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, 1993

Commission file number 0-2504

MINE SAFETY APPLIANCES COMPANY
A Pennsylvania Corporation
IRS Employer Identification No. 25-0668780
121 Gamma Drive
RIDC Industrial Park
O'Hara Township
Pittsburgh, Pennsylvania 15238
Telephone 412/967-3000

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

Common Stock, no par value

(COVER PAGE)

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, 1993 Commission File No. 0-2504

MINE SAFETY APPLIANCES COMPANY
(Exact name of registrant as specified in its charter)

Pennsylvania	25-0668780
(State or other jurisdiction of incorporation or organization)	(IRS Employer Identification No.)

121 Gamma Drive RIDC Industrial Park O'Hara Township Pittsburgh, Pennsylvania	15238
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code 412/967-3000

Securities registered pursuant to Section 12(b) of the Act: None

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

Common Stock, no par value

- ---

(Title of Class)

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 X 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 the definitive proxy statement incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10K. [X]

As of February 18, 1994, there were outstanding 6,009,653 shares of common stock, no par value.

The aggregate market value of voting stock held by non-affiliates as of February 18, 1994 was $163,047,000.

(COVER PAGE)

DOCUMENTS INCORPORATED BY REFERENCE

The following documents have been incorporated by reference:

DOCUMENT	FORM 10-K PART NUMBER
(1) Annual Report to Shareowners for the year ended December 31, 1993	I, II, IV
(2) Proxy Statement filed pursuant to Regulation 14A in connection with the registrant's Annual Meeting of Shareholders to be held on April 27, 1994	III

PART I

Item 1. Business

Products and Markets:

The primary business of the registrant and its affiliated companies is the manufacture and sale of products designed to protect the safety and health of workers throughout the world.

Principal products include respiratory protective equipment that is air-purifying, air-supplied and self-contained in design. The registrant also produces instruments that monitor and analyze workplace environments and control industrial processes. Personal protective products include head, eye and face, body and hearing protectors. For the mining industry, the registrant provides mine lighting, rockdusting equipment, fire-fighting foam and foam application equipment. Health-related products include emergency care items, hospital instruments and heart pacemaker power cells.

Many of these products are sold under the registered trademark "MSA", and have wide application for workers in industries that include manufacturing, fire service, public utilities, mining, chemicals, petroleum, construction, pulp and paper processing, transportation, government, automotive, aerospace, asbestos abatement, and hazardous materials clean-up.

Other products manufactured and sold, which do not fall within the category of safety and health equipment, include boron-based and other specialty chemicals.

The registrant and its affiliated companies are in competition with many large and small enterprises. In the opinion of management, the registrant is a leader in the manufacture of safety and health equipment.

Orders, except under contracts with the Department of Defense and with international governments, are generally filled promptly after receipt and the production period for special items is usually less than one year. The backlog of orders under contracts with the Department of Defense and certain international governments is summarized as follows:

	December 31		
	1993	1992	1991
	(In thousands)		
Department of Defense	$54,900	$65,600	$117,000
International Governments	12,500	12,500	8,100

Approximately $2,400,000 under contracts with the Department of Defense and $5,900,000 with international governments are expected to be shipped after December 31, 1994.

Further information with respect to the registrant's products, operations in different geographic areas, equity in earnings and assets of international affiliated companies, and significant customers is reported at Note 6 of Notes to Consolidated Financial Statements contained in the registrant's Annual Report to Shareowners for the year ended December 31, 1993, incorporated herein by reference.

Research:

The registrant and its affiliated companies engage in applied research with a view to developing new products and new applications for existing products. Most of its products are designed and manufactured to meet currently applicable performance and test standards published by groups such as ANSI (American National Standards Institute), MSHA (Mine Safety & Health Administration), NIOSH (National Institute for Occupational Safety and Health), UL (Underwriters' Laboratories), SEI (Safety Equipment Institute) and FM

(Factory Mutual). The registrant also from time to time engages in research projects for others such as the Bureau of Mines and the Department of Defense or its prime contractors. Registrant-sponsored research and development costs were $21,000,000 in 1993, $20,938,000 in 1992, and $19,575,000 in 1991.

In the aggregate, patents have represented an important element in building up the business of the registrant and its affiliates, but in the opinion of management no one patent or group of patents is of material significance to the business as presently conducted.

General:

The company was founded in 1914 and is headquartered in Pittsburgh, Pennsylvania. As of December 31, 1993, the registrant and its affiliated companies had approximately 4,600 employees, of which 2,100 were employed by international affiliates. None of the U.S. employees are subject to the provisions of a collective bargaining agreement.

In the United States and in those countries in which the registrant has affiliates, its products are sold primarily by its own salesmen, supplemented in the case of certain markets by independent distributors and/or manufacturers' representatives. In international countries where the registrant has no affiliate, products are sold primarily through independent distributors located in those countries.

The registrant is cognizant of environmental responsibilities and has taken affirmative action regarding this responsibility. There are no current or expected legal proceedings or expenditures with respect to environmental matters which would materially affect the operations of the registrant and its affiliates. Generally speaking, the operations of the registrant and its affiliates are such that it is possible to maintain sufficient inventories of raw materials and component parts on the manufacturing premises. Equipment and machinery for processing chemicals and rubber, plastic injection molding equipment, molds, metal cutting, stamping and working equipment, assembly fixtures and similar items are regularly acquired, repaired or replaced in the ordinary course of business at prevailing market prices as necessary.

As of the end of 1992, the registrant decided to discontinue the operation of Transfer-Metallisierte Produkte GmbH (TMP), a joint venture in Germany to produce metallized paper. This venture, unrelated to the company's safety products, has been a financial drain on the registrant. Operating activities ceased during 1993; the registrant is in the process of disposing of its assets and settling its liabilities, and estimates that this action will not have a significant effect on the registrant's financial condition. In the third quarter of 1993, the registrant acquired HAZCO Services, a U.S. based distribution and rental supplier serving the hazardous materials/environmental market. No material changes in the registrant's commercial operations are expected to occur during 1994. Sales of defense products, which continue to be an important market segment, decreased significantly in 1993. Incoming orders were significantly less than shipments in 1993, and significantly lower than 1992 incoming orders. U.S. military sales in 1994 are expected to be at near-normal levels, below the peaks of 1992 but above 1993. Further information about the registrant's business is included in Discussion and Analysis of Financial Condition and Results of Operations at pages 7 to 9 of the Annual Report to Shareowners, incorporated herein by reference.

(Item 1 continued at page 7)

Executive Officers and Significant Employees:

Name	Age	All Positions and Offices Presently Held

J. T. Ryan III	50	President, Chairman and Chief Executive Officer
T. B. Hotopp	52	Senior Vice President
J. E. Herald	53	Vice President - Finance (Chief Financial Officer)
D. E. Crean	59	Vice President
W. E. Christen	49	Vice President
J. W. Joy	61	Vice President
W. B. Miller, Jr.	60	Vice President
G. W. Steggles	59	Vice President
F. Tepper	59	Vice President
D. H. Cuozzo	60	Secretary
D. L. Zeitler	45	Treasurer
J. R. Heggestad	57	Director of Operations, Safety Products

All the executive officers and significant employees have been employed by the registrant since prior to January 1, 1989 and have held their present positions since prior to that date except as follows:

(a) Mr. Ryan III was elected Chief Executive Officer and Chairman of the Board on August 28, 1991, effective from October 1, 1991. On April 25, 1990 he was elected President. He previously was the Executive Vice President.

(b) Mr. Hotopp was employed by the registrant on July 29, 1991 and elected Senior Vice President and General Manager, Safety Products. From prior to January 1, 1989 until he joined the registrant, Mr. Hotopp was Senior Vice President, Sales and Marketing and later President of Kingston Warren Corporation, a manufacturer of rubber-metal composites for automotive, computer and material handling industries.

(c) Mr. Christen was elected a corporate Vice President on October 31, 1991. He was previously General Director, Auergesellschaft, an affiliate of the registrant, and Vice President and Managing Director of MSA Europe, a division of the registrant.

(d) Mr. Joy was elected Vice President on October 31, 1991. He was previously Director, Sales and Market Development.

(e) Mr. Steggles was employed by the registrant on May 4, 1992 and elected Vice President. From prior to January 1, 1989 until he joined the registrant, Mr. Steggles was Vice President of International Marketing and Sales with the BMY Division of Harsco Corp., a manufacturer of tracked and wheeled vehicles.

(f) Mr. Cuozzo, employed by the company on January 3, 1989 as Tax Counsel, was elected Secretary on July 1, 1989.

The primary responsibilities of these officers follows:

Individual	Responsibilities
Mr. Hotopp	Product planning and engineering, manufacturing development and sales of safety products in the U.S.
Mr. Crean	Personnel
Mr. Christen	European operations
Mr. Joy	Sales and marketing of safety products in the U.S.
Mr. Miller	Product planning and engineering for safety products in the U.S.
Mr. Steggles	International operations outside the U.S. and Europe.
Mr. Tepper	Product planning and engineering, manufacturing development and sales of instrument and battery products in the U.S.
Mr. Cuozzo	General Counsel and corporate taxes
Mr. Zeitler	Cash and risk insurance management
Mr. Heggestad	Manufacturing operations, safety products in the U.S.

Item 2. Properties

World Headquarters:

The registrant's executive offices are located at 121 Gamma Drive, RIDC Industrial Park, O'Hara Township, Pittsburgh, Pennsylvania 15238. This facility contains approximately 138,000 sq. ft.

Production and Research Facilities:

The registrant's principal U.S. manufacturing and research facilities are located in the Greater Pittsburgh area in buildings containing approximately 1,113,000 square feet. Other U.S. manufacturing and research facilities of the registrant are located in Esmond, Rhode Island (208,000 sq. ft.), Jacksonville, North Carolina (107,000 sq. ft.), Lyons, Colorado (10,000 sq. ft), Sparks, Maryland (37,000 sq. ft.), and Dayton, Ohio (23,000 sq. ft.).

Manufacturing facilities of international affiliates of the registrant are located in major cities in Australia, Brazil, Canada, France, Germany, Italy, Japan, Mexico, Peru, Scotland, Spain, and Sweden. The most significant are located in Germany (approximately 410,000 sq. ft., excluding 147,000 sq. ft. leased to others), and in Glasgow, Scotland (approximately 141,000 sq. ft.); research activities are also conducted at these facilities.

Virtually all of these buildings are owned by the registrant and its affiliates and are constructed of granite, brick, concrete block, steel or other fire-resistant materials. The German facility is owned subject to encumbrances securing indebtedness in the aggregate amount of $15,781,000 as of December 31, 1993.

Sales Offices and Warehouses:

The registrant and its U.S. affiliates own eight warehouses and lease

20 other distribution warehouses with aggregate floor space of approximately 349,000 sq. ft. in or near principal cities in 19 states in the United States. Leases expire at various dates through 1997. Sales offices and distribution warehouses are owned or leased in or near principal cities in 22 other countries in which the registrant's affiliates are located.

Other U.S. Properties:

The registrant owns real estate at Owings Mills, Maryland, consisting of an 88,000 sq. ft. building and 42 acres of land. The registrant also owns 90 acres of land in Westmoreland County, Pennsylvania, and 200 acres of land in Lawrence, Kansas. No operations are currently conducted on these sites.

Item 3. Legal Proceedings

Not applicable.

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

No matters were submitted to a vote of security holders during fourth quarter 1993.

PART II

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

Item 6. Selected Financial Data

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

Item 8. Financial Statements and Supplementary Data

Incorporated by reference herein pursuant to Rule 12b - 23 are

Item 5 - "Common Stock" appearing at page 9

Item 6 - "Five-Year Summary of Selected Financial Data" appearing at page 20

Item 7 - "Discussion and Analysis of Financial Condition and Results of Operations" appearing at pages 7 to 9

Item 8 - "Financial Statements and Notes to Consolidated Financial Statements appearing at pages 10 to 19

of the Annual Report to Shareowners for the year ended December 31, 1993. Said pages of the Annual Report are submitted with this report and pursuant to Item 601(b)(13) of Regulation S-K shall be deemed filed with the Commission only to the extent that material contained therein is expressly incorporated by reference in Items 1, 5, 6, 7, 8 and 14 (a) hereof.

Item 9. Changes in and Disagreements with Accountants on Accounting and

Financial Disclosure

Not applicable.

PART III

Item 10. Directors and Executive Officers of the Registrant

Item 11. Executive Compensation

Item 12. Security Ownership of Certain Beneficial Owners and Management

Item 13. Certain Relationships and Related Transactions

Incorporated by reference herein pursuant to Rule 12b - 23 are (1) "Election of Directors" appearing at pages 1 to 4, (2) "Other Information Concerning Directors and Officers" appearing at pages 5 to 11 (except as excluded below), and (3) "Security Ownership" appearing at pages 11 to 14 of the Proxy Statement filed pursuant to Regulation 14A in connection with the registrant's Annual Meeting of Shareholders to be held on April 27, 1994. The information appearing in such Proxy Statement under the captions "Compensation Committee Report on Executive Compensation" and "Comparison of Five-Year Cumulative Total Return" is not incorporated herein.

PART IV

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

(a) 1 and 2. Financial Statements

The following information appearing on pages 10 to 19 inclusive in the Annual Report to Shareowners of the registrant for the year ended December 31, 1993, is incorporated herein by reference pursuant to Rule 12b-23.

Report of Independent Accountants

Consolidated Balance Sheet - December 31, 1993 and 1992

Consolidated Statement of Income - three years ended December 31, 1993

Consolidated Statement of Earnings Retained in the Business - three years ended December 31, 1993

Consolidated Statement of Cash Flows - three years ended December 31, 1993

Notes to Consolidated Financial Statements

Said pages of the Annual Report are submitted with this report and, pursuant to Item 601(b)(13) of Regulation S-K shall be deemed to be filed with the Commission only to the extent that material contained therein is expressly incorporated by reference in Items 1, 5, 6, 7, 8 and 14 (a)(1) and (2) hereof.

The following additional financial information for the three years ended December 31, 1993 is filed with the report and should be read in conjunction with the above financial statements:

Report of Independent Accountants on Financial Statement Schedules

Schedule V - Property, Plant and Equipment

Schedule VI - Accumulated Depreciation and Amortization of Property, Plant and Equipment

Schedule VIII - Valuation and Qualifying Accounts

Schedule X - Supplementary Income Statement Information

All other schedules are omitted because they are not applicable, not material or the required information is shown in the financial statements listed above.

