

FROM RICHARD A. MILITO
ENVIRONMENTAL HEALTH LABORATORY
ALCOA TECHNICAL CENTER - C

TO MEMORANDUM

1989-04-01

**RE: INTERPRETATION OF 29CFR PARTS 1910 AND 1926, "OCCUPATIONAL EXPOSURE
TO ASBESTOS, TREMOLITE, ANTHOPHYLLITE AND ACTINOLITE"**

The purpose of this memorandum is to aid in the interpretation of the captioned asbestos regulation and its ambiguity of the terms tremolite, anthophyllite and actinolite as associated with the term 'asbestos.' Because asbestos is defined as a family of naturally occurring fibrous mineral silicates, ^(a) the inclusion of the terms tremolite, anthophyllite and actinolite with the term asbestos becomes a source of confusion. Some questions that come to mind are:

1. Is OSHA regulating both the fibrous and non-fibrous forms of the minerals tremolite, anthophyllite and actinolite?
2. Is OSHA excluding tremolite, anthophyllite and actinolite from the accepted definition of asbestos?
3. If the non-fibrous forms of tremolite, anthophyllite and actinolite are being regulated under 29CFR Parts 1910 and 1026, how can the sampling and analytical method recommended (modified NIOSH 7400) in the regulation be justified?

In order to clarify some of these questions I contacted Mr. John Martonik of OSHA's Health Standards Program. Mr. Martonik was extremely helpful and covered the following points from 29CFR Parts 1910 and 1926:

1. The naturally occurring fibrous forms of tremolite, anthophyllite and actinolite (although relatively rare) are still regulated under the conventional definition of asbestos.
2. Cleavage of non-fibrous mineral forms of tremolite, anthophyllite and actinolite resulting from physical processes such as grinding, mining, transfer, etc., are under regulation if such fragments fall under the definition of a fiber ($>5 \mu\text{m}$ in length with a length to width aspect ratio $>3:1$).
3. Use of the sampling and analysis methods, as outlined in the regulation, for 1 and 2 above.

HQ 001427



4. There is, at present, a 'stay' on the regulation of cleavage fragments as an occupational health risk. The standard presently being used is 29CFR 1910, 1001 (June 20, 1986).

5. As a matter of note, OSHA has participated in sampling of airborne cleavage fragments during processing and analysis of the samples has never produced 'fiber' concentrations greater than 0.1 f/cc. This observation was also made during sampling at a chrysotile (naturally occurring fiber) source. Although somewhat inconclusive it does support the rarity of airborne cleavage fragments in the atmosphere.

In conclusion I would like to offer the following suggestions regarding interpretation of asbestos results:

1. 'Asbestos' refers only to the fibrous forms of the six regulated minerals -- there is no such thing as a 'non-fibrous' asbestos.

2. Analysis of samples using X-ray diffraction (XRD) is not a valid determination of asbestos by itself since XRD cannot distinguish between fibrous and non-fibrous species. Visual examination of the sample for fibrous content prior to XRD analysis is, however, a valid approach to the assignment of 'asbestos' to the sample. Assumption of the presence of asbestos based on XRD analysis alone is not a responsible interpretation and can result in unwarranted concerns.

At present we are awaiting the ruling by OSHA concerning 29CFR parts 1910 and 1926 concerning the 'stay'. If you have questions or comments, please contact me.


RICHARD A. MILITO

Note (a) - McCrone, W.C., Asbestos Particle Atlas, p4, Ann Arbor Science, MI, 1980.

cc: C. F. DiMascio, Pittsburgh-6
J. Damiano, Pittsburgh-6
R. W. Barr, Pittsburgh-6
R. M. James, Pittsburgh-6
L. L. Rippey, Pittsburgh-6
S. Sinha, Pittsburgh-6
J. A. Shockey, Pittsburgh-6
R. S. Danchik
D. R. Balya

