total current liabilities	3,268.3	2,452.5
Long-term debt, less amount due within one year (G and T)	2,877.0	1,457.2
Accrued postretirement benefits (Q)	1,840.1	1,749.6
Other noncurrent liabilities and deferred credits (I)	1,587.1	1,271.2
Deferred income taxes	358.1	281.0
-----		
Total liabilities	9,930.6	7,211.5
-----		
MINORITY INTERESTS (A and J)	1,476.0	1,439.7
-----		

##### Contingent liabilities (L)

-- --

#### SHAREHOLDERS' EQUITY

Preferred stock (N)	55.8	55.8
Common stock (B and N)	394.7	178.9
Additional capital (B)	1,675.9	578.1
Retained earnings	5,305.1	4,717.3
Treasury stock, at cost	(1,028.7)	(758.0)
Accumulated other comprehensive loss	(346.9)	(352.7)
-----		
Total shareholders' equity	6,055.9	4,419.4
-----		
TOTAL LIABILITIES AND EQUITY	\$ 17,462.5	\$ 13,070.6
-----		

The accompanying notes are an integral part of the financial statements.

#### STATEMENT OF CONSOLIDATED CASH FLOWS Alcoa and subsidiaries (in millions)

For the year ended December 31	1998	1997	1996
-----			
CASH FROM OPERATIONS			
Net income	\$ 853.0	\$ 805.1	\$ 514.9
Adjustments to reconcile net income to cash from operations:			
Depreciation, depletion and amortization	856.2	753.6	764.2
Change in deferred income taxes	109.5	83.2	120.3
Equity earnings before additional taxes, net of dividends	(2.9)	(30.9)	(6.6)
Noncash special items	--	(95.5)	168.3
Gains from investing activities-- sale of assets	(32.0)	--	--
Book value of asset disposals	36.6	42.2	61.8
Minority interests	238.3	267.9	206.1
Other	(22.5)	(5.2)	(8.5)
Changes in assets and liabilities, excluding effects of acquisitions and divestitures:			
Reduction in receivables	144.7	12.0	42.7
Reduction in inventories	100.5	52.5	87.8
(Increase) reduction in prepaid expenses and other current			

assets	22.7	(25.6)	(40.3)
Increase (reduction) in accounts payable and accrued expenses	(68.0)	81.5	(181.1)
Increase (reduction) in taxes, including taxes on income	68.6	(26.5)	27.4
Cash received on long-term alumina supply contract	--	240.0	--
Reduction in deferred hedging gains	(50.6)	(113.3)	(264.5)
Net change in noncurrent assets and liabilities	(57.4)	(153.4)	(213.6)
<hr/>			
CASH FROM OPERATIONS	2,196.7	1,887.6	1,278.9
<hr/>			
FINANCING ACTIVITIES			
Net additions (reduction) to short-term borrowings	(75.6)	142.5	(140.7)
Common stock issued and treasury stock sold	87.2	203.0	41.4
Repurchase of common stock	(365.1)	(603.5)	(317.2)
Dividends paid to shareholders	(265.2)	(170.4)	(234.2)
Dividends paid and return of capital to minority interests	(222.0)	(342.5)	(173.2)
Additions to long-term debt	2,030.8	519.8	916.2
Payments on long-term debt	(1,469.9)	(738.2)	(627.1)
<hr/>			
CASH USED FOR FINANCING ACTIVITIES	(279.8)	(989.3)	(534.8)
<hr/>			
INVESTING ACTIVITIES			
Capital expenditures	(931.8)	(912.4)	(995.7)
Acquisitions, net of cash acquired (K)	(1,462.9)	--	(302.3)
Sale of assets	55.2	265.2	82.8
Sale of (additions to) investments	(125.9)	51.7	(58.8)
Changes in minority interests	32.6	14.2	(34.2)
Repayment from (loan to) WMC	--	--	121.8
Changes in short-term investments	66.2	(87.3)	(11.7)
Other	(10.4)	(10.0)	(10.0)
<hr/>			
CASH USED FOR INVESTING ACTIVITIES	(2,377.0)	(678.6)	(1,208.1)
<hr/>			
EFFECT OF EXCHANGE RATE CHANGES ON CASH	1.5	(17.0)	6.5
<hr/>			
Net change in cash and cash equivalents	(458.6)	202.7	(457.5)
Cash and cash equivalents at beginning of year	800.8	598.1	1,055.6
<hr/>			
CASH AND CASH EQUIVALENTS AT END OF YEAR	\$ 342.2	\$ 800.8	\$ 598.1
<hr/>			

The accompanying notes are an integral part of the financial statements.

STATEMENT OF SHAREHOLDERS' EQUITY Alcoa and subsidiaries  
(in millions, except share amounts)

December 31	Comprehensive income	Preferred stock	Common stock	Additional capital	Retained earnings	Treasury stock	Accumulated other comprehensive income (loss)	Total shareholders' equity
<hr/>								
BALANCE AT END OF 1995		\$ 55.8	\$ 178.9	\$ 637.1	\$ 3,800.1	\$ (138.9)	\$ (88.3)	\$ 4,444.7
Comprehensive income--1996:								
Net income--1996	\$514.9				514.9			514.9
Other comprehensive income (loss), net of tax:								
Minimum pension liability, net of \$1.9 tax expense	3.5							
Unrealized translation adjustments	(8.9)							
Realized translation adjustments	(5.2)							
Unrealized gains on securities, net of \$12.6 tax benefit	23.4						12.8	12.8
<hr/>								
Comprehensive income	\$527.7							
<hr/>								
Cash dividends:								
Preferred @ \$3.75 per share					(2.1)			(2.1)
Common @ \$.665 per share					(232.1)			(232.1)
Treasury shares purchased						(317.2)		(317.2)

Stock issued: compensation plans			(45.2)	1.8	84.8		41.4
<hr/>							
BALANCE AT END OF 1996	55.8	178.9	591.9	4,082.6	(371.3)	(75.5)	4,462.4
Comprehensive income--1997:							
Net income--1997	\$ 805.1			805.1			805.1
Other comprehensive income (loss), net of tax:							
Minimum pension liability, net of \$2.3 tax benefit	(4.2)						
Unrealized translation adjustments	(249.6)						
Unrealized gains on securities, net of \$.7 tax expense	1.3						
Gains on securities included in net income, net of \$13.3 tax benefit	(24.7)					(277.2)	(277.2)
Comprehensive income	\$ 527.9						
<hr/>							
Cash dividends:							
Preferred @ \$3.75 per share				(2.1)			(2.1)
Common @ \$.488 per share				(168.3)			(168.3)
Treasury shares purchased					(603.5)		(603.5)
Stock issued: compensation plans			(13.8)		216.8		203.0
<hr/>							
BALANCE AT END OF 1997	55.8	178.9	578.1	4,717.3	(758.0)	(352.7)	4,419.4
Comprehensive income--1998:							
Net income--1998	\$ 853.0			853.0			853.0
Other comprehensive income (loss), net of tax:							
Minimum pension liability, net of \$3.0 tax benefit	(5.6)						
Unrealized translation adjustments	11.4					5.8	5.8
Comprehensive income	\$ 858.8						
<hr/>							
Cash dividends:							
Preferred @ \$3.75 per share				(2.1)			(2.1)
Common @ \$.75 per share				(263.1)			(263.1)
Treasury shares purchased					(365.1)		(365.1)
Stock issued: Alumax acquisition		18.4	1,302.4				1,320.8
Stock issued: compensation plans			(7.2)		94.4		87.2
Stock issued: two-for-one split (B)		197.4	(197.4)				--
<hr/>							
BALANCE AT END OF 1998	\$ 55.8	\$ 394.7	\$1,675.9	\$ 5,305.1	\$ (1,028.7)	\$ (346.9)*	\$ 6,055.9

\* Comprised of unrealized translation adjustments of \$(331.3) and minimum pension liability of \$(15.6)

SHARE ACTIVITY (B)  
(number of shares)

Common stock				
	Preferred stock	Issued	Treasury	Net outstanding
<hr/>				
BALANCE AT END OF 1995	557,649	357,845,166	(5,217,106)	352,628,060
Treasury shares purchased			(10,805,000)	(10,805,000)
Stock issued: compensation plans			3,196,218	3,196,218
<hr/>				
BALANCE AT END OF 1996	557,649	357,845,166	(12,825,888)	345,019,278
Treasury shares purchased			(16,154,534)	(16,154,534)
Stock issued: compensation plans			7,686,508	7,686,508
<hr/>				
BALANCE AT END OF 1997	557,649	357,845,166	(21,293,914)	336,551,252
Treasury shares purchased			(9,774,600)	(9,774,600)
Stock issued: Alumax acquisition		36,850,760		36,850,760
Stock issued: compensation plans			3,181,666	3,181,666
<hr/>				
BALANCE AT END OF 1998	557,649	394,695,926	(27,886,848)	366,809,078

The accompanying notes are an integral part of the financial statements.