(a) 3. Exhibits

(3)(a) Restated Articles of Incorporation as amended to April 27, 1989, filed in Form 10-Q on August 8, 1989, are incorporated herein by reference.

(3)(b) By-laws of the registrant, as amended to August 29, 1990, filed in Form 10-Q on November 9, 1990, are incorporated herein by reference.

(10)(a) * 1987 Management Share Incentive Plan.

(10)(b) * 1990 Non-Employee Directors' Stock Option Plan, incorporated herein by reference to Exhibit A to registrant's Definitive Proxy Statement filed March 20, 1991 for its 1991 Annual Meeting.

(10)(c) * Executive Insurance Program, filed in Form 10-K on March 29, 1989, is incorporated herein by reference.

(10)(d) * Extension of Consulting Agreement for the period January 1, 1992 through December 31, 1996, and June 30, 1977 Consulting Agreement with John T. Ryan, Jr. filed in Form 10-K on March 27, 1992, is incorporated herein by reference.

(10)(e) * December 29, 1993 Consulting agreement with Leo N. Short, Jr.

(10)(f) * Board of Directors April 24, 1984 Resolution providing for payment by the Company to officers the difference between amounts payable under terms of the Company's Non-Contributory Pension Plan and the benefit limitations of Section 415 of the Internal Revenue Code, filed in Form 10-K on March 28, 1990 is incorporated herein by reference.

* The exhibits marked by an asterisk are management contracts or compensatory plans or arrangements.

(a) 3. Exhibits (continued)

(13) Annual Report to Shareowners for year ended December 31, 1993

(21) Affiliates of the registrant

(23) Consent of Price Waterhouse, independent accountants

The registrant agrees to furnish to the Commission upon request copies of all instruments with respect to long-term debt referred to in Note 11 of the Notes to Consolidated Financial Statements filed as part of Exhibit 13 to this annual report which have not been previously filed or are not filed herewith.

(b) Reports on Form 8-K

No reports on Form 8-K were filed during the last quarter of the year ended December 31, 1993.

SIGNATURES

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.

MINE SAFETY APPLIANCES COMPANY

March 25, 1994	By /S/John T. Ryan III
(Date)	John T. Ryan III President, Chairman of the Board and Chief Executive 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/John T. Ryan III John T. Ryan III	Director; President, Chairman of the Board and Chief Executive Officer	March 25, 1994
/S/James E. Herald James E. Herald	Vice President - Finance; Principal Financial and Accounting Officer	March 25, 1994
/S/John M. Arthur John M. Arthur	Director	March 25, 1994
/S/Joseph L. Calihan Joseph L. Calihan	Director	March 25, 1994
/S/G. Donald Gerlach G. Donald Gerlach	Director	March 25, 1994
/S/Helen Lee Henderson Helen Lee Henderson	Director	March 25, 1994
/S/John P. Roche John P. Roche	Director	March 25, 1994
/S/John T. Ryan, Jr. John T. Ryan, Jr.	Director	March 25, 1994
/S/Leo N. Short, Jr. Leo N. Short, Jr.	Director	March 25, 1994

REPORT OF INDEPENDENT ACCOUNTANTS ON FINANCIAL STATEMENT SCHEDULES

To the Board of Directors of
Mine Safety Appliances Company

Our audits of the consolidated financial statements referred to in our report dated February 16, 1994, appearing on page 10 of the 1993 Annual Report to Shareowners of Mine Safety Appliances Company (which report and consolidated financial statements are incorporated by reference in this Annual Report on

Form 10-K), also included an audit of the Financial Statement Schedules listed in Item 14(a) of this Form 10-K. In our opinion, these Financial Statement Schedules present fairly, in all material respects, the information set forth therein when read in conjunction with the related consolidated financial statements.

PRICE WATERHOUSE
Pittsburgh, Pennsylvania
February 16, 1994

SCHEDULE V

MINE SAFETY APPLIANCES COMPANY AND AFFILIATES
PROPERTY, PLANT AND EQUIPMENT
THREE YEARS ENDED DECEMBER 31, 1993
(IN THOUSANDS)

	Land	Buildings	Machinery and Equipment	Construction in Progress	Totals
Balances, December 31, 1990	$7,345	$106,992	$164,082	$ 7,542	$285,961
Additions at cost	267	1,981	16,968	(2,262)	16,954
Sales and retirements	(36)	(44)	(4,169)		(4,249)
Currency translation adjustments	(238)	(1,849)	(4,110)	(131)	(6,328)
Balances, December 31, 1991	7,338	107,080	172,771	5,149	292,338
Additions at cost	259	1,059	16,605	4,839	22,762
Sales and retirements	(11)	(65)	(7,288)		(7,364)
Currency translation adjustments	(20)	(835)	(1,026)	53	(1,828)
Balances, December 31, 1992	7,566	107,239	181,062	10,041	305,908
Additions at cost		2,736	16,343	1,320	20,399
Sales and retirements	(582)	(3,578)	(9,684)		(13,844)
Currency translation adjustments	(218)	(1,455)	(3,945)	(154)	(5,772)
Balances, December 31, 1993	$6,766	$104,942	$183,776	$ 11,207	$306,691

SCHEDULE VI

MINE SAFETY APPLIANCES COMPANY AND AFFILIATES
ACCUMULATED DEPRECIATION AND AMORTIZATION OF PROPERTY, PLANT AND EQUIPMENT
THREE YEARS ENDED DECEMBER 31, 1993

(IN THOUSANDS)

	Buildings	Machinery and Equipment	Totals
Balances, December 31, 1990	$30,973	$ 99,070	$130,043
Adjustment for acquisition of new affiliate	106	398	504
Additions charged to costs and expenses	3,597	12,633	16,230
Sales and retirements	(35)	(3,457)	(3,492)
Currency translation adjustments	(756)	(2,657)	(3,413)
Balances, December 31, 1991	33,885	105,987	139,872
Additions charged to costs and expenses	3,330	13,501	16,831
Sales and retirements	(67)	(6,108)	(6,175)
Currency translation adjustments	(163)	(602)	(765)
Balances, December 31, 1992	36,985	112,778	149,763
Additions charged to costs and expenses	3,711	13,583	17,294
Sales and retirements	(2,148)	(8,276)	(10,424)
Currency translation adjustments	(736)	(2,735)	(3,471)
Balances, December 31, 1993	$37,812	$115,350	$153,162

SCHEDULE VIII

MINE SAFETY APPLIANCES COMPANY AND AFFILIATES
VALUATION AND QUALIFYING ACCOUNTS
THREE YEARS ENDED DECEMBER 31, 1993
(IN THOUSANDS)

	1993	1992	1991
Allowance for doubtful accounts:			
Balance at beginning of year	$2,453	$1,601	$1,532
Additions - Charged to costs and expenses	644	1,383	801
Deductions from reserves (1)	581	531	732
Balance at end of year	$2,516	$2,453	$1,601

(1) Bad debts written off, net of recoveries.

SCHEDULE X

MINE SAFETY APPLIANCES COMPANY AND AFFILIATES
SUPPLEMENTARY INCOME STATEMENT INFORMATION
THREE YEARS ENDED DECEMBER 31, 1993
(IN THOUSANDS)

	Charged to Costs and Expenses		
	1993	1992	1991
Maintenance and repairs	$12,703	$16,947	$15,952
Payroll taxes	$16,486	$18,960	$18,320

EXHIBIT 10(a)

MINE SAFETY APPLIANCES COMPANY

1987 MANAGEMENT SHARE INCENTIVE PLAN

The purposes of the 1987 Management Share Incentive Plan (the "Plan") are to encourage eligible employees of Mine Safety Appliances Company (the "Company") and its Subsidiaries, including Directors and officers of the Company and each Subsidiary who are employees, to increase their efforts to make the Company and each Subsidiary more successful, to provide an additional inducement for such employees to remain with the Company or a Subsidiary, to reward such employees by providing an opportunity to acquire shares of the Common Stock, without par value, of the Company (the "Common Stock") on favorable terms and to provide a means through which the Company may attract able persons to enter the employ of the Company or one of its Subsidiaries. For the purposes of the Plan, the term "Subsidiary" means any corporation in an unbroken chain of corporations beginning with the Company if each of the corporations other than the last corporation in the unbroken chain owns stock possessing at least fifty percent (50%) or more of the total combined voting power of all classes of stock in one of the other corporations in the chain.

SECTION 1

Administration

The Plan shall be administered by a Committee (the "Committee") appointed by the Board of Directors of the Company (the "Board") and consisting of not less than three members of the Board, none of whom is eligible or was within one year prior to becoming a member of the Committee eligible for selection as a person to whom stock may be allocated or to whom stock options, alternative stock appreciation rights, cash payment rights, limited stock appreciation rights or limited cash payment rights may be granted or restricted stock may be awarded pursuant to the Plan or any other plan of the Company or any of its affiliates (as "affiliates" is defined in regulations of the Securities and Exchange Commission under the Securities Exchange Act of 1934, as amended (the "1934 Act")) entitling the participants therein to acquire stock, stock options, alternative stock appreciation rights, cash payment rights, limited stock appreciation rights, limited cash payment rights or restricted stock of the Company or any of its affiliates.

The Committee shall interpret the Plan and prescribe such rules, regulations and procedures in connection with the operations of the Plan as it shall deem to be necessary and advisable for the administration of the Plan consistent with the purposes of the Plan.

The Committee shall keep records of action taken at its meetings. A majority of the Committee shall constitute a quorum at any meeting and the acts of a majority of the members present at any meeting at which a quorum is present, or acts approved in writing by a majority of the Committee, shall be the acts of the Committee.

SECTION 2

Eligibility

Those employees of the Company or any Subsidiary who share responsibility for the management, growth or protection of the business of the Company or any Subsidiary shall be eligible to be granted stock options (with or without alternative stock appreciation rights, cash payment rights, limited stock appreciation rights and/or limited cash payment rights) and receive restricted stock awards as described herein.

Subject to the provisions of the Plan, the Committee shall have full and final authority, in its discretion, to grant stock options (with or without alternative stock appreciation rights, cash payment rights, limited stock appreciation rights and/or limited cash payment rights) and to award restricted stock as described herein and to determine the employees to whom stock options (with or without alternative stock appreciation rights, cash payment rights, limited stock appreciation rights and/or limited cash payment rights) shall be granted and restricted stock shall be awarded and the number of shares to be covered by each stock option or restricted stock award. In determining the eligibility of any employee, as well as in determining the number of shares covered by each stock option or restricted stock award, and whether alternative stock appreciation rights, cash payment rights, limited stock appreciation rights and/or limited cash payment rights shall be granted in conjunction with a stock option, the Committee shall consider the position and the responsibilities of the employee being considered, the nature and value to the Company or a Subsidiary of his or her services, his or her present and/or potential contribution to the success of the Company or a Subsidiary and such other factors as the Committee may deem relevant.

SECTION 3

Shares Available under the Plan

The aggregate number of shares of the Common Stock which may be issued or delivered and as to which grants of stock options and restricted stock awards may be made under the Plan is 400,000 shares, subject to adjustment and substitution as set forth in Section 7. If any stock option granted under the Plan is cancelled by mutual consent or terminates or expires for any reason without having been exercised in full, the number of shares subject to such stock option shall again be available for purposes of the Plan; however, solely for the purpose of determining the number of shares of the Common Stock as to which stock options may be granted under the Plan, to the extent that stock appreciation rights, limited stock appreciation rights or limited cash payment rights granted in conjunction with a stock option are exercised and the stock option surrendered unexercised, such stock option shall be deemed to have been exercised instead and the shares of the Common Stock which otherwise would have been issued or delivered upon the exercise of such stock option shall not again be available for the grant of any other stock option or the award of any restricted stock under the Plan. If any shares of the Common Stock are forfeited to the Company pursuant to the restrictions applicable to restricted stock awarded under the Plan, the number of shares so forfeited shall again be available for purposes of the Plan. The shares which may be issued or delivered under the Plan may be either authorized but unissued shares or treasury shares or partly each, as shall be determined from time to time by the Board.

SECTION 4

Grant of Stock Options, Alternative Stock Appreciation Rights, Cash Payment Rights, Limited Stock Appreciation Rights, and Limited Cash Payment Rights and Awards of Restricted Stock

The Committee shall have authority, in its discretion, (a) to grant "incentive stock options" pursuant to Section 422A of the Internal Revenue Code of 1986 (the "Code"), to grant "nonstatutory stock options" (i.e., stock options which do not qualify under such Section 422A of the Code) or to grant both types of stock options (but not in tandem) and (b) to award restricted stock. The Committee also shall have the authority, in its discretion, to grant alternative stock appreciation rights in conjunction with incentive stock options or nonstatutory stock options with the effect provided in Section 5(D), to grant cash payment rights in conjunction with nonstatutory stock options with the effect provided in Section 5(E), to grant limited stock appreciation rights in conjunction with incentive stock options or nonstatutory stock options with the effect provided in Section 8(D) and to grant limited cash payment rights in conjunction with nonstatutory stock options with the effect provided in Section 8(E). Alternative stock appreciation rights and limited stock appreciation rights granted in conjunction with an incentive stock option may only be granted at the time the incentive stock option is granted. Cash payment rights and limited cash payment rights may not be granted in conjunction with incentive stock options. Alternative stock appreciation rights, cash payment rights, limited stock appreciation rights and/or limited cash payment rights granted in conjunction with a nonstatutory stock option may be granted either at the time the stock option is granted or at any time thereafter during the term of the stock option.

No employee shall be granted a stock option or stock options or awarded restricted stock under the Plan (disregarding cancelled, terminated or expired stock options or forfeited restricted stock) for an aggregate number of shares in excess of ten percent (10%) of the total number of shares which may be issued or delivered under the Plan. For the purposes of this limitation, any adjustment or substitution made pursuant to Section 7 with respect to shares which have not been issued or delivered under the Plan shall also be made with respect to shares already issued or delivered under the Plan, upon the exercise of stock options or an award of restricted stock and with respect to shares which would have been issued or delivered under the Plan but for the exercise of alternative stock appreciation rights, limited stock appreciation rights or limited cash payment rights in lieu of the exercise of stock options prior to such adjustment or substitution.