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HOMOGENEOUS AREA REPORT

Building Number and Name

Give this Sample Area a relevant name

Sample Area Number and Name

Locate this sample Area within the building

SAMPLING STRATEGY

Ceiling Height #1 #2

Square Feet of Ceiling Materials

Square Feet of Wall Materials

Square Feet of Floor Surfaces

Square Feet of Structural Steel

Square Feet of Str. Steel Coatings

Square Feet of Other ACM

Total Square Feet of ACM in this Sample Space

SAMPLE ANALYSIS SUMMARY SECTION

Total Number of Samples Collected

Total Number of Samples Analyzed

SALIENT CONDITION ASSESSMENT

Date:

Salient	Description	ACBM PRESENT?		Mat. Type*		
		Suspected or Confirmed	Friable	T	DC	PD

* Refers to material type and damage categories

T - Material As: T - Thermal Systems, S - Surfacing, M - Miscellaneous

DC - Damage Condition: ND - No Damage, D - Damage, SD - Significant Damage

PD - Potential Damage Categories: NPD - No Potential Damage, PD - Potential Damage

PSD - Potential Significant Damage

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HOMOGENEOUS AREA REPORT

Building Number and Name

Give this Sample Area a relevant name

Sample Area Number and Name

Locate this sample Area within the building

Sample Analysis Summary Section

Total Number of Samplers Collected Average Percent Asbestos Content

Total number of Samplers Analyzed

Linear feet of duct or
piping ACM in this
Sample Area

Inches
Diameter

Inches
Diameter

Linear
Feet

Linear
Feet

Square Feet of Equipment
ACM in this Sample Area

Tank-Boiler

Elbows or Valves

Square
Feet

Square
Feet

SALIENT CONDITION ASSESSMENT

Date:

Salient	Description	ACBM PRESENT?		Mat. Type*		
		Suspected or Confirmed	Friable	T	DC	PD

*Refers to material type and damage categories

T - Material As: T - Thermal Systems, S - Surfacing, M - Miscellaneous
 DC - Damage Condition: ND - No Damage, D - Damage, SD - Significant Damage
 PD - Potential Damage Categories: NPD - No Potential Damage, PD - Potential Damage
 PSD - Potential Significant Damage

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Hazard Assessment Factors Homogeneous Area

IDENTIFICATION

Physical Damage	
Significant	☐
Damage	☐
Damage	☐
No Damage	☐

Water Damage	
Extensive	☐
Moderate	☐
Slight	☐
None	☐

Friable	
Yes	☐
No	☐
Hard Surface	☐
Soft Surface	☐

Deterioration	
Heavy	☐
Moderate	☐
Light	☐
None	☐

DISTURBANCE FACTORS

Proximity to repair Items	
Less than 1 ft.	☐
1 to 5 ft.	☐
More than 5 ft.	☐

Accessible	
Within Reach	☐
Barely Reach	☐
Not Reachable	☐

Texture	
Rough	☐
Pitted	☐
Moderate Text	☐
Smooth	☐

Adjacent Rooms	
Gymnasium	☐
Music Room	☐
Mechanical Room	☐
Elevators	☐

Barriers	
Permanent Enclosure	☐
Enclosed	☐
Encapsulated	☐
None	☐

Ventilation	
Yes	☐
If Yes No	☐
Intake	☐
Exhaust	☐

Air Movement	
High	☐
Moderate	☐
Low	☐

Air Conduits	
Air Plenum	☐
Air Shaft	☐
Elevator Shaft	☐

GENERAL OCCUPANCY CHARACTERISTICS

SAMPLE AREA OCCUPANT	
GENERAL PUBLIC	
Population (No. of People)	Duration (Man-days/yr.)
MAINTENANCE ONLY	

Record a description of the most important factors observed in this sample that may increase the likelihood of fiber release

How many square feet of ACM is never accessed by anyone? Demarcate such on the sample area sketch.

How many square feet of ACM is routinely accessed only by maintenance personnel? Demarcate such on the sample area sketch.