(dollars in millions, except share amounts)

#### A. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

**PRINCIPLES OF CONSOLIDATION.** The consolidated financial statements include the accounts of Alcoa and companies more than 50% owned. Investments in other entities are accounted for principally on an equity basis.

The consolidated financial statements are prepared in conformity with generally accepted accounting principles and require management to make certain estimates and assumptions. These may affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements. They may also affect the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates upon subsequent resolution of identified matters.

**INVENTORY VALUATION.** Inventories are carried at the lower of cost or market, with cost for a substantial portion of U.S. and Canadian inventories determined under the last-in, first-out (LIFO) method. The cost of other inventories is principally determined under the average-cost method. See Note E for additional detail.

**AMORTIZATION OF INTANGIBLES.** The excess purchase price over the net tangible assets of businesses acquired is reported as goodwill in the consolidated balance sheet. Goodwill and other intangibles are amortized on a straight-line basis over not more than 40 years. The carrying value of goodwill and other intangibles is evaluated periodically in relation to the operating performance and future undiscounted cash flows of the underlying businesses. Adjustments are made if the sum of expected future net cash flows is less than book value. See Note H for additional information.

**ENVIRONMENTAL EXPENDITURES.** Expenditures for current operations are expensed or capitalized, as appropriate. Expenditures relating to existing conditions caused by past operations, and which do not contribute to future revenues, are expensed. Liabilities are recorded when remedial efforts are probable and the costs can be reasonably estimated. The liability may include costs such as site investigations, consultant fees, feasibility studies, outside contractor and monitoring expenses. Estimates are not discounted or reduced by potential claims for recovery. Claims for recovery are recognized when received. The estimates also include costs related to other potentially responsible parties to the extent that Alcoa has reason to believe such parties will not fully pay their proportionate share. The liability is periodically reviewed and adjusted to reflect current remediation progress, prospective estimates of required activity and other factors that may be relevant, including changes in technology or regulations. See Note U for additional information.

**FINANCIAL INSTRUMENTS AND COMMODITY CONTRACTS.** Alcoa enters into long-term contracts to supply fabricated products to a number of its customers. To hedge the market risk of changing prices for purchases or sales of metal, Alcoa uses commodity futures and options contracts.

Gains and losses related to transactions that qualify for hedge accounting, including closed futures contracts, are deferred and reflected in cost of goods sold when the underlying physical transaction takes place. The deferred gains or losses are reflected on the balance sheet in other current and noncurrent liabilities or assets. If future purchased metal needs are revised lower than initially anticipated, the futures contracts associated with the reduction no longer qualify for deferral and are marked-to-market. Mark-to-market gains and losses are recorded in other income in the current period.

The effectiveness of the hedge is measured by a historical and probable future high correlation of changes in the fair value of the hedging instruments with changes in value of the hedged item. If correlation ceases to exist, hedge accounting will be terminated and gains or losses recorded in other income. To date, high correlation has always been achieved.

Alcoa also enters into futures and options contracts that cover long-term, fixed-price commitments to supply customers with metal from internal sources. These contracts are marked-to-market, and the gains and losses from changes in market value of the contracts are recorded in other income in the current period. This resulted in after-tax losses of \$44.5 in 1998, \$12.7 in 1997 and \$57.1 in 1996.

Alcoa also attempts to maintain a reasonable balance between fixed- and floating-rate debt, using interest rate swaps and caps, to keep financing costs as low as possible. If the requirements for hedge accounting are met, amounts paid or received under these agreements are recognized over the life of the agreements as adjustments to interest expense. Otherwise, the instruments are marked-to-market, and the gains and losses from changes in the market value of the contracts are recorded in other income in the current period.

Upon early termination of an interest rate swap or cap, gains or losses are deferred and amortized as adjustments to interest expense of the related debt over the remaining period covered by the terminated swap or cap.

Alcoa is subject to exposure from fluctuations in foreign currencies. To manage this exposure, Alcoa uses foreign exchange contracts. Gains and losses on contracts that meet the requirements for hedge accounting are deferred and included in the basis of the underlying transactions. Contracts that do not meet these requirements are marked-to-market in other income each period.

Cash flows from financial instruments are recognized in the statement of cash flows in a manner consistent with the underlying transactions. See Note T for additional detail.

PROPERTIES, PLANTS AND EQUIPMENT. Properties, plants and equipment are recorded at cost. Depreciation is recorded principally on the straight-line method at rates based on the estimated useful lives of the assets, averaging 33 years for structures and between five and 25 years for machinery and equipment. Profits or losses from the sale of assets are included in other income. Repairs and maintenance are charged to expense as incurred. Interest related to the construction of qualifying assets is capitalized as part of the construction costs.

Depletion is taken over the periods during which the estimated mineral reserves are extracted. See Notes F and S for additional detail.

REVENUE RECOGNITION. Alcoa recognizes revenue when title passes to the customer.

STOCK-BASED COMPENSATION. Alcoa accounts for stock-based compensation in accordance with the provisions of APB Opinion No. 25, "Accounting for Stock Issued to Employees," and related interpretations. Accordingly, compensation cost is not required to be recognized on options granted. Disclosures required with respect to alternative fair value measurement and recognition methods prescribed by Statement of Financial Accounting Standard (SFAS) No. 123, "Accounting for Stock-Based Compensation," are presented in Note N.

FOREIGN CURRENCY. The local currency is the functional currency for Alcoa's significant operations outside the U.S., except in Brazil and Canada, where the U.S. dollar is used as the functional currency. The determination of the functional currency for Alcoa's Brazilian and Canadian operations is made based on the appropriate economic and management indicators.

RECENTLY ADOPTED ACCOUNTING STANDARDS. Alcoa has adopted SFAS No. 131, "Disclosures about Segments of an Enterprise and Related Information," which was issued in June 1997. SFAS No. 131 establishes standards for disclosures about products and geographic areas. In addition, it requires the disclosure of segment information on the same basis that is used internally for evaluating performance and allocating resources. Accordingly, Alcoa reports four segments, consisting of Alumina and chemicals, Primary metals, Flat-rolled products and Engineered products. Segment information for 1996 and 1997 has been restated to meet the requirements of SFAS No. 131. See Note O to these financial statements for the required disclosures.

In February 1998, SFAS No. 132, "Employers Disclosures about Pensions and Other Postretirement Benefits," was issued. The implementation of SFAS No. 132 revised certain footnote disclosure requirements related to pension and other retiree benefits. See Note Q to these financial statements for the revised disclosures.

RECENTLY ISSUED ACCOUNTING STANDARDS. In June 1998, the Financial Accounting Standards Board issued SFAS No. 133, "Accounting for Derivative Instruments and Hedging Activities." The standard requires that entities value all derivative instruments at fair value and record the instruments on the balance sheet. The standard also significantly changes the requirements for hedge accounting. The standard is required to be adopted by Alcoa for the first quarter of 2000. The company believes that the adoption of the standard will have a material impact on its financial statements. Upon adoption, Alcoa's aluminum, foreign exchange and interest rate derivative contracts as well as certain underlying exposures will be recorded on the balance sheet at fair value. Management is currently assessing the details of the standard and is preparing a plan of implementation.

A new Statement of Position (SOP) was issued by the American Institute of CPAs in April 1998. The SOP, "Reporting on the Costs of Start-up Activities," requires that costs incurred to open a new facility, introduce a new product, commence a new operation or other similar activities be expensed as incurred. Management does not believe that this SOP, which will be adopted for 1999, will have a material impact on Alcoa's financial statements.

RECLASSIFICATION. Certain amounts in previously issued financial statements were reclassified to conform to 1998 presentations.

#### B. COMMON STOCK SPLIT

On January 8, 1999, the board of directors declared a two-for-one common stock split, distributed on February 25, 1999 to shareholders of record at the close of business on February 8, 1999. In this report, all per-share amounts

and number of shares have been restated to reflect the stock split. In addition, an amount equal to the one dollar par value of the shares issued at December 31, 1998 has been transferred from additional capital to common stock.

#### C. ACQUISITIONS

In July 1998, Alcoa acquired Alumax Inc. (Alumax) for approximately \$3,800, consisting of cash of approximately \$1,500, stock of approximately \$1,300 and assumed debt of approximately \$1,000. Alumax operates over 70 plants and other manufacturing facilities in 22 states, Canada, Western Europe and Mexico.

The following unaudited pro forma information for the years ended December 31, 1998 and 1997 assumes that the acquisition of Alumax had occurred at the beginning of each respective year. Adjustments that have been made to arrive at the pro forma totals include those related to acquisition financing, the amortization of goodwill, the elimination of transactions between Alcoa and Alumax and additional depreciation related to the increase in basis that resulted from the transaction. Tax effects from the pro forma adjustments noted above have been included at the 35% U.S. statutory rate.