Notwithstanding any other provision contained in the Plan or in any stock option agreement, but subject to the possible exercise of the Committee's discretion contemplated in the last sentence of this Section 4, for incentive stock options granted after December 31, 1986, as required by Section 422A(b)(7) of the Code as enacted by the Tax Reform Act of 1986, the aggregate fair market value, determined as provided in Section 5(I) on the date of grant of such incentive stock options, of the shares with respect to which such incentive stock options are exercisable for the first time by an employee during any calendar year under all plans of the corporation employing such employee, any parent or subsidiary corporation of such corporation and any predecessor corporation of any such corporation shall not exceed $100,000. If the date on which one or more of such incentive stock options could first be exercised would be accelerated pursuant to any provision of the Plan or any stock option agreement or an amendment thereto, and the acceleration of such exercise date would result in a violation of the restriction required by Section 422A(b)(7) of the Code set forth in the preceding sentence, then, notwithstanding any such provision, but subject to the provisions of the next succeeding sentence, the exercise date of such incentive stock options shall be accelerated only to the extent, if any, that does not result in a violation of such restriction and, in such event, the exercise date of the incentive stock options with the lowest option price shall be accelerated first. If legislation is enacted modifying or removing the $100,000 restriction required by Section 422A(b)(7) of the Code as enacted by the Tax Reform Act of 1986, as of the effective date of such legislation the Committee may in its discretion modify or waive the $100,000 restriction set forth above for incentive stock options granted (and to be granted) after December 31, 1986 and authorize the acceleration, if any, of the exercise date of incentive stock options up to the maximum extent permitted by such legislation (even if such incentive stock options are converted in part to nonstatutory stock options).

SECTION 5

Terms and Conditions of Stock Options, Alternative Stock Appreciation Rights and Cash Payment Rights

Stock options, alternative stock appreciation rights and cash payment rights granted under the Plan shall be subject to the following terms and conditions:

(A) The purchase price at which each stock option may be exercised (the "option price") shall be such price as the Committee, in its discretion, shall determine but shall not be less than one hundred percent (100%) of the fair market value per share of the Common Stock covered by the stock option on the date of grant, except that in the case of an incentive stock option granted to an employee who, immediately prior to such grant, owns stock possessing more than ten percent (10%) of the total combined voting power of all classes of stock of the Company or any Subsidiary (a "Ten Percent Employee"), the option price shall not be less than one hundred ten percent (110%) of such fair market value on the date of grant. For purposes of this Section 5(A), the fair market value of the Common Stock shall be determined as provided in Section 5(I). For purposes of this Section 5(A), an individual (i) shall be considered as owning not only shares of stock owned individually but also all shares of stock that are at the time owned, directly or indirectly, by or for the spouse, ancestors, lineal descendants and brothers and sisters (whether by the whole or half blood) of such individual and (ii) shall be considered as owning proportionately any shares owned, directly or indirectly, by or for any corporation, partnership, estate or trust in which such individual is a shareholder, partner or beneficiary.

(B) The option price for each stock option shall be paid in full upon exercise and shall be payable in cash in United States dollars (including check, bank draft or money order); provided, however, that in lieu of such cash the person exercising the stock option may (if authorized by the

Committee at the time of grant in the case of an incentive stock option, or at any time in the case of a nonstatutory stock option) pay the option price in whole or in part by delivering to the Company shares of the Common Stock having a fair market value on the date of exercise of the stock option, determined as provided in Section 5(I), equal to the option price for the shares being purchased; except that (i) any portion of the option price representing a fraction of a share shall in any event be paid in cash and (ii) no shares of the Common Stock which have been held for less than one year may be delivered in payment of the option price of a stock option. The date of exercise of a stock option shall be determined under procedures established by the Committee, and as of the date of exercise the person exercising the stock option shall be considered for all purposes to be the owner of the shares with respect to which the stock option has been exercised. Payment of the option price with shares shall not increase the number of shares of the Common Stock which may be issued or delivered under the Plan as provided in Section 3.

(C) No stock option shall be exercisable by an optionee during employment during the first six months of its term, except that this limitation on exercise shall not apply if Section 8(B) becomes applicable. No incentive stock option shall be exercisable after the expiration of ten years (five years in the case of a Ten Percent Employee) from the date of grant. No nonstatutory stock option shall be exercisable after the expiration of ten years and six months from the date of grant. A stock option to the extent exercisable at any time may be exercised in whole or in part.

(D) Except as provided in the last sentence of the next to last paragraph of Section 8(D), alternative stock appreciation rights granted in conjunction with a stock option may only be exercised when and to the extent the stock option may be exercised and only by the same person who is entitled to exercise the stock option except that alternative stock appreciation rights granted in conjunction with an incentive stock option shall not be exercisable unless the fair market value of the Common Stock on the date of exercise exceeds the option price of the shares subject to the incentive stock option. Alternative stock appreciation rights entitle such person to exercise the alternative stock appreciation rights by surrendering the stock option, or any portion thereof, unexercised and to receive from the Company in exchange therefor that number of shares of the Common Stock having an aggregate fair market value on the date of exercise of the alternative stock appreciation rights equal to the excess of the fair market value of one share of the Common Stock on such date of exercise over the option price per share times the number of shares covered by the stock option, or portion thereof, which is surrendered, except that cash shall be paid by the Company in lieu of a fraction of a share. To the extent that alternative stock appreciation rights are exercised, the stock option, or portion thereof, which is surrendered unexercised and any limited stock appreciation rights or limited cash payment rights granted in conjunction with such stock option, or portion thereof, shall automatically terminate. The Committee shall have the authority, in its discretion, to determine whether the obligation of the Company shall be paid in cash or partly in cash and partly in shares, except that the Company shall not pay to any person who is subject to the provisions of Section 16(b) of the 1934 Act at the time of exercise of alternative stock appreciation rights any portion of the obligation of the Company in cash (except cash in lieu of a fraction of a share) unless and until at least six months have elapsed from the date of grant of the alternative stock appreciation rights and unless such alternative stock appreciation rights are exercised during the period beginning on the third and ending on the twelfth business day following the date of release for publication of the quarterly or annual summary statements of sales and earnings of the Company. The date of exercise of alternative stock appreciation rights shall be determined under procedures established by the Committee, and payment under this Section 5(D) shall be made by the Company as soon as practicable after the date of exercise. As of the date of exercise, the person exercising the alternative stock appreciation rights shall be considered for all purposes to be the owner of any shares which are to be issued or delivered upon the exercise of the alternative stock appreciation rights. To the extent that the stock option in conjunction with which alternative stock appreciation rights have been granted is exercised, cancelled, terminates or expires, the alternative stock appreciation rights shall be cancelled. For the purposes of this Section 5(D), the fair market value of the Common Stock shall be determined as provided in Section 5(I).

(E) Cash payment rights granted in conjunction with a nonstatutory stock option shall entitle the person who is entitled to exercise the stock option upon exercise of the stock option, or any portion thereof, to receive cash from the Company (in addition to the shares to be received upon exercise of the stock option) equal to such percentage as the Committee, in its discretion, shall determine not greater than one hundred percent (100%) of the excess of the fair market value of a share of the Common Stock on the date of exercise of the stock option (or on the alternative date provided for in the following sentence) over the option price per share of the stock option times the number of shares covered by the stock option, or portion thereof, which is exercised. If any such person is subject to the provisions of Section 16(b) of the 1934 Act at the time of exercise of the stock option, the amount of such cash payment shall be determined as of an alternative date which shall be the day on which the restrictions imposed by Section 16(b) of the 1934 Act no longer apply for purposes of Section 83 of the Code. Payment of the cash provided for in this Section 5(E) shall be made by the Company as soon as practicable after the time the amount payable is determined. For purposes of this Section 5(E), the fair market value of the Common Stock shall be determined as provided in Section 5(I).

(F) No stock option shall be transferable by an optionee otherwise than by Will, or if an optionee dies intestate, by the laws of descent and distribution of the state of domicile of the optionee at the time of death. All stock options shall be exercisable during the lifetime of an optionee only by the optionee.

(G) Subject to the provisions of Section 4 in the case of incentive stock options, unless the Committee, in its discretion, shall otherwise determine:

(i) If the employment of an optionee who is not disabled within the meaning of Section 422A(c)(7) of the Code (a "Disabled Optionee") is voluntarily terminated with the consent of the Company or a Subsidiary or an optionee retires under any retirement plan of the Company or a Subsidiary, any then outstanding incentive stock option held by such an optionee shall be exercisable by the optionee (but only to the extent exercisable by the optionee immediately prior to the termination of employment) at any time prior to the expiration date of such incentive stock option or within three months after the date of termination of employment, whichever is the shorter period;

(ii) If the employment of an optionee who is not a Disabled Optionee is voluntarily terminated with the consent of the Company or a Subsidiary or an optionee retires under any retirement plan of the Company or a Subsidiary, any then outstanding nonstatutory stock option held by such an optionee shall be exercisable by the optionee (but only to the extent exercisable by the optionee immediately prior to the termination of employment) at any time prior to the expiration date of such nonstatutory stock option or within one year after the date of termination of employment, whichever is the shorter period;

(iii) If the employment of an optionee who is a Disabled Optionee is voluntarily terminated with the consent of the Company or a Subsidiary, any then outstanding stock option held by such an optionee shall be exercisable by the optionee in full (whether or not so exercisable by the optionee immediately prior to the termination of employment) by the optionee at any time prior to the expiration date of such stock option or within one year after the date of termination of employment, whichever is the shorter period;

(iv) Following the death of an optionee during employment, any outstanding stock option held by the optionee at the time of death shall be exercisable in full (whether or not so exercisable by the optionee immediately prior to the death of the optionee) by the person entitled to do so under the Will of the optionee, or, if the optionee shall fail to make testamentary disposition of the stock option or shall die intestate, by the legal representative of the optionee at any time prior to the expiration date of such stock option or within one year after the date of death, whichever is the shorter period;

(v) Following the death of an optionee after termination of employment during a period when a stock option is exercisable, any outstanding stock option held by the optionee at the time of death shall be exercisable by such person entitled to do so under the Will of the

optionee or by such legal representative (but only to the extent the stock option was exercisable by the optionee immediately prior to the death of the optionee) at any time prior to the expiration date of such stock option or within one year after the date of death, whichever is the shorter period; and

(vi) Unless the exercise period of a stock option following termination of employment has been extended as provided in Section 8(C), if the employment of an optionee terminates for any reason other than voluntary termination with the consent of the Company or a Subsidiary, retirement under any retirement plan of the Company or a Subsidiary or death, all outstanding stock options held by the optionee at the time of such termination of employment shall automatically terminate.

Whether termination of employment is a voluntary termination with the consent of the Company or a Subsidiary and whether an optionee is a Disabled Optionee shall be determined in each case, in its discretion, by the Committee and any such determination by the Committee shall be final and binding.

If an optionee engages in the operation or management of a business (whether as owner, partner, officer, director, employee or otherwise and whether during or after termination of employment) which is in competition with the Company or any of its Subsidiaries, the Committee may immediately terminate all outstanding stock options held by the optionee; provided, however, that this sentence shall not apply if the exercise period of a stock option following termination of employment has been extended as provided in Section 8(C). Whether an optionee has engaged in the operation or management of a business which is in competition with the Company or any of its Subsidiaries shall also be determined, in its discretion, by the Committee, and any such determination by the Committee shall be final and binding.

(H) All stock options, alternative stock appreciation rights and cash payment rights shall be confirmed by a stock option agreement, or an amendment thereto, which shall be executed on behalf of the Company by the Chief Executive Officer (if other than the President), the President or any Vice President and by the optionee.

(I) Fair market value of the Common Stock shall be the mean between the following prices, as applicable, for the date as of which fair market value is to be determined as quoted in The Wall Street Journal (or in such other reliable publication as the Committee, in its discretion, may determine to rely upon): (a) if the Common Stock is listed on the New York Stock Exchange, the highest and lowest sales prices per share of the Common Stock as quoted in the NYSE-Composite Transactions listing for such date, (b) if the Common Stock is not listed on such exchange, the highest and lowest sales prices per share of Common Stock for such date on (or on any composite index including) the principal United States securities exchange registered under the 1934 Act on which the Common Stock is listed, or (c) if the Common Stock is not listed on any such exchange, the highest and lowest sales prices per share of the Common Stock for such date on the National Association of Securities Dealers Automated Quotations System or any successor system then in use ("NASDAQ"). If there are no such sale price quotations for the date as of which fair market value is to be determined but there are sale price quotations within a reasonable period both before and after such date, then fair market value shall be determined by taking a weighted average of the means between the highest and lowest sales prices per share of the Common Stock as so quoted on the nearest date before and the nearest date after the date as of which fair market value is to be determined. The average should be weighted inversely by the respective numbers of trading days between the selling dates and the date as of which fair market value is to be determined. If there are no sale price quotations on or within a reasonable period both before and after the date as of which fair market value is to be determined, then fair market value of the Common Stock shall be the mean between the bona fide bid and asked prices per share of Common Stock as quoted for such date on NASDAQ, or if none, the weighted average of the means between the bona fide bid and asked prices on the nearest trading date before and the nearest trading date after the date as of which fair market value is to be determined, if both such dates are within a reasonable period. The average is to be determined in the manner described above in this Section 5(I). If the fair market value of the Common Stock cannot be determined on

the basis previously set forth in this Section 5(I) on the date as of which fair market value is to be determined, the Committee shall in good faith determine the fair market value of the Common Stock on such date. Fair market value shall be determined without regard to any restriction other than a restriction which, by its terms, will never lapse.

(J) The obligation of the Company to issue or deliver shares of the Common Stock under the Plan shall be subject to (i) the effectiveness of a registration statement under the Securities Act of 1933, as amended, with respect to such shares, if deemed necessary or appropriate by counsel for the Company, (ii) the condition that the shares shall have been listed (or authorized for listing upon official notice of issuance) upon each stock exchange, if any, on which such shares may then be listed and (iii) all other applicable laws, regulations, rules and orders which may then be in effect.

Subject to the foregoing provisions of this Section and the other provisions of the Plan, any stock option or alternative stock appreciation rights granted under the Plan may be exercised at such times and in such amounts and be subject to such restrictions and other terms and conditions, if any, as shall be determined, in its discretion, by the Committee and set forth in the stock option agreement referred to in Section 5(H), or an amendment thereto.