Explain any abnormal access features.

Condition Assessment

ACRM				Damage Condition		Pot. Damage	
Suspected	Confirmed	Friable	%	ND = No damage	NPD = No. pot. damage		
				D = Damage	PD = Potential damage		
				SD = Significant damage	PSD = Potential signif. damage		

Inspection

TEAM SAMPLES for clearance must be $\geq 12m^2$

A. Preplan

1. Communicate
2. Copies of
 - Drawings
 - Previous inspection reports, monitoring etc
3. Before access needs - locked areas etc
- Review Boi's
5. Interview Mgr/Owner

B. Inspection

1. Team Effort (2 or more people) - visit, guy familiar w/ B/C
 2. Samp. Kit - sample stuff, shovelling, clean-up, PPE, markers, tape, tape measure
 3. Log Book
 4. Onsite interviews
 5. Walk through
 - 10 ACM - classify (Surface, Thermal, M3C)
 - Test for friability
 - 10 Homogeneous area
 - Assess friable materials
 - Classify ACM material conditions
 - notify B/O owner if ACM in bad condition - immediate
- Significant Damage
- $\geq 10\%$ can dig
 - $\geq 25\%$ local

Downy

$\downarrow$
 $\geq 10\%$; $\leq 25\%$

Good - no or very little visible damage/deterioration

Potential signif; Potentially Downy

Remaining Friable

- C. Sample Collection
- Div. into 7 areas, each not greater than $\leq 1000ft^2$, 3 samples
 - $\geq 1000ft^2$ - 5 samples
 - ≥ 5000 - 7

Thermal - 1/6 line' on 6 ft²

Sufficient from Elbow/T's - Don't disturb good elbow/T's

For inspection can measure ACM, but then have to address in Mgt plan

Amalgam 1+ = All ACM; all must be rep. to consider non-ACM
 must report sig. damage immed + call for action

Mgt. Plan

- Rev. Rpt; Haz Asses; Prioritize; response action

Decision Logic
 EPA Purple Book

RWB-LLR

1910 Sunderland Place, N.W.
Washington, D.C. 20036
202-293-2980
Fax: 202-293-2915



Organization Resources
Counselors, Inc.

Memorandum

December 7, 1989

To: ORC Asbestos Task Force

From: Rebecca L. Daiss

Subject: Concern over "Hazardous Exposures" to Asbestos
Resulting from Buffing Vinyl Floor Tiles!

For your information, as a result of an investigative report exposing the "hazards" associated with buffing asbestos containing vinyl floor tiles, OSHA is anticipating a possible swell of criticism and questions regarding the adequacy of the asbestos standard and possibly pressure to lower the action level and the PEL. The report was aired on WRC, a local D.C. news station and NBC affiliate. According to the report, samples taken by government industrial hygienists showed "hazardous levels" of asbestos during buffing operations.

The report made no reference to OSHA or to the levels established in the asbestos standard. The focus of the piece was not the workplace but schools and homes and the hazard to children was emphasized. We understand that the hazardous level referred to was the clearance level of .01 f/cc established in EPA's AHERA regulation and that the levels found were in the .05 to .08 f/cc range. Evidently, EPA has the data on which the report is based but has not made it available. EPA is putting together a fact sheet on the problem but does not plan to issue a press release at this point.

If you have any floor tile buffing exposure data, please send it to either OSHA or ORC. OSHA wants the data to establish a defense against the claims regarding the inadequacy of the standard that may arise during remand hearings. Although it has not been confirmed, knowledgeable persons who watched the report said that the buffers being used were a highly abrasive type that is prohibited by floor tile manufactures and not used in normal buffing operations. OSHA expects data on normal buffing operations to show levels well below .01 f/cc.

Merry Christmas!

BD3

HQ 001435

Joe Damiano

EXCELLENCE THROUGH QUALITY

To:

1990 May 15

U.S. Industrial Hygiene Supervisors

R. W. BARR
PITTSBURGH OFFICE
001

RE: ASBESTOS

For your information ... recent
correspondence from Dean Belk to
physicians.