December 31 (unaudited)	1998	1997
-----		
Net sales	\$ 16,766.3	\$ 16,160.2
Net income	875.5	770.2
-----		
Earnings per share:		
Basic	2.36	2.02
Diluted	2.35	2.00
-----		

The pro forma results are not necessarily indicative of what actually would have occurred if the transaction had been in effect for the periods presented, are not intended to be a projection of future results and do not reflect any cost savings that might be achieved from the combined operations.

In February 1998, Alcoa completed its acquisition of Inespal, S.A. of Madrid, Spain. Alcoa paid approximately \$150 in cash and assumed \$260 of debt and liabilities in exchange for substantially all of Inespal's businesses. The acquisition included an alumina refinery, three aluminum smelters, three aluminum rolling facilities, two extrusion plants and an administrative center.

In 1996, Alcoa made various acquisitions totaling \$302. They include the purchase of Alumix, Italy's state-owned integrated aluminum producer, and Alcan's extrusion operations in Brazil.

Alcoa's acquisitions have been accounted for using the purchase method. The purchase price has been allocated to the assets acquired and liabilities assumed based on their estimated fair market values. Any excess purchase price over the fair market value of the net assets acquired has been recorded as goodwill. In the case of the Alumax acquisition, the allocation of the purchase price resulted in goodwill of approximately \$945, which will be amortized over a forty-year period. Operating results have been included in the statement of consolidated income since the dates of the acquisitions. Had the Inespal acquisition, and those made in 1996, occurred at the beginning of each respective year, net income for the year would not have been materially different.

#### D. SPECIAL ITEMS

Special items in 1997 resulted in a gain of \$95.5 (\$43.9, or 13 cents per basic share, after tax and minority interests). The fourth quarter sales of a majority interest in Alcoa's Brazilian cable business and land in Japan generated gains of \$85.8. In addition, the sale of equity securities resulted in a gain of \$38.0, while the divestiture of noncore businesses provided \$25.0. These gains were partially offset by charges of \$53.3, related primarily to environmental and impairment matters.

Special items in 1996 consisted of a charge totaling \$198.9 (\$122.3, or 35 cents per share, after tax and minority interests). A net severance charge of \$95.5, which includes pension and OPEB curtailment credits of \$75.0, relates to incentive costs for employees who voluntarily left the company and for permanent layoff costs. The shutdown of Alcoa Electronic Packaging resulted in an additional charge of \$65.4, related primarily to asset writedowns. Impairments at various manufacturing locations added another charge of \$38.0.

#### E. INVENTORIES



December 31	1998	1997
-----		
Finished goods	\$ 418.2	\$ 314.9
Work in process	591.7	433.0
Bauxite and alumina	346.5	263.9
Purchased raw materials	361.1	197.3
Operating supplies	163.0	103.5
-----		
	\$ 1,880.5	\$ 1,312.6
-----		

Approximately 55% of total inventories at December 31, 1998 were valued on a LIFO basis. If valued on an average-cost basis, total inventories would have been \$702.8 and \$769.8 higher at the end of 1998 and 1997, respectively.

#### F. PROPERTIES, PLANTS AND EQUIPMENT, AT COST

December 31	1998	1997
-----		
Land and land rights, including mines	\$ 283.7	\$ 221.2
Structures	4,560.5	3,898.1
Machinery and equipment	12,649.3	10,482.8
-----		
	17,493.5	14,602.1
Less: accumulated depreciation and depletion	9,091.0	8,587.5
-----		
	8,402.5	6,014.6
Construction work in progress	731.0	651.9
-----		
	\$ 9,133.5	\$ 6,666.5
-----		

#### G. LONG-TERM DEBT

December 31	1998	1997
-----		
Commercial paper, variable rate, (5.4% average rate)	\$ 745.2	--
5.75% Notes payable, due 2001	244.1	\$ 248.8
6.125% Bonds, due 2005	200.0	--
6.50% Bonds, due 2018	250.0	--
6.75% Bonds, due 2028	300.0	--
Bank loans, 7.5 billion yen, due 1999, (4.4% fixed rate)	78.0	78.0
Tax-exempt revenue bonds ranging from 3.4% to 6.6%, due 2000-2012	152.5	130.5
Alcoa Fujikura Ltd. Variable-rate term loan, due 1999-2002 (5.5% and 6.1% average rate)	230.0	250.0
Alcoa Aluminio 7.5% Notes, due 2008	387.7	395.2
Variable-rate notes, due 1999- 2001 (6.6% and 6.9% average rates)	40.5	97.3
Alcoa of Australia Euro-commercial paper, variable rate, (5.4% and 5.7% average rates)	250.0	225.3
Other subsidiaries	180.1	179.3
-----		
	3,058.1	1,604.4
Less: amount due within one year	181.1	147.2
-----		
	\$ 2,877.0	\$ 1,457.2
-----		

The amount of long-term debt maturing in each of the next five years is \$181.1 in 1999, \$72.0 in 2000, \$368.2 in 2001, \$229.8 in 2002 and \$1,029.6 in 2003.

In 1998, Alcoa issued \$300 of thirty-year bonds due in 2028, \$250 of term debt due in 2018 and \$200 of term debt due in 2005. Alcoa also issued \$1,100 of commercial paper, a portion of which has since been repaid. The proceeds from these borrowings were used to fund acquisitions and for general corporate purposes.

In 1998, Alcoa entered into a new \$2.0 billion revolving-credit facility, which expires in equal amounts in August

1999 and August 2003. Under this agreement, certain levels of consolidated net worth must be maintained while commercial paper balances are outstanding.

In 1997, Alcoa Fujikura issued a \$250 term loan and entered into a five-year, \$250 revolving-credit agreement. The proceeds of the term loan were used to repay existing debt. These agreements require Alcoa Fujikura to maintain certain financial ratios.

In 1996, Alcoa Aluminio (Aluminio) issued \$400 of export notes. The agreement requires Aluminio to maintain certain financial ratios.

A portion of the commercial paper issued by Alcoa and the Euro-commercial paper issued by Alcoa of Australia (AofA) is classified as long-term debt because it is backed by the revolving-credit facility noted above.

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#### H. OTHER ASSETS

December 31	1998	1997
-----		
Investments, principally equity investments	\$ 586.2	\$ 464.7
Intangibles, net of accumulated amortization of \$139.0 in 1998 and \$104.0 in 1997	127.3	119.8
Noncurrent receivables	66.8	83.9
Deferred income taxes	504.8	387.9
Deferred charges and other	604.7	443.3
-----		
	\$ 1,889.8	\$ 1,499.6
-----		

#### I. OTHER NONCURRENT LIABILITIES AND DEFERRED CREDITS

December 31	1998	1997
-----		
Deferred hedging gains	\$ 55.2	\$ 101.6
Deferred alumina sales revenue	228.0	235.9
Environmental remediation	124.1	170.3
Deferred credits	335.5	161.3
Other noncurrent liabilities	844.3	602.1
-----		
	\$ 1,587.1	\$ 1,271.2
-----		

The deferred hedging gains are associated with metal contracts and will be reflected in future earnings concurrent with the hedged revenues or costs.

#### J. MINORITY INTERESTS

The following table summarizes the minority shareholders' interests in the equity of consolidated subsidiaries.

December 31	1998	1997
-----		
Alcoa of Australia	\$ 376.3	\$ 390.7
Alcoa Aluminio	366.0	387.7
Alcoa Alumina and Chemicals	290.2	320.9
Alcoa Fujikura	232.6	182.7
Other majority-owned companies	210.9	157.7
-----		
	\$ 1,476.0	\$ 1,439.7
-----		

#### K. CASH FLOW INFORMATION

Cash payments for interest and income taxes follow.

	1998	1997	1996
-----			
Interest	\$ 198.8	\$ 145.9	\$ 136.4
Income taxes	371.0	342.5	265.8
-----			

The details of cash payments related to acquisitions follow.

	1998	1997	1996
Fair value of assets	\$ 5,511.0	--	\$ 365.2
Liabilities	(2,554.7)	--	(62.4)
Stock issued	(1,320.8)	--	--
Cash paid	1,635.5	--	302.8
Less: cash acquired	172.6	--	.5
Net cash paid for acquisitions	\$ 1,462.9	--	\$ 302.3

#### L. CONTINGENT LIABILITIES

Various lawsuits, claims and proceedings have been or may be instituted or asserted against Alcoa, including those pertaining to environmental, product liability and safety and health matters. While the amounts claimed may be substantial, the ultimate liability cannot now be determined because of the considerable uncertainties that exist. Therefore, it is possible that results of operations or liquidity in a particular period could be materially affected by certain contingencies. However, based on facts currently available, management believes that the disposition of matters that are pending or asserted will not have a materially adverse effect on the financial position of the company.

Aluminio is currently party to a hydroelectric construction project in Brazil. Total estimated construction costs are \$600, of which the company's share is 24%. In the event that other participants in this project fail to fulfill their financial responsibilities, Aluminio may be liable for its pro rata share of the deficiency.