SECTION 6

Terms and Conditions of Restricted Stock Awards

Restricted stock awards shall be evidenced by a written restricted stock agreement in the form prescribed by the Committee in its discretion, which shall set forth the number of shares of the Common Stock awarded, the restrictions imposed thereon (including, without limitation, restrictions on the right of the grantee to sell, assign, transfer or encumber such shares while such shares are subject to other restrictions imposed under this Section 6), the duration of such restrictions, events the occurrence of which would cause a forfeiture of the restricted stock and such other terms and conditions as the Committee in its discretion deems appropriate. Restricted stock awards shall be effective only upon execution of the applicable restricted stock agreement on behalf of the Company by the Chief Executive Officer (if other than the President), the President or any Vice President, and by the grantee.

Following a restricted stock award and prior to the lapse or termination of the applicable restrictions, the Committee shall deposit share certificates for such restricted stock in escrow. Upon the lapse or termination of the applicable restrictions (and not before such time), the grantee shall be issued or transferred share certificates for such restricted stock. From the date a restricted stock award is effective, the grantee shall be a shareholder with respect to all the shares represented by such certificates and shall have all the rights of a shareholder with respect to all such shares, including the right to vote such shares and to receive all dividends and other distributions paid with respect to such shares, subject only to the restrictions imposed by the Committee.

SECTION 7

Adjustment and Substitution of Shares

If a dividend or other distribution shall be declared upon the Common Stock payable in shares of the Common Stock, the number of shares of the Common Stock then subject to any outstanding stock option or restricted stock award and the number of shares of the Common Stock which may be issued or delivered under the Plan but are not then subject to an outstanding stock option or restricted stock award shall be adjusted by adding thereto the number of shares of the Common Stock which would have been distributable thereon if such shares had been outstanding on the date fixed for determining the shareholders entitled to receive such stock dividend or distribution.

If the outstanding shares of the Common Stock shall be changed into or exchangeable for a different number or kind of shares of stock or other securities of the Company or another corporation, whether through reorganization, reclassification, recapitalization, stock split-up, combination of shares, merger or consolidation, then there shall be substituted for each share of the Common Stock subject to any then outstanding stock option or restricted stock award, and for each share of the

Common Stock which may be issued or delivered under the Plan but which is not then subject to an outstanding stock option or restricted stock award, the number and kind of shares of stock or other securities into which each outstanding share of the Common Stock shall be so changed or for which each such share shall be exchangeable.

In case of any adjustment or substitution as provided for in this Section 7, the aggregate option price for all shares subject to each then outstanding stock option prior to such adjustment or substitution shall be the aggregate option price for all shares of stock or other securities (including any fraction) to which such shares shall have been adjusted or which shall have been substituted for such shares. Any new option price per share shall be carried to at least three decimal places with the last decimal place rounded upwards to the nearest whole number.

No adjustment or substitution provided for in this Section 7 shall require the Company to issue or sell a fraction of a share or other security. Accordingly, all fractional shares or other securities which result from any such adjustment or substitution shall be eliminated and not carried forward to any subsequent adjustment or substitution. Owners of restricted stock shall be treated in the same manner as the Company treats owners of its Common Stock with respect to fractional shares created by an adjustment or substitution of shares, except that any property or cash paid in lieu of a fractional share shall be subject to restrictions similar to those applicable to the restricted stock exchanged therefor.

If any such adjustment or substitution provided for in this Section 7 requires the approval of shareholders in order to enable the Company to grant incentive stock options, then no such adjustment or substitution shall be made without the required shareholder approval. Notwithstanding the foregoing, in the case of incentive stock options, if the effect of any such adjustment or substitution would be to cause the stock option to fail to continue to qualify as an incentive stock option or to cause a modification, extension or renewal of such stock option within the meaning of Section 425 of the Code, the Committee may elect that such adjustment or substitution not be made but rather shall use reasonable efforts to effect such other adjustment of each then outstanding stock option as the Committee, in its discretion, shall deem equitable and which will not result in any disqualification, modification, extension or renewal (within the meaning of Section 425 of the Code) of such incentive stock option.

SECTION 8

Additional Rights in Certain Events

(A) Definitions

For purposes of this Section 8, the following terms shall have the following meanings:

(1) "Affiliate," "Associate" and "Parent" shall have the respective meanings set forth in Rule 12b-2 under the 1934 Act as in effect on the effective date of the Plan.

(2) The term "Person" shall be used as that term is used in Sections 13(d) and 14(d) of the 1934 Act.

(3) Beneficial Ownership shall be determined as provided in Rule 13d-3 under the 1934 Act as in effect on the effective date of the Plan.

(4) "Voting Shares" shall mean all securities of a company entitling the holders thereof to vote in an annual election of Directors (without consideration of the rights of any class of stock other than the Common Stock to elect Directors by a separate class vote); and a specified percentage of "Voting Power" of a company shall mean such number of the Voting Shares as shall enable the holders thereof to cast such percentage of all the votes which could be cast in an annual election of directors (without consideration of the rights of any class of stock other than the Common Stock to elect Directors by a separate class vote).

(5) "Tender Offer" shall mean a tender offer or exchange offer to acquire securities of the Company (other than such an offer made by the

Company or any Subsidiary), whether or not such offer is approved or opposed by the Board.

(6) "Section 8 Event" shall mean the date upon which any of the following events occurs:

(a) The Company acquires actual knowledge that any Person other than the Company, a Subsidiary, any Director of the Company on the effective date of the Plan, any Affiliate or Associate of any such Director, any member of the family of any such Director, any trust (including the Trustees thereof), established by or for the benefit of any such persons, any charitable foundation, whether a trust or a corporation (including the trustees and directors thereof), established by any such persons or any employee benefit plan(s) sponsored by the Company has acquired the Beneficial Ownership, directly or indirectly, of securities of the Company entitling such Person to 25% or more of the Voting Power of the Company [as used above, a member of the family of a Director shall include such Director's spouse and such Director's and such spouse's ancestors, lineal descendants, brothers and sisters (whether by the whole or half blood or by adoption), the lineal descendants of such brothers and sisters and the spouses of any of the foregoing persons];

(b) (i) A Tender Offer is made to acquire securities of the Company entitling the holders thereof to 50% or more of the Voting Power of the Company; or (ii) Voting Shares are first purchased pursuant to any other Tender Offer;

(c) At any time less than 51% of the members of the Board of Directors shall be individuals who were either (i) Directors on the effective date of the Plan or (ii) individuals whose election, or nomination for election, was approved by a vote of at least two-thirds of the Directors then still in office who were Directors on the effective date of the Plan or who were so approved;

(d) The shareholders of the Company shall approve an agreement or plan (a "Reorganization Agreement") providing for the Company to be merged, consolidated or otherwise combined with, or for all or substantially all its assets or stock to be acquired by, another corporation, as a consequence of which the former shareholders of the Company will own, immediately after such merger, consolidation, combination or acquisition, less than a majority of the Voting Power of such surviving or acquiring corporation or the Parent thereof; or

(e) The shareholders of the Company shall approve any liquidation of all or substantially all of the assets of the Company or any distribution to security holders of assets of the Company having a value equal to 30% or more of the total value of all the assets of the Company.

(B) Acceleration of the Exercise Date of Stock Options and Alternative Stock Appreciation Rights

Subject to the provisions of Section 4 in the case of incentive stock options, unless the stock option agreement referred to in Section 5(H), or an amendment thereto, shall otherwise provide, notwithstanding any other provision contained in the Plan, in case any "Section 8 Event" occurs (i) all outstanding stock options and alternative stock appreciation rights shall become immediately and fully exercisable whether or not otherwise exercisable by their terms, (ii) payment by the Company upon exercise of alternative stock appreciation rights held by a person who is subject to the provisions of Section 16(b) of the 1934 Act (which alternative stock appreciation rights have been held less than six months at the time of exercise following a Section 8 Event) shall be made by the Company in shares of Common Stock (except that cash may be paid in lieu of a fraction of a share) and (iii) payment by the Company upon exercise of alternative stock appreciation rights held by such a person (which alternative stock appreciation rights have been held at least six months on the date of exercise following a Section 8 Event) shall be made in cash if the date of exercise is within sixty (60) days following a Section 8 Event, whether or not the date of exercise is within one of the ten (10) day periods provided for in Section 5(D).

(C) Extension of the Expiration Date of Stock Options and Alternative Stock Appreciation Rights

Subject to the provisions of Section 4 in the case of incentive stock options, unless the stock option agreement referred to in Section 5(H), or an amendment thereto, shall otherwise provide, notwithstanding any other provision contained in the Plan, all stock options and alternative stock appreciation rights held by an optionee whose employment with the Company or a Subsidiary terminates within one year of any Section 8 Event for any reason other than voluntary termination with the consent of the Company or a Subsidiary, retirement under any retirement plan of the Company or a

Subsidiary or death shall be exercisable for a period of three months from the date of such termination of employment, but in no event after the expiration date of the stock option.

(D) Limited Stock Appreciation Rights

Limited stock appreciation rights granted in conjunction with a stock option shall be exercisable for a period of sixty (60) days following any Section 8 Event by the same person who is entitled to exercise the stock option and shall entitle such person to exercise the limited stock appreciation rights by surrendering the stock option, or any portion thereof, unexercised and to receive from the Company in exchange therefor cash in the amount provided for below in this Section 8(D). To the extent that limited stock appreciation rights are exercised, the stock option, or portion thereof, which is surrendered unexercised and any alternative stock appreciation rights or limited cash payment rights granted in conjunction with such stock option, or portion thereof, shall automatically terminate.

Notwithstanding the foregoing, limited stock appreciation rights may not be exercised by a person who is subject to the provisions of Section 16(b) of the 1934 Act at the time of exercise of the limited stock appreciation rights unless and until at least six months have elapsed from the date of grant of the limited stock appreciation rights; provided, however, that if limited stock appreciation rights are granted in conjunction with a stock option as to which alternative stock appreciation rights have previously been granted, the limited stock appreciation rights shall be deemed to have been granted at the time of grant of such alternative stock appreciation rights. Limited stock appreciation rights granted in conjunction with an incentive stock option shall also not be exercisable unless the then fair market value of the Common Stock, determined as provided in Section 5(I), exceeds the option price of such incentive stock option and unless such incentive stock option is exercisable. Cash is payable to a person who is subject to the provisions of Section 16(b) of the 1934 Act at the time of exercise of limited stock appreciation rights whether or not the date of exercise is within one of the ten (10) day periods provided for in Section 5(D).

The person exercising limited stock appreciation rights granted in conjunction with a nonstatutory stock option shall receive cash in respect of each share of the Common Stock subject to the stock option, or portion thereof, which is surrendered unexercised in an amount equal to the excess of the fair market value of such share on the date of exercise over the option price of such stock option, and for this purpose fair market value shall mean the highest closing sale price of the Common Stock quoted by such reliable source as the Committee, in its discretion, may rely upon during the period beginning on the 9Oth day prior to the date on which the limited stock appreciation rights are exercised and ending on such date (or if no such sale price quotation is available, the highest mean between the bona fide bid and asked prices on any date during such period), except that (i) in the event any Person acquires Beneficial Ownership, directly or indirectly, of securities of the Company entitling such Person to 25% or more of the Voting Power of the Company within the meaning of Section 8(A)(6)(a), fair market value shall mean the greater of such closing sale price or the highest price per share paid for the Common Stock shown on the Statement on Schedule 13D, or any amendment thereto, filed by the Person acquiring such beneficial ownership, (ii) in the event of a Tender Offer, fair market value shall mean the greater of such closing sale price or the highest price paid for the Common Stock pursuant to any Tender Offer in effect at any time beginning on the 9Oth day prior to the date on which the limited stock appreciation rights are exercised and ending on such date and (iii) in the event of approval by the shareholders of the Company of a Reorganization Agreement, fair market value shall mean the greater of such closing sale price or the value of the consideration to be received by holders of the Common Stock pursuant to the Reorganization Agreement. In the event such value cannot be determined on the date of exercise of the limited stock appreciation rights, such value shall be determined by the Committee as promptly as practicable after such exercise and payment by the Company shall be made as promptly as practicable after such determination. Any non-cash consideration received by the holders of any shares of the Common Stock in one of the events referred to in clause (ii) or (iii) above shall be valued at the higher of (i) the valuation placed thereon by the Person making the Tender Offer or by the surviving or acquiring corporation or the Parent thereof and (ii) the valuation placed thereon by the Committee.

The person exercising limited stock appreciation rights granted in conjunction with an incentive stock option shall receive cash in respect of each share of the Common Stock subject to the stock

option, or portion thereof, which is surrendered unexercised in an amount equal to the excess of the fair market value of such share on the date of exercise, determined as provided in Section 5(I), over the option price of such stock option.

The date of exercise of limited stock appreciation rights shall be determined under procedures established by the Committee, and payment under this Section 8(D) shall be made by the Company as soon as practicable after the date of exercise. To the extent that the stock option in conjunction with which the limited stock appreciation rights shall have been granted is exercised, cancelled, terminates or expires, the limited stock appreciation rights shall be cancelled. If limited stock appreciation rights are granted in conjunction with a stock option as to which alternative stock appreciation rights also have been granted, the alternative stock appreciation rights may not be exercised during any period during which the limited stock appreciation rights may be exercised.

All limited stock appreciation rights shall be confirmed by a stock option agreement, or an amendment thereto, which shall be executed on behalf of the Company by the Chief Executive Officer (if other than the President), the President or any Vice President and by the optionee. Subject to the foregoing provisions of this Section 8(D) and the other provisions of the Plan, limited stock appreciation rights granted under the Plan shall be subject to such other terms and conditions as shall be determined, in its discretion, by the Committee and set forth in the stock option agreement referred to in Section 5(H), or an amendment thereto.

(E) Limited Cash Payment Rights

Limited cash payment rights granted in conjunction with a nonstatutory stock option shall be exercisable for a period of sixty (60) days following any Section 8 Event by the person who is entitled to exercise the nonstatutory stock option and shall entitle such person to surrender the nonstatutory stock option, or any portion thereof, unexercised and to receive from the Company in exchange therefor cash in an amount equal to two (2) times the amount provided for in the third paragraph of Section 8(D) multiplied by such percentage not greater than 100% as the Committee, in its discretion, shall determine. For purposes of the third paragraph of Section 8(D), the words "limited cash payment rights" shall be deemed to be substituted for "limited stock appreciation rights." To the extent that limited cash payment rights are exercised, the nonstatutory stock option, or portion thereof, which is surrendered unexercised and any alternative stock appreciation rights or limited stock appreciation rights granted in conjunction with such stock option, or portion thereof, shall automatically terminate. Notwithstanding the foregoing, limited cash payment rights may not be exercised by a person who is subject to the provisions of Section 16(b) of the 1934 Act at the time of exercise unless and until at least six months have elapsed from the date of grant of the limited cash payment rights.