AofA is party to a number of natural gas and electricity contracts that expire between 2001 and 2022. Under these take-or-pay contracts, AofA is obligated to pay for a minimum amount of natural gas or electricity even if these commodities are not required for operations. Commitments related to these contracts total \$163 in 1999, \$166 in 2000, \$162 in 2001, \$158 in 2002, \$156 in 2003 and \$2,125 thereafter. Expenditures under these contracts totaled \$171 in 1998, \$219 in 1997 and \$229 in 1996.

#### M. EARNINGS PER SHARE

Basic earnings per common share (EPS) amounts are computed by dividing earnings after the deduction of preferred stock dividends by the average number of common shares outstanding. Diluted EPS amounts assume the issuance of common stock for all potentially dilutive equivalents outstanding. See Note N for additional information.

The details of basic and diluted earnings per common share follow.

	1998	1997	1996
Net income	\$ 853.0	\$ 805.1	\$ 514.9
Less: preferred stock dividends	2.1	2.1	2.1
Income available to common stockholders	\$ 850.9	\$ 803.0	\$ 512.8
Weighted average shares outstanding	349,113,644	344,451,592	348,667,048
Basic EPS	\$ 2.44	\$ 2.33	\$ 1.47
Effect of dilutive securities:			
Shares issuable upon exercise of dilutive outstanding stock options	2,502,992	3,267,850	3,692,430
Fully diluted shares outstanding	351,616,636	347,719,442	352,359,478
Diluted EPS	\$ 2.42	\$ 2.31	\$ 1.46

#### N. PREFERRED AND COMMON STOCK

**PREFERRED STOCK.** Alcoa has two classes of preferred stock. Serial preferred stock has 557,740 shares authorized, with a par value of \$100 per share and an annual \$3.75 cumulative dividend preference per share. Class B serial preferred stock has 10 million shares authorized (none issued) and a par value of \$1 per share.

**COMMON STOCK.** There are 600 million shares authorized at a par value of \$1 per share. As of December 31, 1998, 38,670,464 shares of common stock were reserved for issuance under the long-term stock incentive plan.

Stock options under the long-term stock incentive plan have been and may be granted, generally at not less than market prices on the dates of grant, except for the 25 cents per-share options issued as a payout of earned performance share awards. The stock option program includes a reload or stock continuation ownership feature. Stock options granted have a maximum term of 10 years. Vesting occurs one year from the date of grant and six months for options granted under the reload feature.

Alcoa's net income and earnings per share would have been reduced to the pro forma amounts shown below if compensation cost had been determined based on the fair value at the grant dates.

	1998	1997	1996
Net income:			
As reported	\$ 853.0	\$ 805.1	\$ 514.9
Pro forma	815.0	755.5	472.2
Basic earnings per share:			
As reported	2.44	2.33	1.47
Pro forma	2.33	2.19	1.35
Diluted earnings per share:			
As reported	2.42	2.31	1.46
Pro forma	2.31	2.17	1.34

The weighted average fair value of options granted was \$5.73 per share in 1998, \$5.90 per share in 1997 and \$4.02 per share in 1996.

The fair value of each option is estimated on the date of grant or subsequent reload using the Black-Scholes pricing model with the following assumptions:

	1998	1997	1996
Average risk-free interest rate	5.2%	6.1%	5.7%
Expected dividend yield	2.1	1.3	2.2
Expected volatility	25.0	25.0	25.0
Expected life (years):			
Stock options that are not reloaded	2.5	2.5	3.0
Stock options that are reloaded	1.5	1.0	1.0

The transactions for shares under options were:

	1998	1997	1996
Outstanding, beginning of year:			
Number	21,097,450	20,067,884	17,099,286
Weighted average exercise price	\$31.67	\$25.87	\$21.92
Granted:			
Number	11,799,080	12,775,614	17,401,354
Weighted average exercise price	\$34.37	\$36.07	\$28.15
Exercised:			
Number	(5,986,190)	(11,424,352)	(14,322,006)
Weighted average exercise price	\$30.13	\$26.40	\$23.95
Expired or forfeited:			
Number	(281,346)	(321,696)	(110,750)
Weighted average exercise price	\$36.49	\$31.70	\$25.71
Outstanding, end of year:			
Number	26,628,994	21,097,450	20,067,884
Weighted average exercise price	\$33.00	\$31.67	\$25.87
Exercisable, end of year:			
Number	13,755,508	10,411,112	8,693,586
Weighted average exercise price	\$30.47	\$26.73	\$23.30
Shares reserved for future options	11,393,256	17,797,060	9,311,870

The following tables summarize certain stock option information at December 31, 1998:

Options outstanding:

Range of exercise price	Number	Weighted average remaining life	Weighted average exercise price
\$ 0.25	322,036	employment career	\$ 0.25
13.14-19.70	1,007,162	1.7	17.42
19.71-29.56	2,957,476	6.0	24.71
29.57-44.47	22,342,320	7.0	35.27
	26,628,994	6.6	33.00

Options exercisable:

Range of exercise price	Number	Weighted average exercisable price
\$ 0.25	322,036	\$ 0.25
13.14-19.70	1,007,162	17.42
19.71-29.56	2,957,476	24.71
29.57-37.28	9,468,834	34.68
	13,755,508	30.47

0. SEGMENT AND GEOGRAPHIC AREA INFORMATION

Alcoa is primarily a producer of aluminum products. Its segments are organized by product on a worldwide basis. Alcoa's management reporting system evaluates performance based on a number of factors; however, the primary measure of performance is the after-tax operating profit of each segment. Nonoperating items such as interest income, interest expense, foreign exchange gains/losses and minority interest are excluded from segment profit. In addition, certain expenses such as corporate general administrative expenses, depreciation and amortization on corporate assets and certain special items are not included in segment results. Segment assets exclude cash, cash equivalents, short-term investments and all deferred taxes. Segment assets also exclude corporate items such as fixed assets, LIFO reserves, goodwill allocated to corporate and other amounts.

The accounting policies of the segments are the same as those described in the Summary of Significant Accounting Policies (Note A). Transactions between segments are established based on negotiation between the parties. Differences between segment totals and Alcoa's consolidated totals for line items not reconciled are primarily due to allocations to corporate.

Alcoa's products are used primarily by packaging, transportation (including aerospace, automotive, rail and shipping), building and construction, and industrial customers worldwide. Total exports from the U.S. were \$1,283.1 in 1998, compared with \$1,207 in 1997 and \$1,015 in 1996. Alcoa's reportable segments follow.

**ALUMINA AND CHEMICALS.** This segment's activities include the mining of bauxite, which is then refined into alumina. The alumina is then sold to internal and external customers worldwide, or processed into industrial chemical products. The alumina operations of Alcoa World Alumina and Chemicals (AWAC) comprise the majority of this segment.

**PRIMARY METALS.** This group's focus is Alcoa's worldwide smelter system. Primary metals receives alumina from the alumina and chemicals segment and produces aluminum ingot to be used by other Alcoa segments, as well as sold to outside customers.

**FLAT-ROLLED PRODUCTS.** This segment's primary business is the production and sale of aluminum sheet, plate and foil. This segment includes the aggregation of rigid container sheet (RCS), which is used to produce aluminum beverage cans, and mill products used in the transportation and

distributor markets.

ENGINEERED PRODUCTS. This segment includes the aggregation of hard and soft alloy extrusions, aluminum forgings and wire, rod and bar. These products serve primarily the transportation, construction and distributor markets.

OTHER. This category includes Alcoa Fujikura Limited, which produces electrical components for the automotive industry along with telecommunication products. In addition, Alcoa's aluminum and plastic closure operations and Alcoa's residential building products operations are included in this group.