The date of exercise of limited cash payment rights shall be determined under procedures established by the Committee, and payment of the cash provided for in this Section 8(E) shall be made by the Company as soon as practicable after the date of exercise. To the extent that the nonstatutory stock option in respect of which limited cash payment rights shall have been granted is exercised, cancelled, terminates or expires, the limited cash payment rights shall be cancelled.

All limited cash payment rights shall be confirmed by a stock option agreement, or an amendment thereto, which shall be executed on behalf of the Company by the Chief Executive Officer (if other than the President), the President or any Vice President and by the optionee. Subject to the foregoing provisions of this Section 8(E) and the other provisions of the Plan, limited cash payment rights granted under the Plan shall be subject to such other terms and conditions as shall be determined, in its discretion, by the Committee and set forth in the stock option agreement referred to in Section 5(H), or an amendment thereto.

(F) Lapse of Restrictions on Restricted Stock Awards

If any "Section 8 Event" occurs prior to the scheduled lapse of all restrictions applicable to restricted stock awards under the Plan, all such restrictions shall lapse upon the occurrence of any such "Section 8 Event" regardless of the scheduled lapse of such restrictions.

SECTION 9

Effect of the Plan on the Rights of Employees and Employer

Neither the adoption of the Plan nor any action of the Board or the Committee pursuant to the Plan shall be deemed to give any employee any right to be granted a stock option (with or without alternative stock appreciation rights, cash payment rights, limited stock appreciation rights and/or limited cash payment rights) or to be awarded restricted stock under the Plan and nothing in the Plan, in any stock option, alternative stock appreciation rights, cash payment rights, limited stock appreciation rights or limited cash payment rights granted under the Plan, in any restricted stock award under the Plan or in any stock option agreement or restricted stock agreement shall confer any right to any employee to continue in the employ of the Company or any Subsidiary or interfere in any way with the rights of the Company or any Subsidiary to terminate the employment of any employee at any time.

SECTION 10

Amendment

The right to alter and amend the Plan at any time and from time to time and the right to revoke or terminate the Plan are hereby specifically reserved to the Board; provided always that no such revocation or termination shall terminate any outstanding stock options, alternative stock appreciation rights, cash payment rights, limited stock appreciation rights or limited cash payment rights granted under the Plan or cause a revocation or a forfeiture of any restricted stock award under the Plan; and provided further that no such alteration or amendment of the Plan shall, without shareholder approval (a) increase the total number of shares which may be issued or delivered under the Plan, (b) increase the total number of shares which may be covered by any stock option or stock options granted to any one optionee or any restricted stock awards to any one person, (c) change the minimum option price, (d) make any changes in the class of employees eligible to receive incentive stock options or (e) extend any period set forth in the Plan during which stock options (with or without alternative stock appreciation rights, cash payment rights, limited stock appreciation rights and/or limited cash payment rights) may be granted or restricted stock may be awarded. No alteration, amendment, revocation or termination of the Plan shall, without the written consent of the holder of a stock option, alternative stock appreciation rights, cash payment rights, limited stock appreciation rights, limited cash payment rights or restricted stock theretofore awarded under the Plan, adversely affect the rights of such holder with respect to such stock option, alternative stock appreciation rights, cash payment rights, limited stock appreciation rights, limited cash payment rights or restricted stock.

SECTION 11

Effective Date and Duration of Plan

The effective date and date of adoption of the Plan shall be December 17, 1987, the date of adoption of the Plan by the Board, provided that such adoption of the Plan by the Board is approved by the affirmative vote of the holders of at least a majority of the outstanding shares of voting stock of the Company at a meeting of such holders duly called, convened and held on or prior to December 16, 1988. No stock option, alternative stock appreciation rights, limited stock appreciation rights or limited cash payment rights granted under the Plan may be exercised and no restricted stock may be awarded until after such approval. No stock option, alternative stock appreciation rights, cash payment rights, limited stock appreciation rights or limited cash payment rights may be granted and no restricted stock may be awarded under the Plan subsequent to December 16, 1997.

EXHIBIT 10(e)

CONSULTING AGREEMENT

THIS AGREEMENT, made and entered into this 29th day of December, 1993, by and between MINE SAFETY APPLIANCES COMPANY ("MSA"), a Pennsylvania corporation, and LEO N. SHORT, JR. ("Mr. Short").

WITNESSETH:

WHEREAS, Mr. Short has been employed by MSA since July 15, 1947 and served as its President and Chief Executive Officer from January 17, 1986 to April 25, 1990 and as its Chairman of the Board and Chief Executive Officer from that date until September 30, 1991; and

WHEREAS, Mr. Short retired as an employee of the Company on February 1, 1992; and

WHEREAS, MSA does not wish to lose the benefit of Mr. Short's experience with MSA and his familiarity of its operations and desires to be able to call on his advice and expertise from time to time upon the terms and subject to the conditions hereafter set forth;

NOW, THEREFORE, in consideration of the mutual agreements contained herein and intending to be legally bound hereby, MSA and Mr. Short promise and agree as follows:

1. Terms of Agreement. This Agreement shall become effective February 1, 1994 and shall continue thereafter to and including January 31, 1995. Notwithstanding the expiration of the foregoing initial term, this Agreement shall automatically renew for successive one-year terms unless either party shall give written notice of cessation of the Agreement not less than 30 days prior to the expiration of either the initial term or any successive one-year term.

2. Nature of Mr. Short's services. Mr. Short shall provide such advice and consulting services to MSA as shall from time to time be mutually agreed between the parties. In connection therewith, Mr. Short shall make himself reasonably available for general advice and consultation in connection with aspects of the international operations and business of MSA and its subsidiaries, including service as a member of the designated international subsidiaries' Boards of Directors or any Committee thereof, and as Chairman of MSA International, if and for so long as the Board may request.

3. Compensation of Mr. Short. As full compensation for services rendered to MSA pursuant to the terms of this Agreement, excluding service as a member of the Board of Directors or a member of any Committee thereof, MSA shall pay Mr. Short an annual consulting fee of $30,000, in monthly or such other convenient installments as may be mutually agreed by Mr. Short and MSA. It is fully understood and agreed by Mr. Short that payment of the annual consulting fee shall be in full payment for Mr. Short's services hereunder, and that MSA shall be under no obligation to provide any employee benefits of any nature whatsoever, except those employee benefits to which Mr. Short may be or

may become entitled as a result of his services as an officer, director or employee of MSA.

In the performance of the work and services hereunder, Mr. Short recognizes that due to being a retired former employee, he is considered a temporary employee for tax purposes only and shall be considered as an independent consultant and contractor for all other purposes. Mr. Short understands that MSA will withhold from each payment of wages the appropriate amounts for social security and withholding taxes, as well as state income and local wage taxes, if applicable. Mr. Short will supply MSA with executed exemption certificates.

4. Facilities and Expenses. During the term of this Agreement, MSA will supply Mr. Short with office space, secretarial staff and such other facilities and support services as he may reasonably request to carry out his duties hereunder. Such office space, facilities and services may be located at or provided by any one of the offices of MSA or such other reasonably convenient location as may be designated by Mr. Short. MSA shall reimburse Mr. Short for all reasonable out-of-pocket travel and other business expenses incurred by him in connection with the services to be provided to MSA pursuant to this Agreement.

5. Confidential Information; Noncompetition. Mr. Short acknowledges that during the course of his employment with MSA he has acquired and may subsequently acquire privileged and confidential information concerning MSA's current and prospective

customers, its methods and ways of doing business, its plans and goals for future activities and other confidential or proprietary information belonging to MSA or relating to its affairs (collectively referred to herein as the "Confidential Information"). Mr. Short further acknowledges and agrees that the Confidential Information is the property of MSA and that any misappropriation or unauthorized use or disclosure of the Confidential Information would cause irreparable injury to MSA, and that it is essential to the protection of MSA and its good will, and to the maintenance of its competitive position that the Confidential Information be kept secret and not be disclosed to others.

Mr. Short further agrees that during the term of this Agreement and thereafter, he shall hold and safeguard the Confidential Information in trust for MSA, its successors and assigns, and that he shall not, without the prior written consent of MSA, misappropriate or disclose or make available to anyone for use outside the corporation at any time. Further, Mr. Short agrees that he shall not, without first obtaining the written consent of MSA, directly or indirectly engage in or assist any business which is in competition with MSA or any of its subsidiaries.

6. Death Prior to Termination of Agreement. In the event of Mr. Short's death during the term of this Agreement or extensions thereof, the duties and obligations of both Mr. Short and MSA shall terminate effective on such date, except that in the event that Mr. Short's death occurs prior to January 31, 1995 or any extended date, MSA shall pay the balance of the consulting fee otherwise due Mr. Short for the remainder of the term to his surviving spouse or estate (whichever may apply) in a single sum.

7. Disability or Incapacity. In the event that Mr. Short shall, in the opinion of the Board of Directors of MSA, be unable, by reason of mental or physical disability or incapacity, to perform the consulting services otherwise required herein, MSA may, at its option, terminate this Agreement effective as of any date not less than 60 days following the date of delivery of written notice of termination to Mr. Short or his representative. Such declaration and notice shall cause MSA to pay the balance of the consulting fee otherwise due Mr. Short for the remainder of the initial term to his personal representative in a single sum.

8. Assignment. Except with respect to the death or disability payments described in Paragraphs 6 and 7 hereof, the benefits of this Agreement are and shall be personal to Mr. Short, shall inure to the benefit of Mr. Short's personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees or legatees. This Agreement shall be binding upon and shall inure to the benefit of MSA, any successor (whether

direct or indirect, by purchase, merger, consolidation or otherwise) to all or substantially all of the business or assets of MSA, or to any assignee thereof.

9. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the date first above written.

ATTEST: MINE SAFETY APPLIANCES COMPANY

/S/ Donald H. Cuozzo
Secretary

By /S/John T. Ryan III
John T. Ryan III, President, Chairman and Chief Executive Officer

WITNESS:

/S/ Elmira F. Potochnik

/S/Leo N. Short, Jr.
Leo N. Short, Jr.

EXHIBIT 13

DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

SALES AND EARNINGS

Sales were $429,220,000 in 1993, a 15% decline from the prior year's $502,366,000. Sales in 1991 were $499,240,000. Income from continuing operations declined 37% in 1993 to $10,555,000 from $16,703,000 in 1992, which was 25% lower than 1991's income of $22,424,000. Income from continuing operations, per share of common stock, was $1.73 in 1993, $2.67 in 1992, and $3.52 in 1991.

The decrease in consolidated sales in 1993 is attributed primarily to a significant drop in sales to the U.S. Defense Department and lower international sales, particularly in Europe. U.S. commercial sales in 1993 were minimally higher than 1992. Defense product sales of gas masks and parts were especially high in late 1991 and early 1992 due to orders relating to the Middle East conflict. Shipments of defense products to U.S. government agencies in 1993 were $43,234,000, a 57% decrease from 1992 shipments of $99,991,000. Shipments in 1992 were 7 1/2% higher than 1991 shipments of $93,034,000. These sales represent 10% of consolidated sales in 1993, as compared to 20% in 1992 and 18 1/2% in 1991. New contracts received in 1993 were $32,558,000 as compared to $48,510,000 in 1992. The 1993 year-end backlog was $54,889,000, a 16% decrease from the 1992 year-end backlog of $65,565,000.

Domestic sales of commercial products increased in shipments of instrument products in 1993 and 1992, along with increased chemical products sales in 1992. Sales of commercial safety products were about the same as in 1992 and 1991. Sales by international operations, stated in U.S. dollars, decreased 10 1/2% in 1993, after having decreased 3 1/2% in 1992. These decreases are due primarily to currency exchange rate shifts and the widespread economic recession, particularly in Europe.

The 1993 gross profit rate was 36.3%, an increase over the 34.8% and 35.0% experienced in 1992 and 1991, respectively. Historically and currently, commercial sales carry much greater margins than military sales; thus the change of sales mix has contributed to higher profit margins. Furthermore, military sales profit rates dropped significantly in 1992 and 1991, reflecting the impacts of development and start-up costs for new model designs and the results of competitive bidding pressures. Results in 1991 were also adversely affected by operating losses at the Catalyst Research Division. Depreciation, selling and administrative expenses approximated 30% of sales in each of the years 1993, 1992 and 1991.

Income from continuing operations in 1993 was not materially affected by relocation and restructuring activities, whereas in 1992 there was an after-tax charge of $3,163,000 or $ .51 per share. In 1992 the company consolidated certain U.S. manufacturing operations. The medical instruments, specialty sensor and battery operations at the Catalyst Research Division in Owings Mills, Maryland were transferred to the Instrument Division in Cranberry, Pa., and the Owings Mills facility offered for sale. Safety products manufacturing is now concentrated in three principal locations after a reduction in the scope of operations at Evans City, Pa. In 1993, the German affiliate closed one factory and a distribution center and now conducts all its operations from Berlin. Major reductions in the work forces have been instituted, particularly in Europe and Latin America. It is expected that these changes will enable the company to serve its commercial and military customers more efficiently and maintain ample capacity to meet future growth potential.

Net income in 1993 was $10,555,000 or $1.73 per share of common stock, compared to 1992 net income of $2,672,000 or $.42 per share (includes special charges for accounting changes and discontinued operations) and $18,651,000 or $2.92 per share in 1991. The accounting changes in 1992 resulted in an after-tax cumulative effect charge, as of January 1, 1992, of $8,964,000 or $1.44 per share of common stock. SFAS No. 106--"Employers' Accounting for Postretirement Benefits Other Than Pensions" was implemented on an immediate recognition basis rather than spreading the accumulated obligation over 20 years (see note 16). This one-time transition effect decreased net income $8,672,000 ($1.39 per share). SFAS No. 112--"Employers' Accounting for

Postemployment Benefits," pertaining to benefits such as workers' compensation and other disability expenses, reduced earnings $2,440,000 ($.39 per share). SFAS No. 109--"Accounting for Income Taxes" increased earnings $2,148,000 ($.34 per share). This Standard requires that deferred tax balances be stated at tax rates expected to be in effect when taxes are actually paid or recovered. This asset/liability method may have a more volatile effect on future earnings than the previous method which provided deferred taxes at tax rates prevailing during the periods that timing differences occurred. Although these three new Standards significantly reduced 1992 net income, they did not have any cash flow impact.

The company decided, as of the end of 1992, to discontinue the operation of Transfer-Metallisierte Produkte GmbH (TMP), a joint venture in Germany to produce metallized paper. This venture, unrelated to the company's safety products, has been a financial drain on the company. Operating activities ceased during 1993; the company is in the process of disposing of its assets and settling its liabilities. TMP's cumulative losses since inception in the company's consoli-

dated results, adjusted for the after-tax effects of intercompany transactions, aggregate approximately $10.9 million. The company estimates that any losses that may be incurred from the disposition of TMP, including provision for operating losses during the phase-out period, will not affect 1993 and 1992 net income or cash flows after deducting the aforementioned accumulated losses already recognized and the tax benefits associated with any write-off.

The after-tax effects of foreign currency exchange losses charged to income in 1993 reduced net income $3,204,000 or $.53 per share, as compared to $5,022,000 or $.81 per share in 1992 and $2,408,000 or $.38 per share in 1991. The more significant losses resulted from the currency valuation changes that occurred in Brazil in each of the three years. The effective income tax rates, for which further information is included at note 8, were 42.1% in 1993, 39.9% in 1992, and 41.4% in 1991.

FINANCIAL CONDITION AND FUNDS FLOW

Cash and cash equivalents decreased $8,975,000 during 1993. Accounts receivable of $81,897,000 at December 31, 1993 includes $10,129,000 from the sale of fixed assets. Trade receivables expressed in number of days' sales outstanding were 61 days, as compared to 55 days in 1992. Inventories decreased $6,330,000 to $81,454,000 at December 31, 1993. Inventory measured against sales turned 5.3 times in 1993 and 5.7 times in 1992. Inventories decreased primarily in the international companies. The working capital ratio was 3.7 and 4.2 to 1 at years-end 1993 and 1992, respectively.

All short-term debt was owed by international affiliates. These loans are payable in local currencies, which is in keeping with the company's policy of minimizing foreign currency exposures by offsetting foreign currency assets with foreign currency debt. The average interest rate on these loans, which includes the effects of borrowing in certain countries where local inflation has resulted in high interest rates, was approximately 14%.

Long-term debt and the current portion thereof decreased $1,402,000 to $30,982,000, a conservative 11% of total capital. Total capital is defined as long-term debt plus current portion of long-term debt and shareholders' equity.

Capital expenditures of $20,399,000 in 1993 represent a decrease of $2,363,000 from 1992 expenditures of $22,762,000. The company has continued its program of plant and equipment modernization to increase efficiency of existing manufacturing and distribution facilities. For the most part, capital expenditures were financed internally through retained earnings. In the past five years, approximately $ 111 million has been spent on new plants, equipment and distribution facilities.

Dividends paid on the common stock during 1993 (the 76th consecutive year of a dividend payment) were $.92 per share, up from the $.89 per share paid during 1992 and $.88 per share paid in 1991. The current quarterly cash dividend is $.23 per share on common stock. Cash dividends have been paid at a conservative percentage of income which has permitted the company to finance its growth almost exclusively through retained earnings. Common shares are repurchased from time-to-time in keeping with the company's policy of buying back a limited number of its shares. As of December 31, 1993, an additional 129,120 shares may be repurchased under current authorizations.

Credit available at year-end with banks was the U.S. dollar equivalent of $8,858,000. The company's financial position remains strong and should provide adequate capital resources for growth.

CUMULATIVE CURRENCY TRANSLATION ADJUSTMENT

The year-end position of the U.S. dollar relative to foreign currencies resulted in a translation loss of $5,400,000 being charged to the cumulative translation adjustments shareholders equity account in 1993, as compared to losses of $4,736,000 in 1992 and $7,527,000 in 1991. Significant translation losses occurred in Germany and Italy in 1993, in Britain, Canada, Italy and Australia in 1992 and in Germany and Britain in 1991.

COMMON STOCK

At December 31, 1993, there were 6,011,628 shares of common stock outstanding. There were approximately 480 identifiable common stockholders as of November 19, 1993, a recent date for dividends. The common stock last-sale price and up-to-the-minute volume information (Symbol: MNES) is included in the National Association of Security Dealers, Inc., (NASDAQ) National Market System. The quarterly high and low price quotations for common shares follow:

	1993		1992	
Quarter	High	Low	High	Low
First	$46	$39 3/4	$51	$43 1/2
Second	49	44	46	42
Third	45 3/4	41 1/4	45 3/4	41 3/4
Fourth	45	41 3/4	44 1/2	38

Common stock quarterly cash dividend information is as follows:

Quarter	Amount Per Share	Record Date	Payment Date
		1993	
First	$ .23	Feb. 19, 1993	March 10, 1993
Second	.23	May 14, 1993	June 10, 1993
Third	.23	Aug. 13, 1993	Sept. 10, 1993
Fourth	.23	Nov. 19, 1993	Dec. 10, 1993
Total	.92		
		1992	
First	$ .22	Feb. 21, 1992	March 10, 1992
Second	.22	May 15, 1992	June 10, 1992
Third	.22	Aug. 14, 1992	Sept. 10, 1992
Fourth	.23	Nov. 20, 1992	Dec. 10, 1992
Total	.89		

The company's stock transfer agent is Norwest Bank Minnesota, N.A., 161 North Concord Exchange, P. O. Box 738, South St. Paul, MN 55075-0738.

REPORT OF MANAGEMENT

Mine Safety Appliances Company's consolidated financial statements and related notes that appear in this Annual Report to Shareowners were prepared by the company in accordance with generally accepted accounting principles. In fulfilling its responsibilities for the integrity and objectivity of the consolidated financial statements, management maintains accounting procedures designed to provide accurate books, records and accounts which reasonably and fairly reflect the transactions of the company in a consistent manner on the accrual basis of accounting.

Company personnel are trained and given responsibilities to ensure adequate internal accounting controls at a cost commensurate with the risks involved. Internal accounting controls, monitored by an internal audit staff, provide reasonable assurances that transactions are executed in accordance with proper authorization and that adequate accountability for the company's assets is maintained.

The Board of Directors, through its Audit Committee, is responsible for assuring that management fulfills its responsibilities in the preparation of the financial statements. The Audit Committee meets at least twice a year with the company's independent accountants to discuss the scope of their examination and any significant findings resulting therefrom.

/s/ James E. Herald
- -------------------
James E. Herald
Vice President--Finance
Chief Financial Officer

REPORT OF INDEPENDENT ACCOUNTANTS

To the Shareowners and Board of Directors
of Mine Safety Appliances Company:

In our opinion, the accompanying consolidated balance sheet and the related consolidated statements of income, of earnings retained in the business, and of cash flows present fairly, in all material respects, the financial position of Mine Safety Appliances Company and its subsidiaries at December 31, 1993 and 1992, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 1993, in conformity with generally accepted accounting principles. These financial statements are the responsibility of the Company'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 audit 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.

As discussed in Note 18 to these consolidated financial statements, the Company adopted Statement of Financial Accounting Standards (SFAS) No. 106, "Employers' Accounting for Postretirement Benefits Other Than Pensions," SFAS No. 109, "Accounting for Income Taxes," and SFAS No. 112, "Employers' Accounting for Postemployment Benefits" in 1992.

/s/ Price Waterhouse
- --------------------
Price Waterhouse
Pittsburgh, Pennsylvania
February 16, 1994

Consolidated Statement of Income

(In thousands, except per share amounts)

Year Ended December 31	1993	1992	1991
Net sales	$429,220	$502,366	$499,240
Other income	5,885	9,755	8,886
	435,105	512,121	508,126
Costs and expenses			
Cost of products sold	273,350	327,555	324,448
Selling, general and administrative	121,529	130,182	124,983
Depreciation	17,294	16,831	16,230
Interest	(1,713)	1,536	1,739
Foreign currency losses	3,201	5,507	2,456
Facilities consolidation and restructuring charges	(223)	5,500	
Contract costs recovery		(2,800)	
	416,864	484,311	469,856
Income from continuing operations before income taxes	18,241	27,810	38,270
Provision for income taxes	7,686	11,107	15,846
Income from continuing operations	10,555	16,703	22,424
Losses from discontinued operations (Note 7)		(5,067)	(3,773)
Cumulative effect to January 1, 1992 of changes in accounting principles (Note 18)		(8,964)	
Net income	$ 10,555	$ 2,672	$ 18,651
Earnings per common share			
Continuing operations	$ 1.73	$ 2.67	$ 3.52
Discontinued operations		(.81)	(.60)
Cumulative effect to January 1, 1992 of changes in accounting principles		(1.44)	
Net income	$ 1.73	$ .42	$ 2.92

Consolidated Statement of
Earnings Retained in the Business

(In thousands, except per share amounts)

Year Ended December 31	1993	1992	1991
At beginning of year	$282,371	$285,307	$272,315
Net income	10,555	2,672	18,651
Dividends			
Common--$.92, $.89 and $.88 per share	(5,584)	(5,550)	(5,600)
Preferred--$2.25 per share	(56)	(58)	(59)
At end of year	$287,286	$282,371	$285,307

See notes to consolidated financial statements

Consolidated Balance Sheet

(In thousands, except per share amounts)

	December 31	1993	1992
ASSETS			
Current Assets	Cash	$ 10,953	$ 13,117
	Temporary investments, at cost which approximates market	35,481	42,292
	Receivables, less allowance for doubtful accounts $2,516 and $2,453	81,897	75,779
	Inventories	81,454	87,784

	Prepaid expenses and other current assets	14,824	13,440
	Total current assets	224,609	232,412
Property	Land	6,766	7,566
	Buildings	104,942	107,239
	Machinery and equipment	183,776	181,062
	Construction in progress	11,207	10,041
	Total	306,691	305,908
	Less accumulated depreciation	(153,162)	(149,763)
	Net property	153,529	156,145
Other Assets	Assets of discontinued business	7,175	6,092
	Other assets	22,571	13,123
	Total other assets	29,746	19,215
	Total	$ 407,884	$ 407,772
LIABILITIES			
Current Liabilities	Notes payable and current portion of long-term debt	$ 6,294	$ 6,451
	Accounts payable	20,925	25,215
	Employees' compensation	11,460	11,271
	Insurance	7,509	7,067
	Taxes on income	(3,474)	(7,349)
	Other current liabilities	17,696	12,470
	Total current liabilities	60,410	55,125
Long-term Debt		27,476	28,868
Other Liabilities	Deferred income taxes	12,142	9,794
	Pensions and other employee benefits	46,856	49,128
	Other noncurrent liabilities	1,256	1,663
	Total other liabilities	60,254	60,585
SHAREHOLDERS' EQUITY			
	Preferred stock, 4 1/2% cumulative, $50 par value (callable at $52.50)	3,569	3,569
	Common stock, no par value (shares outstanding: 1993--6,011,628; 1992--6,078,786)	8,048	6,872
	Cumulative translation adjustments	(5,749)	(349)
	Earnings retained in the business	287,286	282,371
	Treasury shares, at cost	(33,410)	(29,269)
	Total shareholders' equity	259,744	263,194
	Total	$ 407,884	$ 407,772

See notes to consolidated financial statements.

Consolidated Statement of Cash Flows

(In thousands)

Year Ended December 31	1993	1992	1991
OPERATING ACTIVITIES			
Income from continuing operations	$ 10,555	$ 16,703	$ 22,424
Depreciation	17,294	16,831	16,230
Pensions	151	2,600	2,799
Deferred income taxes	(82)	99	(2,019)
Receivables	(6,118)	7,281	1,366
Inventories	6,330	11,937	(11,026)
Accounts payable and accrued liabilities	5,442	(12,406)	(1,766)
Other assets and liabilities	(5,040)	(2,470)	(2,321)

Other--including currency exchange adjustments	(3,956)	(3,682)	(4,948)
CASH FLOW FROM OPERATING ACTIVITIES	24,576	36,893	20,739
INVESTING ACTIVITIES			
Property additions	(20,399)	(22,762)	(16,450)
Property disposals	3,420	1,189	757
Acquisitions and other investing	(4,180)	443	(2,547)
CASH FLOW FROM INVESTING ACTIVITIES	(21,159)	(21,130)	(18,240)
FINANCING ACTIVITIES			
Additions to long-term debt	1,472	6,883	11,082
Reductions of long-term debt	(1,850)	(1,227)	(11,514)
Financing funds in escrow		(2,922)	
Cash dividends	(5,640)	(5,608)	(5,659)
Stock options and purchases of company's stock	(4,141)	(8,310)	(5,800)
Changes in notes payable and short-term debt	399	(218)	1,168
CASH FLOW FROM FINANCING ACTIVITIES	(9,760)	(11,402)	(10,723)
Effect of exchange rate changes on cash	(2,632)	(3,311)	(4,221)
Increase (decrease) in cash and cash equivalents	(8,975)	1,050	(12,445)
Beginning cash and cash equivalents	55,409	54,359	66,804
Ending cash and cash equivalents	$ 46,434	$ 55,409	$ 54,359
Supplemental cash flow information:			
Interest payments	$ 1,467	$ 1,504	$ 1,728
Income tax payments	9,013	25,610	16,502

See notes to consolidated financial statements.

Note 1--Basis of Presentation

Significant accounting policies are stated in ITALICS at the applicable notes to consolidated financial statements.

ALL SIGNIFICANT MAJORITY-OWNED COMPANIES ARE INCLUDED IN THE CONSOLIDATED FINANCIAL STATEMENTS. INVESTMENTS IN WHICH THE COMPANY HAS AN EQUITY INTEREST OF 20% TO 50% ARE CARRIED AT EQUITY IN NET ASSETS. INTERCOMPANY TRANSACTIONS ARE ELIMINATED IN CONSOLIDATION.

SALES UNDER CONTRACTS ARE RECORDED AT FIXED OR ESTIMATED CONTRACT SALES PRICES AS DELIVERIES ARE MADE. CONTRACTS REQUIRING PERFORMANCE OVER SEVERAL PERIODS ARE ACCOUNTED FOR BY THE PERCENTAGE-OF-COMPLETION METHOD OF ACCOUNTING. PROFITS EXPECTED TO BE REALIZED ARE BASED ON ESTIMATES OF TOTAL SALES AND COSTS AT COMPLETION. THESE ESTIMATES ARE PERIODICALLY REVIEWED AND REVISED DURING THE CONTRACT PERFORMANCE PERIOD. ADJUSTMENTS TO PROFITS ARE RECORDED IN THE PERIOD IN WHICH ESTIMATES ARE REVISED; LOSSES ARE RECOGNIZED IN FULL AS THEY ARE IDENTIFIED.