Segment information	Alumina and chemicals	Primary metals	Flat-rolled products	Engineered products	Other	Total
-----						
1998						
Sales:						
Third-party sales	\$ 1,847.2	\$ 2,104.8	\$ 4,900.2	\$ 3,110.0	\$ 3,361.8	\$ 15,324.0
Intersegment sales	832.1	2,282.6	58.6	10.9	--	3,184.2
-----						
Total sales	\$ 2,679.3	\$ 4,387.4	\$ 4,958.8	\$ 3,120.9	\$ 3,361.8	\$ 18,508.2
-----						
Profit and loss:						
Equity income (loss)	\$ .6	\$ 27.0	\$ 8.2	\$ (.4)	\$ 9.8	\$ 45.2
Depreciation, depletion and amortization	158.9	175.6	190.2	88.4	154.5	767.6
Special items	--	--	--	--	--	--
Income tax	173.8	174.3	126.0	84.5	106.8	665.4
After-tax operating income	317.7	331.0	305.5	183.5	165.1	1,302.8
-----						
Assets:						
Capital expenditures	\$ 275.1	\$ 164.3	\$ 152.0	\$ 105.0	\$ 143.2	\$ 839.6
Equity investment	50.3	149.9	69.2	--	146.0	415.4
Total assets	3,081.8	5,340.9	3,512.8	2,427.4	2,245.6	16,608.5
-----						
1997						
Sales:						
Third-party sales	\$ 1,977.7	\$ 1,600.0	\$ 4,187.5	\$ 2,077.5	\$ 3,457.9	\$ 13,300.6
Intersegment sales	634.0	1,965.8	52.7	9.2	--	2,661.7
-----						
Total sales	\$ 2,611.7	\$ 3,565.8	\$ 4,240.2	\$ 2,086.7	\$ 3,457.9	\$ 15,962.3
-----						
Profit and loss:						
Equity income (loss)	\$ .2	\$ 23.0	\$ 7.2	\$ (.4)	\$ 11.6	\$ 41.6
Depreciation, depletion and amortization	174.6	129.5	173.0	66.2	155.9	699.2
Special items loss (gain)	4.2	(2.9)	(1.5)	(2.3)	(70.6)	(73.1)
Income tax	167.8	224.4	123.1	47.7	103.8	666.8
After-tax operating income	301.8	417.4	268.4	99.9	177.3	1,264.8
-----						
Assets:						
Capital expenditures	\$ 201.0	\$ 137.3	\$ 158.9	\$ 148.6	\$ 128.3	\$ 774.1
Equity investment	51.4	140.2	61.0	1.2	123.6	377.4
Total assets	3,027.3	2,333.6	2,785.5	1,469.2	2,284.2	11,899.8
-----						
1996						
Sales:						
Third-party sales	\$ 1,962.8	\$ 1,579.8	\$ 4,082.1	\$ 1,868.6	\$ 3,567.0	\$ 13,060.3
Intersegment sales	617.1	1,899.6	21.2	14.9	--	2,552.8
-----						
Total sales	\$ 2,579.9	\$ 3,479.4	\$ 4,103.3	\$ 1,883.5	\$ 3,567.0	\$ 15,613.1
-----						
Profit and loss:						
Equity income	\$ .7	\$ 16.8	\$ .4	--	\$ 13.0	\$ 30.9
Depreciation, depletion and amortization	167.4	138.5	187.7	\$ 63.7	171.0	728.3
Special items	7.5	3.1	25.7	10.7	103.6	150.6
Income tax	167.2	161.8	87.2	28.8	25.3	470.3
After-tax operating income (loss)	339.7	313.2	160.0	46.2	(.9)	858.2
-----						
Assets:						
Capital expenditures	\$ 295.4	\$ 92.4	\$ 160.8	\$ 139.7	\$ 219.5	\$ 907.8
Equity investment	141.1	141.7	62.4	1.3	82.9	429.4
Total assets	3,399.4	2,565.1	2,796.3	1,300.3	2,564.3	12,625.4
-----						

The following reconciles segment information to consolidated totals.

	1998	1997	1996
-----			
Sales:			

Total sales	\$ 18,508.2	\$ 15,962.3	\$ 15,613.1
Elimination of intersegment sales	(3,184.2)	(2,661.7)	(2,552.8)
Other revenues	15.8	18.6	.7
Consolidated sales	\$ 15,339.8	\$ 13,319.2	\$ 13,061.0
Net income:			
Total after-tax operating income	\$ 1,302.8	\$ 1,264.8	\$ 858.2
Elimination of intersegment (profit) loss	(15.7)	11.6	(7.8)
Unallocated amounts (net of tax):			
Interest income	63.5	67.2	63.5
Interest expense	(128.6)	(91.7)	(86.5)
Minority interest	(238.3)	(267.9)	(206.1)
Mark-to-market losses	(44.5)	(12.7)	(57.1)
Corporate expense	(196.6)	(171.9)	(160.4)
Other	110.4	5.7	111.1
Consolidated net income	\$ 853.0	\$ 805.1	\$ 514.9
Assets:			
Total assets	\$ 16,608.5	\$ 11,899.8	\$ 12,625.4
Elimination of intersegment receivables	(377.7)	(286.5)	(274.9)
Unallocated amounts:			
Cash, cash equivalents and short-term investments	381.6	906.4	616.6
Deferred tax assets	702.8	560.2	638.3
Corporate goodwill	479.7	--	--
Corporate fixed assets	315.0	326.0	263.0
LIFO reserve	(702.8)	(769.8)	(753.7)
Other	55.4	434.5	335.2
Consolidated assets	\$ 17,462.5	\$ 13,070.6	\$ 13,449.9

Geographic information for revenues, based on country of origin, and long-lived assets follows:

	1998	1997	1996
Revenues:			
United States	\$ 8,728.4	\$ 7,189.4	\$ 7,245.9
Australia	1,469.7	1,874.5	1,918.9
Spain	965.0	44.4	43.9
Brazil	934.4	1,160.6	1,135.5
Canada	573.6	404.1	350.7
Germany	553.5	580.0	623.2
Other	2,115.2	2,066.2	1,742.9
	\$15,339.8	\$13,319.2	\$13,061.0
Long-lived assets:			
United States	\$ 6,725.6	\$ 4,132.8	\$ 4,173.2
Australia	1,441.3	1,453.3	1,781.0
Brazil	967.1	1,046.7	1,138.6
Canada	890.2	1.9	1.9
Germany	212.6	201.2	232.6
Other	1,023.6	852.8	766.4
	\$11,260.4	\$ 7,688.7	\$ 8,093.7

P. INCOME TAXES The components of income before taxes on income were:

	1998	1997	1996
U.S.	\$ 594.8	\$ 707.5	\$ 419.0
Foreign	1,010.0	894.2	662.7
	\$ 1,604.8	\$ 1,601.7	\$ 1,081.7

The provision for taxes on income consisted of:

	1998	1997	1996
Current:			

U.S. federal*	\$ 159.0	\$ 172.1	\$ 3.5
Foreign	218.9	273.8	217.0
State and local	26.1	(.4)	19.9
	404.0	445.5	240.4
Deferred:			
U.S. federal*	81.2	81.7	143.1
Foreign	24.5	(3.5)	(34.8)
State and local	3.8	5.0	12.0
	109.5	83.2	120.3
Total	\$ 513.5	\$ 528.7	\$ 360.7

\*Includes U.S. taxes related to foreign income

Reconciliation of the U.S. federal statutory rate to Alcoa's effective tax rate follows.

	1998	1997	1996
U.S. federal statutory rate	35.0%	35.0%	35.0%
Taxes on foreign income	(4.1)	(.2)	(3.0)
State taxes net of federal benefit	.7	(.2)	1.7
Other	.4	(1.6)	(.4)
Effective tax rate	32.0%	33.0%	33.3%

The components of net deferred tax assets and liabilities follow.

	1998		1997	
December 31	Deferred tax assets	Deferred tax liabilities	Deferred tax assets	Deferred tax liabilities
Depreciation	--	\$ 880.5	--	\$ 840.4
Employee benefits	\$ 868.6	--	\$ 789.5	--
Loss provisions	207.7	--	186.3	--
Deferred income/expense	124.4	103.3	128.9	113.0
Tax loss carryforwards	192.5	--	156.0	--
Tax credit carryforwards	4.9	--	--	--
Other	67.9	46.3	72.6	51.1
Valuation allowance	1,466.0 (134.7)	1,030.1 --	1,333.3 (103.5)	1,004.5 --
	\$1,331.3	\$1,030.1	\$1,229.8	\$1,004.5

Of the total deferred tax assets associated with the tax loss carryforwards, \$66.2 expires over the next 10 years and \$126.3 is unlimited. A substantial portion of the valuation allowance relates to these carryforwards because the ability to generate sufficient foreign taxable income in future years is uncertain.

The cumulative amount of Alcoa's share of undistributed earnings for which no deferred taxes have been provided was \$1,528.0 at December 31, 1998. Management has no plans to distribute such earnings in the foreseeable future. It is not practical to determine the deferred tax liability on these earnings.

#### Q. PENSION PLANS AND OTHER POSTRETIREMENT BENEFITS

Alcoa maintains pension plans covering most U.S. employees and certain other employees. Pension benefits generally depend on length of service, job grade and remuneration. Substantially all benefits are paid through pension trusts that are sufficiently funded to ensure that all plans can pay benefits to retirees as they become due.

Alcoa maintains health care and life insurance benefit plans covering most eligible U.S. retired employees and certain other retirees. Generally, the medical plans pay a stated percentage of medical expenses, reduced by deductibles and other coverages. These plans are generally unfunded, except for certain benefits funded through a trust. Life benefits are generally provided by insurance contracts. Alcoa retains the right, subject to existing agreements,



to change or eliminate these benefits.  
The table below reflects the status of Alcoa's pension  
and postretirement benefit plans.