PROPERTY IS STATED AT COST. DEPRECIATION IS BASED ON ESTIMATED USEFUL LIVES USING ACCELERATED AND STRAIGHT-LINE METHODS. MAINTENANCE AND REPAIRS ARE CHARGED TO EXPENSE. RENEWALS AND BETTERMENTS WHICH SUBSTANTIALLY EXTEND THE USEFUL LIFE OF PROPERTY ARE CAPITALIZED. ACCUMULATED ALLOWANCES FOR DEPRECIATION OF BUILDINGS, MACHINERY AND EQUIPMENT RETIRED OR OTHERWISE DISPOSED OF ARE ELIMINATED FROM THE ACCOUNTS UPON DISPOSITION. PROFITS OR LOSSES RESULTING FROM SUCH DISPOSITIONS ARE INCLUDED IN INCOME.

CASH AND CASH EQUIVALENTS IN THE CONSOLIDATED STATEMENT OF CASH FLOWS INCLUDES TEMPORARY INVESTMENTS THAT ARE READILY MARKETABLE AND HAVE MINIMAL RISK AS TO CHANGE IN VALUE. CERTAIN SECURITIES HAVE MATURITIES IN EXCESS OF NINETY DAYS; BUT, AS PART OF THE COMPANY'S CASH MANAGEMENT PROGRAM, MATURITIES ARE SCHEDULED BASED ON EXPECTED CASH NEEDS FOR THE ENSUING TWELVE MONTHS.

EARNINGS PER SHARE ARE COMPUTED BASED UPON THE WEIGHTED AVERAGE NUMBER OF COMMON SHARES OUTSTANDING DURING EACH YEAR. THE COMPUTATION RECOGNIZES DIVIDENDS PAID ON PREFERRED STOCK BUT DOES NOT INCLUDE A NEGLIGIBLE DILUTIVE EFFECT OF STOCK OPTIONS.

Note 2--Leases

The company leases warehouses, sales offices, manufacturing facilities and equipment under agreements expiring at various dates through 2003, with renewal options existing for varying periods. Rental expense for these leases charged to income was $6,438,000 in 1993, $6,500,000 in 1992, and $5,998,000 in 1991. Future minimum rental commitments under noncancelable leases are not significant.

Note 3--Research and Development Expense

RESEARCH AND DEVELOPMENT COSTS, CHARGED AGAINST INCOME AS INCURRED, were $21,000,000 in 1993, $20,938,000 in 1992, and $19,575,000 in 1991.

Note 4--Other Income

Other income is summarized as follows:

	(In thousands)		
	1993	1992	1991
Interest	$3,732	$6,857	$6,483
Commissions, royalties and product services	1,335	897	1,233
Dispositions of assets	127	435	308
Other	691	1,566	862
Total	5,885	9,755	8,886

Note 5--Stock Plans

The company's Management Share Incentive Plan permits the granting of restricted stock awards or stock options to eligible key employees through December 1997. The 1990 Non-Employee Directors' Stock Option Plan provides for annual grants of stock options to eligible directors. As of December 31, 1993, 356,333 shares were reserved for future grants pursuant to these Plans.

Shares of common stock, in the form of restricted stock bonus, have been given to employees without payment to the company in consideration of services to be performed in ensuing five-year periods. So long as certain restrictions apply, these shares may not be sold and may be subject to forfeiture under certain circumstances. THE EXPENSE TO THE COMPANY IS MEASURED BY THE MARKET VALUE OF THE SHARES WHEN AWARDED AND IS AMORTIZED BY CHARGES TO OPERATIONS OVER THE PERIOD THAT THE EMPLOYEE PROVIDES THE SERVICE. The expense charged to operations was $371,000 in 1993, $318,000 in 1992, and $350,000 in 1991. A summary of the restricted stock bonus awards is as follows:

	Shares of Common Stock
As of December 31, 1993:	
Awards	113,103
Restrictions lapsed	77,531
Restrictions lapsing in:	
1994 and 1995	8,386
1996, 1997 and 1998	27,186

Stock options of 28,920 shares for key employees and 3,600 shares for non-employee directors were outstanding at December 31, 1993. These options may be exercised in whole or in part at various dates through December 18, 2001 at option prices equivalent to or higher than the market values at date of grant. Changes in stock options outstanding follow:

	Shares	Price Per Share
December 31, 1990..............	25,220	$27.00 to 61.33
Granted........................	16,500	44.38 to 55.00
December 31, 1991..............	41,720	27.00 to 61.33
Granted........................	1,400	44.00
Exercised......................	(4,000)	29.70
Forfeited......................	(400)	44.00 to 55.00
December 31, 1992..............	38,720	27.00 to 61.33
Granted........................	1,400	47.13
Forfeited......................	(7,600)	55.75
December 31, 1993..............	32,520	27.00 to 61.33

Note 6--Business Segments and International Operations

The company is primarily engaged in the manufacture and sale of safety and health equipment. Principal products include respiratory protective equipment, head protection, eye and face protection, hearing protectors, safety clothing, industrial emergency care products, mining safety equipment, monitoring instruments and heart pacemaker power cells. These safety and health products account for more than 90% of revenues, operating profits and assets. Other products which do not fall within the safety and health equipment segment of the company's business include boron-based and other specialty chemicals.

Information about the company's continuing operations in different geographic areas is summarized as follows:

	(In thousands)		
	1993	1992	1991
NET SALES AND REVENUES			
U.S. operations..............................	$254,823	$307,535	$297,286
European operations..........................	114,169	138,006	141,759
Other non-U.S. operations....................	61,969	59,612	62,731
NET SALES AND REVENUES.......................	430,961	505,153	501,776
INTERCOMPANY TRANSFERS			
U.S. operations..............................	17,937	18,982	18,628
European operations..........................	12,886	16,556	15,653
Other non-U.S. operations....................	550	330	288
INTERCOMPANY TRANSFERS.......................	31,373	35,868	34,569
OPERATING PROFIT AND INCOME BEFORE INCOME TAXES			
U.S. operations..............................	13,183	21,203	14,594
European operations..........................	(1,345)	3,965	13,849
Other non-U.S. operations....................	6,036	6,697	6,857
Eliminations.................................	922	(1,280)	816
OPERATING PROFIT.............................	18,796	30,585	36,116
Interest expense.............................	(1,713)	(1,536)	(1,739)
Foreign currency losses......................	(3,201)	5,507)	(2,456)
Corporate income/(expense)--net..............	4,359	4,268	6,349
INCOME BEFORE INCOME TAXES...................	18,241	27,810	38,270
IDENTIFIABLE ASSETS AND TOTAL ASSETS			
U.S. operations..............................	234,650	220,441	226,143
European operations..........................	96,064	102,160	107,455
Other non-U.S. operations....................	33,705	36,254	35,020
Eliminations.................................	(12,657)	(15,199)	(13,010)

IDENTIFIABLE ASSETS	351,762	343,656	355,608
Corporate assets	48,947	58,024	58,651
Discontinued operations	7,175	6,092	16,610
TOTAL ASSETS	407,884	407,772	430,869
NET ASSETS OF NON-U.S. OPERATIONS (1)	82,273	89,383	106,164
NET INCOME OF NON-U.S. OPERATIONS	2,666	4,046	12,954

(1) See Note 17 to consolidated financial statements for effects of currency translation adjustments.

Transfers between geographic areas are stated at established intercompany selling prices. Operating profit is total revenues less operating expenses. Interest income and expense, equity in unconsolidated affiliates, foreign currency gains and losses, and income taxes have not been included in computing operating profit. Corporate assets not included in identifiable assets are principally cash and investments.

Sales by U.S. operations to U.S. government agencies were $43,234,000 in 1993, $99,991,000 in 1992, and $93,034,000 in 1991.

Note 7--Discontinued Operations

In 1992 the company decided to discontinue the operations of Transfer-Metallisierte Produkte GmbH (TMP), a joint venture in Germany to produce metallized paper. Accordingly, the operating losses of TMP, adjusted for the after-tax effects of intercompany transactions, have been reported separately in the consolidated statement of income. Operating activities ceased during 1993. The company is in the process of disposing of the assets and settling its liabilities. After recognizing the accumulated operating losses of TMP included in consolidation, the company estimates a loss on disposal, including provision for operating losses during the phase-out period, of $11,550,000 which will be fully offset by tax benefits.

Note 8--Income Taxes

EFFECTIVE AS OF JANUARY 1, 1992, THE COMPANY ADOPTED STATEMENT OF FINANCIAL ACCOUNTING STANDARDS NO. 109-ACCOUNTING FOR INCOME TAXES. AS A RESULT OF THIS ACCOUNTING CHANGE, DEFERRED TAX BALANCES ARE STATED AT TAX RATES EXPECTED TO BE IN EFFECT WHEN TAXES ARE ACTUALLY PAID OR RECOVERED. THE CUMULATIVE EFFECT OF THIS CHANGE WAS A CREDIT TO INCOME OF $2,148,000 IN 1992. NO PROVISION IS MADE FOR UNDISTRIBUTED EARNINGS OF INTERNATIONAL COMPANIES SINCE LITTLE OR NO TAX WOULD RESULT UNDER APPLICABLE EXISTING STATUTES OR BECAUSE MANAGEMENT INTENDS THAT THESE EARNINGS BE PERMANENTLY REINVESTED FOR WORKING CAPITAL AND CAPITAL EXPENDITURE REQUIREMENTS.

The U.S. and non-U.S. components of income from continuing operations before income taxes, and provisions for income taxes are summarized as follows:

	(In thousands)		
	1993	1992	1991
INCOME BEFORE INCOME TAXES			
U.S. income	$ 16,304	$ 32,256	$17,794
Non-U.S. income	6,055	12,592	23,861
Currency translations (losses)	(3,081)	(4,478)	(2,432)
Eliminations	(1,037)	(12,560)	(953)
INCOME BEFORE INCOME TAXES	18,241	27,810	38,270
PROVISIONS FOR INCOME TAXES			
Current			
Federal	4,427	6,422	6,074
State	1,122	1,237	1,867

Non-U.S.	2,219	3,349	9,924
Total current provision	7,768	11,008	17,865
Deferred			
Federal	351	1,187	(658)
State	(2)	378	(197)
Non-U.S.	(431)	(1,466)	(1,164)
Total deferred provision	(82)	99	(2,019)
PROVISIONS FOR INCOME TAXES	7,686	11,107	15,846

The components of the net deferred tax liability are as follows:

	1993	1992
Deferred tax assets:		
Postretirement benefits	5,792	5,540
Inventory reserves and unrealized profits	5,027	4,441
Vacation allowances	2,059	1,925
Postemployment benefits	1,630	1,560
Liability insurance	1,749	1,524
Loss carryforwards	6,370	8,437
Other	1,248	985
Total deferred tax assets	23,875	24,412
Deferred tax (liability)--depreciation	(25,065)	(25,662)
Net deferred tax (liability)	(1,190)	(1,250)

The following is a reconciliation of income taxes calculated at the U.S. Federal income tax rate (35% in 1993, 34% in 1992 and 1991) to the provision for income taxes for continuing operations:

	1993	1992	1991
Provision for income taxes at statutory rate	6,384	9,455	13,012
State income taxes	728	1,066	1,102
Currency translation	1,078	1,523	827
Research tax credits	(50)	(50)	(150)
Non-U.S. taxes	(817)	(1,321)	994
Other--net	363	434	61
Provision for income taxes	7,686	11,107	15,846

Undistributed earnings of international companies for which U.S. income taxes have not been provided were $55,995,000 at December 31, 1993.

Note 9--Capital Stock

The authorized capital of the company consists of:

. Common stock, no par value--20,000,000 shares
. Second cumulative preferred voting stock, $10 par value--1,000,000 shares
. 4 1/2% cumulative preferred stock, $50 par value--100,000 shares

Common stock activity is summarized as follows:

			(In thousands)	
	Shares	Shares In	Common	Treasury

	Issued	Treasury	Stock	Cost
Balances January 1, 1991................	6,682,317	284,862	$6,754	$(13,576)
Purchased for treasury.................		121,482		(5,800)
Balances December 31, 1991.............	6,682,317	406,344	6,754	(19,376)
Stock options exercised................	4,000		118	
Purchased for treasury.................		201,187		(8,403)
Balances December 31, 1992.............	6,686,317	607,531	6,872	(27,779)
Management Share Incentive Plan issues..	27,186		1,176	
Purchased for treasury.................		94,344		(4,099)
Balances December 31, 1993.............	6,713,503	701,875	8,048	(31,878)

Second cumulative preferred voting stock--none has been issued.

As to the 4 1/2% cumulative preferred stock, 71,373 shares have been issued (none during the three years ended December 31, 1993), while the amounts held in treasury are as follows:

December 31	Shares	Cost (in thousands)
1991	45,164	$(1,465)
1992	46,030	(1,490)
1993	47,268	(1,532)

Note 10--Inventories

THE U.S. INVENTORIES ARE VALUED ON THE LAST-IN, FIRST-OUT (LIFO) COST METHOD. OTHER INVENTORIES ARE VALUED AT THE LOWER OF COST, USING AVERAGE OR CURRENT STANDARD COSTS WHICH APPROXIMATE ACTUAL COSTS ON A FIRST-IN, FIRST-OUT (FIFO) BASIS, OR MARKET, DETERMINED BY REPLACEMENT COST OR NET REALIZABLE VALUE.

Inventories are summarized as follows:

	(In thousands)		
	1993	1992	1991
Finished products....................	$30,409	$33,643	$32,592
Work in process......................	20,001	20,952	27,333
Raw materials and supplies...........	31,044	33,189	39,796
Total inventories....................	81,454	87,784	99,721
Excess of FIFO costs over LIFO costs....................	63,033	62,564	65,003

Inventories stated on the LIFO basis represent 58%, 52%, and 56% of the total inventories at December 31, 1993, 1992, and 1991, respectively.

Note 11--Long-Term Debt

	(In thousands)	
	1993	1992
U.S.		

Industrial development debt issues payable through 2022, 3.5%..........	$13,650	$13,650
Other, 4.8% to 5%....................	950	557
International companies		
Various notes payable through 1998, 3 1/2% to 12.4% ($15,781 secured by pledge of assets located abroad)..	16,382	18,177
Total..................................	30,982	32,384
Amounts due within one year..............	3,506	3,516
Long-term debt..........................	27,476	28,868

Approximate maturities of these obligations over the next five years are $3,506,000 in 1994, $8,915,000 in 1995, $4,092,000 in 1996, $1,455,000 in 1997, and $995,000 in 1998. Some U.S. loan agreements contain covenants to maintain specified levels of shareholders' equity.