	Pension benefits		Postretirement benefits	
December 31	1998	1997	1998	1997
CHANGE IN BENEFIT OBLIGATION				
Benefit obligation at beginning of year	\$ 4,700.3	\$ 4,534.9	\$ 1,675.1	\$ 1,559.8
Service cost	118.8	95.4	17.8	17.8
Interest cost	317.8	304.6	111.9	104.7
Amendments	8.1	.8	.8	2.0
Actuarial losses	164.8	167.2	30.5	96.1
Alumax acquisition	473.3	--	148.2	--
Divestitures	(46.6)	(7.9)	(4.8)	(3.5)
Benefits paid	(332.6)	(337.0)	(117.0)	(101.2)
Exchange rate	(10.1)	(57.7)	(.3)	(.6)
Benefit obligation at end of year	\$ 5,393.8	\$ 4,700.3	\$ 1,862.2	\$ 1,675.1
CHANGE IN PLAN ASSETS				
Fair value of plan assets at beginning of year	\$ 5,100.8	\$ 4,335.2	\$ 88.3	\$ 75.1
Actual return on plan assets	600.5	1,042.0	11.6	13.2
Alumax acquisition	428.4	--	--	--
Divestiture	(50.1)	(10.3)	--	--
Employer contributions	47.2	113.7	--	--
Participants contributions	11.3	12.3	--	--
Benefits paid	(350.6)	(316.4)	--	--
Administrative expenses	(16.6)	(15.8)	--	--
Exchange rate	(12.8)	(59.9)	--	--
Fair value of plan assets at end of year	\$ 5,758.1	\$ 5,100.8	\$ 99.9	\$ 88.3
FUNDED STATUS	364.3	400.5	(1,762.3)	(1,586.8)
Unrecognized net actuarial loss	(789.2)	(785.9)	(47.6)	(82.3)
Unrecognized net prior service cost (credit)	90.4	126.3	(150.8)	(185.5)
Unrecognized transition obligation	1.9	4.5	--	--
Net amount recognized	\$ (332.6)	\$ (254.6)	\$(1,960.7)	\$(1,854.6)
AMOUNT RECOGNIZED IN THE BALANCE SHEET CONSISTS OF:				
Prepaid benefit	58.5	26.4	--	--
Accrued benefit liability	(424.7)	(310.6)	(1,960.7)	(1,854.6)
Intangible asset	9.3	14.0	--	--
Accumulated other comprehensive income	24.3	15.6	--	--
Net amount recognized	\$ (332.6)	\$ (254.6)	\$(1,960.7)	\$(1,854.6)

The components of net periodic benefit costs are reflected below.

	Pension benefits			Postretirement benefits		
December 31	1998	1997	1996	1998	1997	1996
COMPONENTS OF NET PERIODIC BENEFIT COSTS						
Service cost	\$ 118.8	\$ 95.4	\$ 101.7	\$ 17.8	\$ 17.8	\$ 19.3
Interest cost	317.8	304.6	291.0	111.9	104.7	104.4
Expected return on plan assets	(390.6)	(346.2)	(324.1)	(8.0)	(6.8)	(5.8)
Amortization of prior service cost (benefit)	48.3	36.7	34.5	(34.0)	(34.2)	(40.9)
Recognized actuarial (gain) loss	(7.2)	.7	1.0	(5.2)	(3.4)	(3.2)
Amortization of transition obligation	1.6	1.4	2.3	--	--	--
Net periodic benefit costs	\$ 88.7	\$ 92.6	\$ 106.4	\$ 82.5	\$ 78.1	\$ 73.8

The aggregate benefit obligation and fair value of plan assets for the pension plans with benefit obligations in excess of plan assets were \$754.3 and \$445.0, respectively, as of December 31, 1998, and \$383.3 and \$179.3, respectively, as of December 31, 1997. The aggregate pension accumulated benefit obligation and fair value of plan assets with accumulated benefit obligations in excess of plan assets were \$500.8 and \$287.1, respectively, as of December 31, 1998, and \$179.0 and \$26.3, respectively, at December 31, 1997.

Weighted average assumptions used to determine plan liabilities and expense follow.

December 31	1998	1997	1996
Discount rate	6.50%	6.75%	7.00%
Expected long-term return on plan assets	9.00	9.00	9.00
Rate of compensation increase	5.00	5.00	5.00

For measurement purposes, a 6.75% annual rate of increase in the per capita cost of covered health care benefits was assumed for 1999. The rate was assumed to decrease gradually to 5.0% in 2004 and remain at that level thereafter.

Assumed health care cost trend rates have a significant effect on the amounts reported for the health care plan. A one percentage point change in assumed health care cost trend rates would have the following effects:

	1% increase	1% decrease
Effect on total of service and interest cost components	\$ 10.7	\$ (9.1)
Effect on postretirement benefit obligations	139.8	(120.8)

Alcoa also sponsors a number of defined contribution pension plans. Expenses were \$57.3 in 1998, \$47.2 in 1997 and \$44.4 in 1996.

R. LEASE EXPENSE Certain equipment, warehousing and office space and oceangoing vessels are under operating lease agreements. Total expense for all leases was \$129.6 in 1998, \$110.9 in 1997 and \$95.4 in 1996. Under long-term operating leases, minimum annual rentals are \$81.5 in 1999, \$60.3 in 2000, \$47.7 in 2001, \$30.1 in 2002, \$16.5 in 2003 and a total of \$40.4 for 2004 and thereafter.

#### S. INTEREST COST COMPONENTS

	1998	1997	1996
Amount charged to expense	\$ 197.9	\$ 140.9	\$ 133.7
Amount capitalized	13.2	9.0	5.3
	\$ 211.1	\$ 149.9	\$ 139.0

T. FINANCIAL INSTRUMENTS The carrying values and fair values of Alcoa's financial instruments at December 31 follow.

	1998		1997	
	Carrying value	Fair value	Carrying value	Fair value
Cash and cash equivalents	\$ 342.2	\$ 342.2	\$ 800.8	\$ 800.8
Short-term investments	39.4	39.4	105.6	105.6
Noncurrent receivables	66.8	66.8	83.9	83.9
Short-term debt	612.1	612.1	494.9	494.9
Long-term debt	2,877.0	2,902.1	1,457.2	1,456.3

The methods used to estimate the fair values of certain financial instruments follow.

CASH AND CASH EQUIVALENTS, SHORT-TERM INVESTMENTS AND SHORT-TERM DEBT. The carrying amounts approximate fair value because of the short maturity of the instruments. All investments purchased with a maturity of three months or less are considered cash equivalents.

NONCURRENT RECEIVABLES. The fair value of noncurrent receivables is based on anticipated cash flows and approximates carrying value.

LONG-TERM DEBT. The fair value is based on interest rates that are currently available to Alcoa for issuance of debt with similar terms and remaining maturities.

Alcoa holds or purchases derivative financial instruments for purposes other than trading. Details of the significant instruments follow.

FOREIGN EXCHANGE CONTRACTS. The company enters into foreign exchange contracts to hedge its significant firm and anticipated purchase and sale commitments denominated in foreign currencies. These contracts cover periods commensurate with known or expected exposures, generally within 24 months, and are principally unsecured foreign exchange contracts with carefully selected banks. The market risk exposure is essentially limited to risk related to currency rate movements. Unrealized losses on these contracts at December 31, 1998 and 1997 were \$36.0 and \$84.9, respectively.

The table below reflects the various types of foreign exchange contracts Alcoa uses to manage its foreign exchange risk.

	1998		1997	
	Notional amount	Market value	Notional amount	Market value
Forwards	\$ 2,845.3	\$ (57.8)	\$ 2,235.8	\$ (102.7)
Purchased options	51.8	1.2	232.5	(42.1)
Written options	27.1	(.1)	202.1	40.3

The notional values summarized above provide an indication of the extent of the company's involvement in such instruments but do not represent its exposure to market risk. Alcoa utilizes written options mainly to offset or close out purchased options.

The following table summarizes by major currency the contractual amounts of Alcoa's forward exchange and option contracts translated to U.S. dollars at December 31 rates. The "buy" amounts represent

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the U.S. dollar equivalent of commitments to purchase foreign currencies, and the "sell" amounts represent the U.S. dollar equivalent of commitments to sell foreign currencies.

	1998		1997	
	Buy	Sell	Buy	Sell
Australian dollar	\$1,750.7	\$210.6	\$1,492.0	\$291.3
Canadian dollar	230.3	129.3	7.1	1.1
Dutch guilder	134.9	22.5	111.9	18.1
Japanese yen	109.3	14.0	68.2	12.1
Deutsche mark	21.9	69.0	36.5	151.2
Pound sterling	29.8	69.7	62.3	115.3
Other	35.0	35.7	38.1	63.5
	\$2,311.9	\$550.8	\$1,816.1	\$652.6

INTEREST RATE SWAPS. Alcoa manages its debt portfolio by using interest rate swaps and options to achieve an overall desired position of fixed and floating rates. As of December 31, 1998, the company had the following interest rate swap contracts outstanding:  
 > Four interest rate swap contracts relating to Alcoa's 5.75% notes that mature in 2001. The swaps convert \$175

notional amount from fixed rates to floating rates and mature in 2001.

> Four basis swap contracts on \$175 notional amount relating to Alcoa's outstanding commercial paper. These swaps mature in 1999.