Note 12--Short-Term Debt

Short-term bank lines of credit amounted to $11,476,000 of which $8,842,000 was unused at December 31, 1993. Generally, these short-term lines of credit are renewable annually and there are no significant commitment fees or compensating balance requirements. Short-term borrowings with banks, which exclude the current portion of long-term debt, were $2,722,000 and $2,935,000 at December 31, 1993 and 1992, respectively. The average month-end balance of total short-term borrowings during 1993 was $2,820,000 while the maximum month-end balance of $3,145,000 occurred at January 31, 1993. The average interest rate during 1993 was approximately 14% based upon total short-term interest expense divided by the average month-end balance outstanding, and 12% at year-end. This average interest rate is affected by borrowings in certain countries where local inflation has resulted in relatively high interest rates.

Note 13--Contingencies

A portion of the company's business is with departments and agencies of the United States government. Contracts related to this business are subject to profit limitations and terminations. The company also has certain contingent liabilities with respect to commitments and litigation. In the opinion of management, these contingencies will not result in any significant losses to the company.

Note 14--Retirement Plans

Substantially all employees are covered by non-contributory pension plans. Various U.S. employees also participate in a contributory retirement savings plan wherein employees may contribute from 1% to 8% of their compensation to a trust fund, to which the company contributes an amount equal to 50% of the employees' contributions. The company's expense for these plans was $4,408,000 in 1993, $7,572,000 in 1992, and $6,433,000 in 1991.

THE NON-CONTRIBUTORY PENSION PLANS ARE ACCOUNTED FOR IN ACCORDANCE WITH STATEMENT OF FINANCIAL ACCOUNTING STANDARDS NO. 87 WHICH REQUIRES USE OF THE PROJECTED UNIT CREDIT COST METHOD TO DETERMINE THE PROJECTED BENEFIT OBLIGATION AND PLAN COST. THE PRINCIPAL U.S. PLAN IS FUNDED IN COMPLIANCE WITH THE EMPLOYEE RETIREMENT INCOME SECURITY ACT (ERISA). IT IS THE GENERAL POLICY TO FUND CURRENT COSTS FOR THE INTERNATIONAL PLANS EXCEPT IN GERMANY, WHERE IT IS COMMON PRACTICE AND PERMISSIBLE UNDER TAX LAWS TO ACCRUE BOOK RESERVES. Non-contributory plan benefits are generally based on years of service and employees' compensation during the last years of employment. Benefits are paid from funds previously provided to trustees or are paid by the company and charged to the book reserves.

Information pertaining to the non-contributory defined benefit plans is provided in the following tables.

COST FOR DEFINED BENEFITS PLANS
(In thousands)

	U.S. Plans	International Plans

	1993	1992	1991	1993	1992	1991
Service cost--benefits earned during the period	$ 2,894	$ 2,646	$ 2,334	$ 1,361	$1,707	$ 1,383
Interest cost on projected benefit obligation	9,558	9,903	9,032	2,910	2,927	2,682
Actual (return)/loss on plan assets	(22,879)	(15,509)	(37,599)	(2,219)	(898)	(1,102)
Net amortization and deferral	9,937	3,087	25,975	1,320	(55)	62
Special pension benefit adjustments associated with early retirement programs and restructuring	(728)	(643)		(1,655)		
Pension expense (income)	(1,218)	(516)	(258)	1,717	3,681	3,025

FUNDING STATUS AND PROJECTED BENEFIT OBLIGATION RECONCILIATION
December 31 (In thousands)

	U.S. Plans			International Plans		
	1993	1992	1991	1993	1992	1991
Actuarial present value of benefit obligations:						
Accumulated benefit obligation						
Vested	108,439	97,767	90,618	22,157	21,993	19,982
Nonvested	1,917	300	275	980	762	1,112
Total	110,356	98,067	90,893	23,137	22,755	21,094
Plan assets at fair value, primarily listed stocks and bonds	179,832	164,832	161,857	16,071	13,591	14,705
Projected benefit obligation	136,034	118,084	111,939	35,621	35,881	34,851
Plan assets in excess of (less than) projected benefit obligation	43,798	46,748	49,918	(19,550)	(22,290)	(20,146)
The excess (less than) consists of:						
Unamortized portion of transition gain (loss), being recognized over future years	9,231	10,173	11,546	(886)	(1,361)	(1,425)
Unrecognized net gain (loss) from past experience different from that assumed	37,331	41,066	44,124	1,836	136	(610)
Unrecognized prior service cost	(3,380)	(3,925)	(4,427)	(579)	(656)	(840)
Minimum liability for unfunded plans	1,097	1,369	1,369			
Accrued pension cost included in the consolidated balance sheet	(481)	(1,935)	(2,694)	(19,921)	(20,409)	(17,271)
Total	43,798	46,748	49,918	(19,550)	(22,290)	(20,146)
Assumed long-term rates of return on assets	9%	9%	9%	7-9%	8-9 1/2%	8-11%
Assumed discount rates for future benefits	7 1/2	8 1/2	8 1/2	5 3/4-9	7 3/4-9 1/2	8-11
Assumed long-term rates for compensation increases	5	5	5	3-6	6-6 1/2	6-8

Note 15--Quarterly Financial Information (Unaudited)

(In thousands, except earnings per share)

	1993					1992				
	Quarters					Quarters				
	1st	2nd	3rd	4th	Year	1st	2nd	3rd	4th	Year
Continuing operations:										
Net sales	$104,863	$107,840	$103,899	$112,618	$429,220	$127,788	$128,559	$125,663	$120,356	$502,366
Gross profit	37,773	40,269	35,823	42,005	155,870	43,452	44,949	41,900	44,510	174,811
Income	2,516	2,963	1,411	3,665	10,555	4,441	6,182	3,595	2,485	16,703
Income per share	.41	.48	.24	.60	1.73	.71	.98	.58	.40	2.67
Discontinued operations						(883)	(1,074)	(1,278)	(1,832)	(5,067)
Cumulative effect, accounting changes						(8,964)				(8,964)
Net income	2,516	2,963	1,411	3,665	10,555	(5,406)	5,108	2,317	653	2,672
Earnings per share	.41	.48	.24	.60	1.73	(.88)	.82	.37	.11	.42

Note 16--Postretirement Benefits

The company provides certain health care benefits and limited life insurance for retired employees and their eligible dependents. STATEMENT OF FINANCIAL ACCOUNTING STANDARDS (SFAS) NO. 106-"EMPLOYERS' ACCOUNTING FOR POSTRETIREMENT BENEFITS OTHER THAN PENSIONS" WAS IMPLEMENTED AS OF JANUARY 1, 1992, USING THE IMMEDIATE RECOGNITION TRANSITION OPTION. SFAS NO. 106 REQUIRES RECOGNITION OF RETIREE HEALTH AND LIFE INSURANCE BENEFITS DURING THE EMPLOYEES' SERVICE WITH THE COMPANY.

The accumulated postretirement benefit of $14,212,000 as of January 1, 1992 was charged to 1992 earnings. Further information about these benefits is provided in the following tables:

COST FOR BENEFITS
(In thousands)

	1993	1992
Service cost--benefits earned during the period..............	$ 447	$ 385
Interest cost on projected benefit obligation................	1,192	1,201
	1,639	1,586

FUNDED STATUS AND ACCUMULATED POSTRETIREMENT BENEFIT OBLIGATION RECONCILIATION
December 31 (In thousands)

	1993	1992	1991
Accumulated postretirement benefit obligation:			
Active employees...	3,582	2,913	3,467
Other active participants................................	7,647	5,779	5,241
	11,229	8,692	8,708
Retirees...	5,615	5,895	5,504
Total..	16,844	14,587	14,212
Unamortized (loss)...	(2,565)	(275)	
Accrued postretirement benefit cost included in consolidated balance sheet.............................	14,279	14,312	
Assumed discount rates for future benefits...................	7 1/2%	8 1/2%	8 1/2%

Annual rates of increase in the costs of covered health care benefits assumed for 1993 were 10%, decreasing gradually to 5% for the year 1998 and thereafter. The health care cost trend rate assumption has a significant effect on the amounts reported; a one-percentage-point increase in each year would increase the accumulated postretirement benefit obligation by $1,326,000 and increase the current service and interest costs for the year by $270,000.

Note 17--Foreign Currency Translation

AN APPROPRIATE FUNCTIONAL CURRENCY IS DETERMINED FOR EACH ENTITY. THE FINANCIAL STATEMENTS OF COMPANIES FOR WHICH THE UNITED STATES DOLLAR IS DETERMINED TO BE THE FUNCTIONAL CURRENCY ARE TRANSLATED USING APPROPRIATE CURRENT AND HISTORIC EXCHANGE RATES; ADJUSTMENTS RELATED THERETO ARE INCLUDED IN INCOME FOR THE CURRENT PERIOD. THE FINANCIAL STATEMENTS OF ALL OTHER COMPANIES ARE TRANSLATED FROM THEIR FUNCTIONAL CURRENCY INTO UNITED STATES DOLLARS USING CURRENT EXCHANGE RATES; THE RESULTANT TRANSLATION ADJUSTMENTS ARE NOT INCLUDED IN INCOME BUT ARE ACCUMULATED IN A SEPARATE EQUITY ACCOUNT. TRANSACTION GAINS AND LOSSES ARE RECOGNIZED IN INCOME FOR THE CURRENT PERIOD.

Foreign currency effects are summarized as follows:

	(In thousands)		
	1993	1992	1991
Currency (gains)/losses charged to income arising from:			

Translation--Latin American companies......................	$3,080	$4,478	$2,432
Transactions.....................	121	1,029	24
Total...........................	3,201	5,507	2,456
Currency translation (gains)/losses charged directly to equity adjustment account...............	5,400	4,736	7,527

Note 18--Accounting Changes

Effective January 1, 1992, the company adopted three new Statements of Financial Accounting Standards (SFAS). The after tax effect of these changes was a charge of $8,964,000 against 1992 net income. Aside from this cumulative effect as of January 1, 1992, adoption of these Standards did not materially affect 1992 financial results. SFAS No. 106--"Employers' Accounting for Postretirement Benefits Other Than Pensions" was implemented using the immediate recognition transition option, resulting in a charge of $8,672,000, after recognizing related deferred taxes. SFAS No. 112--"Employers' Accounting for Postemployment Benefits" pertains to benefits, such as workers' compensation and other disability expenses, for inactive employees before retirement. The after tax costs recognized for implementing this Standard were $2,440,000 (pretax $4,000,000). SFAS No. 109--"Accounting for Income Taxes" requires that deferred tax balances are stated at tax rates expected to be in effect when taxes are actually paid or recovered, whereas deferred taxes were previously provided at tax rates prevailing during the periods when timing differences between financial income and taxable income occurred. Adjustment of the previously provided deferred taxes resulted in a net credit to income of $2,148,000.

Five-Year Summary of Selected Financial Data

SUMMARY OF OPERATIONS	1993	1992	1991	1990	1989
(In thousands, except as noted)					
Net sales	$429,220	$502,366	$499,240	$473,933	$414,963
Other income	5,885	9,755	8,886	8,807	11,675
Cost of products sold	273,350	327,555	324,448	287,345	250,155
Selling, general and administrative	121,529	130,182	124,983	121,137	110,110
Depreciation	17,294	16,831	16,230	14,904	13,755
Interest expense	1,713	1,536	1,739	1,926	2,316
Foreign currency losses	3,201	5,507	2,456	4,238	4,900
Unusual items	(223)	2,700		700	110
Taxes on income	7,686	11,107	15,846	21,583	17,516
Income from continuing operations	10,555	16,703	22,424	30,907	27,776
Per common share (in dollars)/(1)/	1.73	2.67	3.52	4.77	4.23
Discontinued operations		(5,067)	(3,773)	(1,703)	(269)
Cumulative effect to January 1, 1992 of changes in accounting principles		(8,964)			
Net income	10,555	2,672	18,651	29,204	27,507
Per common share (in dollars)/(1)/	1.73	.42	2.92	4.50	4.19
Cash dividends	5,640	5,608	5,659	5,372	4,837
Per common share (in dollars)	.92	.89	.88	.82	.73
Weighted average number of common shares outstanding	6,069	6,225	6,353	6,471	6,545
YEAR-END POSITION					
Working capital	$164,199	$177,287	$184,378	$185,371	$161,839
Working capital ratio	3.7	4.2	3.7	3.7	3.9
Property, at cost	306,691	305,908	292,338	285,961	256,467
Total assets	407,884	407,772	430,869	436,118	384,156
Long-term debt	27,476	28,868	23,009	24,606	22,544
Common shareholders' equity	258,539	261,927	277,866	278,199	247,957
Equity per common share (in dollars)	43.00	43.09	44.27	43.49	38.10

(1) Earnings per common share are calculated after deducting dividends on preferred stock and are based on the weighted average number of shares outstanding during each year.

EXHIBIT 21

MINE SAFETY APPLIANCES COMPANY

The registrant's present affiliates include the following:

Name	State or Other Jurisdiction of Incorporation
MSA (Aust.) Pty. Limited	Australia
MSA Export Limited	Barbados
MSA do Brasil Ltda.	Brazil
MSA Canada	Canada
MSA de Chile Ltda.	Chile
Baseline Industries, Inc.	Colorado
MSA International, Inc.	Delaware
MSA de France	France
Auergesellschaft GmbH	Germany
MSA/Auer Safety Technology	Hungary
MSA Italiana S.p.A.	Italy
MSA Japan Ltd.	Japan
MSA de Mexico, S.A. de C.V.	Mexico
MSA Nederland, B.V.	Netherlands
HAZCO Services, Inc.	Ohio
MSA del Peru S.A.	Peru
MSA (Britain) Limited	Scotland
MSA S.E. Asia Pte. Ltd.	Singapore
MSA Espanola S.A.	Spain
AB Tegma	Sweden
MSA (Switzerland) Ltd.	Switzerland
Safety Supply Specialists, Inc.	Wisconsin
MSA Zimbabwe (Pvt.) Limited	Zimbabwe

The above-mentioned affiliated companies are included in the consolidated financial statements of the registrant filed as part of this annual report. The names of certain other affiliates, which considered in the aggregate as a single affiliate would not constitute a significant affiliate, have been omitted.