> Five interest rate swap contracts relating to Alcoa Fujikura's variable rate loan. These agreements convert the variable rate to a fixed rate on a notional amount of \$218 and mature in 2002.

In addition to the above, Aluminio has a number of interest rate swap contracts, relating to deposit accounts, that primarily convert local currency floating rates to dollar fixed rates, on a notional amount of \$276.

Alcoa utilizes cross-currency interest rate swaps to take advantage of international debt markets while limiting foreign exchange risk. At year-end 1998, Alcoa had in place foreign currency forward contracts to effectively convert the principal payment due in 1999 on its Yen7.5 billion loan to a U.S. dollar obligation on a notional amount of \$78. Alcoa also had in place Yen2.5 billion of cross-currency interest rate swaps that effectively convert U.S. dollar-denominated debt into liabilities in yen based on Japanese interest rates.

Based on current interest rates for similar transactions, the fair value of all interest rate swap agreements is not material.

Credit and market risk exposures are limited to the net interest differentials. The net payments or receipts from interest rate swaps are recorded as part of interest expense and are not material. The effect of interest rate swaps on Alcoa's composite interest rate on long-term debt was not material at the end of 1998 or 1997.

Alcoa is exposed to credit loss in the event of nonperformance by counterparties on the above instruments, but does not anticipate nonperformance by any of the counterparties.

For further information on Alcoa's hedging and derivatives activities, see Note A.

#### U. ENVIRONMENTAL MATTERS

Alcoa continues to participate in environmental assessments and cleanups at a number of locations, including at operating facilities and adjoining properties, at previously owned or operated facilities and at Superfund and other waste sites. A liability is recorded for environmental remediation costs or damages when a cleanup program becomes probable and the costs or damages can be reasonably estimated. See Note A for additional information.

As assessments and cleanups proceed, the liability is adjusted based on progress in determining the extent of remedial actions and related costs and damages. The liability can change substantially due to factors such as the nature and extent of contamination, changes in remedial requirements and technological changes. Therefore, it is not possible to determine the outcomes or to estimate with any degree of accuracy the ranges of potential costs for certain matters. For example, there are issues related to the Massena, New York, and Pt. Comfort, Texas sites that allege natural resource damage or off-site contaminated sediments, where investigations are ongoing. The following discussion provides additional details regarding the current status of these two sites.

MASSENA/GRASSE RIVER. Sediments and fish in the Grasse River adjacent to Alcoa's Massena, New York plant site contain varying levels of polychlorinated biphenyl (PCB). Alcoa has been identified by the U.S. Environmental Protection Agency (EPA) as potentially responsible for this contamination and, since 1989, has been conducting investigations and studies of the river under order from the EPA issued under the Comprehensive Environmental Response, Compensation and Liability Act.

During 1998, Alcoa continued to perform studies and investigations on the Grasse River. In addition, Alcoa proposed to submit the report of remedial alternatives to EPA in phases, as additional information is obtained from these ongoing studies and investigations. In October 1998, Alcoa submitted the first of these phased reports, consisting of a summary of results of certain river and sediment studies performed over the past several years. Based on these studies, Alcoa has proposed to EPA that pilot scale tests be performed to assess the feasibility of performing certain sediment covering techniques. The costs of these pilot scale tests have been fully reserved. The results of these tests and other related field pilot studies should permit the development of the remaining phases of the remedial alternative report. Alcoa is awaiting EPA approval for these pilot tests.

Based on the above, the costs to complete a remedy related to this site currently cannot be estimated since they will depend on the remedial method chosen. Alcoa is also aware of a natural resource damage claim that may be asserted by certain federal, state and tribal natural resource trustees at this location.

PT. COMFORT/LAVACA BAY. In 1990, Alcoa began discussions with certain state and federal natural resource trustees

concerning alleged releases of mercury from its Pt. Comfort, Texas facility into the adjacent Lavaca Bay. In March 1994, EPA listed the "Alcoa (Point Comfort)/Lavaca Bay Site" on the National Priorities List and, shortly thereafter, Alcoa and EPA entered into an administrative order on consent under which Alcoa is obligated to conduct certain remedial investigations and feasibility studies. In accordance with this order, Alcoa recently submitted a draft remedial investigation and a draft baseline risk assessment to EPA. Alcoa expects to submit a draft feasibility study during 1999. In addition, Alcoa recently commenced construction of the EPA-approved project to fortify an offshore dredge disposal island. The probable and estimable costs of these actions are fully reserved. Additional costs to complete a remedy currently cannot be estimated since they will depend on the extent of remediation required, if any, the remedial method chosen and the time frame to complete any remediation activity. Since the order with EPA, Alcoa and the natural resource trustees have continued efforts to understand natural resource injury and ascertain appropriate restoration alternatives. That process is expected to be completed within the next 12 to 24 months.

Based on the above, it is possible that results of operations in a particular period could be materially affected by certain of these matters. However, based on facts currently available, management believes that the disposition of these matters will not have a materially adverse effect on the financial position or liquidity of the company.

Alcoa's remediation reserve balance at the end of 1998 and 1997 was \$217.0 and \$243 (of which \$84.6 and \$72.7 were classified as a current liability), respectively, and reflects the most probable costs to remediate identified environmental conditions for which costs can be reasonably estimated. About 20% of the 1998 balance relates to the Massena plant site and 16% of the 1998 balance relates to the Pt. Comfort plant site. Remediation expenses charged to the reserve were \$63 in 1998, \$64 in 1997 and \$72 in 1996. They include expenditures currently mandated, as well as those not required by any regulatory authority or third party.

Included in annual operating expenses are the recurring costs of managing hazardous substances and environmental programs. These costs are estimated to be about 2% of cost of goods sold.

SUPPLEMENTAL FINANCIAL INFORMATION

QUARTERLY DATA (UNAUDITED)  
(dollars in millions, except per-share amounts)

1998	First	Second	Third	Fourth	Year
-----					
Sales	\$3,445.1	\$3,587.0	\$4,108.9	\$4,198.8	\$15,339.8
Income from operations	279.7	269.5	266.2	275.9	1,091.3
Net income	209.9	207.1	217.7	218.3*	853.0
Earnings per share:					
Basic	.63	.62	.61	.59	2.44
Diluted	.62	.62	.61	.59	2.42
-----					

\*The 1998 fourth quarter included an after-tax credit of \$31.6 related to changes in the LIFO index.

1997	First	Second	Third	Fourth	Year
-----					
Sales	\$3,231.1	\$3,432.0	\$3,357.5	\$3,298.6	\$3,319.2
Income from operations	220.8	276.0	286.4	289.8	1,073.0
Net income	159.1	207.6	228.1	210.3*	805.1
Earnings per share:					
Basic	.46	.60	.66	.62	2.33
Diluted	.45	.59	.65	.61	2.31
-----					

\*The 1997 fourth quarter included an after-tax credit of \$19.1 related to changes in the LIFO index.

NUMBER OF EMPLOYEES (UNAUDITED)

Other Americas	40,900	36,200	29,800
U.S.	38,900	27,200	28,900
Europe	18,200	11,900	12,500
Pacific	5,500	6,300	5,600
	103,500	81,600	76,800

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# GRAPHICS APPENDIX LIST

## Revenues by Segment - page 29 billions of dollars

	1996	1997	1998
	----	----	----
Alumina and Chemicals	2.0	2.0	1.8
Primary Metals	1.6	1.6	2.1
Engineered Products	1.9	2.1	3.1
Flat-rolled Products	4.1	4.2	4.9
Other Segments	3.5	3.4	3.4

Higher volumes for aluminum and alumina more than offset lower overall prices for these products. Nonaluminum product revenues fell as improved revenues from automotive electrical components and plastic closures were offset by the loss of revenues from divested operations.

## Alumina Production - page 29 thousands of metric tons

1994	1995	1996	1997	1998
----	----	----	----	----
10,195	10,578	10,644	11,048	12,938

## Aluminum Product Shipments - page 30 thousands of metric tons

	1994	1995	1996	1997	1998
	----	----	----	----	----
Ingot	655	673	901	920	1,367
Fabricated Products	1,896	1,909	1,940	2,036	2,584
	-----	-----	-----	-----	-----
Total	2,551	2,582	2,841	2,956	3,951
	=====	=====	=====	=====	=====

## Average Realized Ingot Price - page 30 cents per pound

1994	1995	1996	1997	1998
----	----	----	----	----
\$.64	\$.81	\$.73	\$.75	\$.67

## Number of Employees - page 33 in thousands at year end

	1994	1995	1996	1997	1998
	----	----	----	----	----
Nonaluminum	17.3	26.7	33.8	39.7	46.7
Alumina and Aluminum	42.9	45.3	43.0	41.9	56.8
	-----	-----	-----	-----	-----
Total	60.2	72.0	76.8	81.6	103.5
	=====	=====	=====	=====	=====

## Cash From Operations - page 35 millions of dollars

1994	1995	1996	1997	1998
----	----	----	----	----
1,394	1,713	1,279	1,888	2,197

Debt as a Percent of Invested Capital - page 35

1994	1995	1996	1997	1998
----	----	----	----	----
20.3	24.0	25.5	25.0	31.7

Free Cash Flow to Debt Coverage - page 36  
times covered

1994	1995	1996	1997	1998
----	----	----	----	----
1.09	1.12	0.79	1.13	0.63

Capital Expenditures and Depreciation - page 36  
millions of dollars

	1994	1995	1996	1997	1998
	----	----	----	----	----
Capital Expenditures	612	887	996	912	932
Depreciation	671	713	747	735	842

Employees by Geographic Area - page 53  
1998: 103,500

Other Americas	39%
U.S.	38%
Europe	18%
Pacific	5%

Percent Return on Shareholders' Equity - page 63

	1994	1995	1996	1997	1998
	----	----	----	----	----
Before Unusual Items	5.2	18.8	14.4	17.1	16.3
After Unusual Items	9.9	18.5	11.6	18.1	16.3

Dividends Paid per Common Share\* - page 64

	1994	1995	1996	1997	1998
	----	----	----	----	----
Variable	0	0	.215	0	.25
Base	.40	.45	.45	.488	.50
	---	---	----	----	---
	.40	.45	.665	.488	.75

\* Adjusted to reflect two-for-one stock split in February 1995 and February 1999

Stock Listing - page 64

Common: New York Stock Exchange, The Electronical Stock Exchange in Switzerland and exchanges in Brussels, Frankfurt and London

Preferred: Ticker Symbol:AA American Stock Exchange

Quarterly Common Stock Information - page 64

Quarter	1998*			1999*		
	High	Low	Dividend	High	Low	Dividend
First	\$39-1/16	\$32-9/16	\$.1875	\$38-1/8	\$32-1/8	\$.1125
Second	39-11/16	31-3/8	.1875	39-5/8	32-5/8	.125
Third	37	29	.1875	44-13/16	37-9/16	.125
Fourth	40-5/8	33-5/8	.1875	42	33	.125
Year	\$40-5/8	\$29	\$.75	\$44-13/16	\$32-1/8	\$.4875

\* Adjusted to reflect two-for-one stock split declared January 8, 1999

Common Share Data - page 64

	Estimated number of shareholders*	Average shares outstanding (000)+
1998	119,000	349,114
1997	95,800	344,452
1996	88,300	348,667
1995	83,600	356,036
1994	55,200	355,764

\*These estimates include shareholders who own stock registered in their own names and those who own stock through banks and brokers.

+Adjusted to reflect two-for-one split declared January 8, 1999



SUBSIDIARIES AND EQUITY ENTITIES OF THE REGISTRANT  
(As of December 31, 1998)

Name	State or country of organization
Alcoa World Alumina LLC*	Delaware
Alcoa ACC Industrial Chemicals Ltd.	India
Alcoa Kasei Limited	Japan
Alcoa Minerals of Jamaica, L.L.C.	Delaware
Alcoa Steamship Company, Inc.	New York
Halco (Mining) Inc.	Delaware
Compagnie des Bauxites de Guinee	Delaware
Lib-Ore Steamship Company, Inc.	Liberia
Moralco Limited	Japan
St. Croix Alumina, L.L.C.	Delaware
Suriname Aluminum Company, L.L.C.	Delaware
Alcoa Brazil Holdings Company	Delaware
Alcoa Aluminio S.A.	Brazil
Abalco S.A.	Brazil
Alcoa Building Products, Inc.**	Ohio
Alcoa Closure Systems International, Inc.	Delaware
Alcoa Generating Corporation	Indiana
Alcoa International Holdings Company	Delaware
Alcoa Inter-America, Inc.	Delaware
Alcoa Japan Limited	Japan
Alcoa-Kofem Kft	Hungary
Alcoa Nederland Holding B.V.	Netherlands
Alcoa Europe, S.A.	Switzerland
Alcoa Inespal, S.A.	Spain
Alumina Espanola, S.A.	Spain
Aluminio Espanola, S.A.	Spain
Alcoa Italia S.p.A.	Italy
Alcoa Nederland B.V.	Netherlands
Inespal Laminacion, S.A.	Spain
Norsk Alcoa A/S	Norway
Alcoa of Australia Limited	Australia
A.F.P. Pty. Limited	Australia
Hedges Gold Pty. Ltd.	Australia
Alcoa of Australia (Asia) Limited	Hong Kong
Alcoa Russia, Inc.	Delaware
Asian-American Packaging Systems Co., Ltd.	China
KAAL Australia Pty. Limited	Australia
KSL Alcoa Aluminum Company, Ltd.	Japan
Kobe Alcoa Transportation Products, Ltd.	Japan

\* Registered to do business in California, Florida, Georgia, Louisiana, North Carolina, Pennsylvania and Texas under the name of Alcoa Industrial Chemicals.

\*\*Registered to do business in Ohio under the name of Mastic.

Name	State or country of organization
Alcoa Laudel, Inc.	Delaware
Alcoa Manufacturing (G.B.) Limited	England
Alcoa Properties, Inc.	Delaware
Alcoa South Carolina, Inc.	Delaware
Alcoa Recycling Company, Inc.	Delaware
Alcoa Securities Corporation	Delaware
Alcoa Automotive Structures, Inc.	Delaware
Alcoa Brite Products, Inc.	Delaware
Alcoa Fujikura Ltd.	Delaware
Stribel GmbH	Germany
Michels GmbH	Germany
Alcoa Kobe Transportation Products, Inc.	Delaware
Alcoa Nederland Finance B.V.	Netherlands
Alcoa Automotive Structures GmbH	Germany
Alcoa Chemie GmbH	Germany
Alcoa Deutschland GmbH	Germany
Alcoa Extrusions Hannover GmbH & Co. KG	Germany
Alcoa Chemie Nederland B.V.	Netherlands
Alcoa Moerdijk B.V.	Netherlands
Alcoa Packaging Machinery, Inc.	Delaware
ASC Alumina, Inc.	Delaware
B & C Research, Inc.	Ohio
Halethorpe Extrusions, Inc.	Delaware
H-C Industries de Mexico, S.A. de C.V.	Mexico
Northwest Alloys, Inc.	Delaware
Pimalco, Inc.	Arizona
Three Rivers Insurance Company	Vermont
Tifton Aluminum Company, Inc.	Delaware
Alcoa (Shanghai) Aluminum Products Company Limited	China
Alumax Inc.	Delaware
Alcoa Extrusions, Inc.	Pennsylvania
Alumax Becancour, Inc.	Delaware
Alumax Europe N.V.	Netherlands
Alumax of South Carolina, Inc.	Delaware
Mt. Holly Aluminum Company	South Carolina
Alumax Foils, Inc.	Delaware
Alumax Mill Products, Inc.	Delaware
Alumax Quebec, Inc.	Wyoming
Eastalco Aluminum Company	Delaware

Intalco Aluminum Corporation	Delaware
Kawneer Company, Inc.	Delaware
Lauralco Superieur, Inc.	Delaware
Canalco, Inc.	Delaware
Aluminerie Lauralco, Inc.	Delaware
Capsulas Metalicas, S.A.	Spain
Gulf Closures W.L.L.	Bahrain
Shibazaki Seisakusho Limited	Japan
Tapoco, Inc.	Tennessee
Yadkin, Inc.	North Carolina

The names of certain subsidiaries and equity entities which, considered in the aggregate, would not constitute a significant subsidiary, have been omitted from the above list.

CONSENT OF INDEPENDENT CERTIFIED PUBLIC ACCOUNTANTS

We consent to the incorporation by reference in the registration statements of Alcoa Inc. on Form S-8 (Registration Nos. 33-22346, 33-24846, 33-49109, 33-60305, 333-00033, 333-27903 and 333-62663), Form S-3 (Registration Nos. 33-60045, 33-64353 and 333-59381) and Form S-4 (Registration No. 333-58227) of our reports dated January 8, 1999 on our audits of the consolidated financial statements and financial statement schedule of Alcoa Inc. and consolidated subsidiaries as of December 31, 1998 and 1997 and for each of the three years in the period ended December 31, 1998, which reports are incorporated by reference or included in this Form 10-K.

/s/PricewaterhouseCoopers LLP  
PricewaterhouseCoopers LLP

600 Grant Street  
Pittsburgh, Pennsylvania  
March 12, 1999

/s/Marina v.N. Whitman  
Marina v.N. Whitman

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YEAR	
	DEC-31-1998
	DEC-31-1998
	342,200
	39,400
	2,163,200
	61,400
	1,880,500
	5,025,100
	18,224,500
	9,091,000
	17,462,500
3,268,300	
	3,058,100
0	
	55,800
	394,700
	5,605,400
17,462,500	
	15,339,800
15,489,400	
	11,804,800
	11,804,800
	842,400
	0
197,900	
1,604,800	
	513,500
853,000	
	0
	0
	0
	853,000
	2.44
	2.42