JOE DAMIANO

/pdn

Attachment



1501 Alcoa Building
Pittsburgh, Pennsylvania 15219

HQ 001436

FROM H. DEAN BELK, M.D.

TO MEMORANDUM

PITTSBURGH OFFICE - 6

April 25, 1990

RE: AMENDMENTS TO OSHA'S ASBESTOS STANDARD ANNOUNCED IN
FEDERAL REGISTER OF FEBRUARY 05, 1990 (VOLUME 55, NO. 24)

Effective May 07, 1990, there are several additional practices which must be implemented to assure full compliance with OSHA's recently amended Asbestos Standard. These are as follows:

- Ban smoking in work areas where any occupational exposure to asbestos exists.
- Augment asbestos training programs to include names, addresses, and telephone numbers of public health organizations which provide information, materials, and/or conduct programs for smoking cessation. Alternatively, we may distribute a list of such organizations to comply with this requirement. (See Attachment 1)
- Augment training programs to inform employees about the availability of self-help smoking cessation programs. Upon an employee's request we must provide a copy of such material. Example -- NIH Publication No. 89-1647, or equivalent.
- Augment training programs to inform employees about OSHA requirements for posting signs and affixing labels and about the meaning of the required signs and labels. Training must cover the location, posting, and contents of mandated labels and signs. Employees should be shown actual signs and labels and the content reviewed during training.
- During the required medical evaluation the physician must provide the following information and must certify for the record he has informed the employee:
 - a. About the synergistic relationship between cigarette smoking and asbestos exposure in developing lung cancer;
 - b. That cessation of smoking will reduce lung cancer risk;
 - c. That he or she should stop smoking.

(After the occupational medical exam for asbestos, we already are required to provide each employee with a letter setting forth medical findings and assessing the risk of developing asbestos disease. In addition to informing the employee verbally, I suggest modifying letters now being provided employees to include the above information about smoking.)

HQ 001437



Memorandum
April 25, 1990
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Attachment 2 is a package of information providing recommended procedures for medical surveillance following OSHA'S 1986 revision of the Asbestos Standard. The above recommendations supplement material in Attachment 2.



H. DEAN BELK, M.D.

HDB:bal
(01890.hdb)

Attachments

Distribution:

Edmund Gray, M.D., Addy Works
David Stewart, M.D., Arkansas Operations
Whitman Smith, M.D., Badin Works
Anthony M. Puleo, M.D., Cleveland Works
S. Louis Casta, M.D., Davenport Works
James M. Pickerill, M.D., Lafayette Works
William W. Klatchko, M.D., Lebanon Works
Jean-Louis Murat, M.D., Massena Operations
W. Kahle Johnson, M.D., New Kensington, ARL/ATC
John F. Tomayko, M.D., Pittsburgh Office 15
Stanly Heckrodt, M.D., Point Comfort Operations
Francis B. Warrick, M.D., Richmond Works
W. Thomas Washam, M.D., Rockdale Works
E. Stephen Ellis, M.D., Tennessee Operations
Ralph M. Simonian, M.D., Vernon Works
Thomas C. Burger, M.D., Warrick Operations
Gerald E. Gibbons, M.D., Wenatchee Works

cc: Joe Damiano, Pittsburgh 6
Bob James, Pittsburgh 6
Emma Pessolano King, Pittsburgh 6

ATTACHMENT 1

The following organizations provide information on smoking cessation and related material for programs:

1. Office of Cancer Communications
National Cancer Institute
National Institutes of Health
Building 31, Room 10A24
Bethesda, Maryland 20892

Telephone (toll-free) 1-800-422-6237 for the Cancer Information Service. Trained personnel will assist the caller.

2. American Cancer Society
3340 Peachtree Road, N.E.
Atlanta, Georgia 30028
Telephone: 404/320-3333

The American Cancer Society (ACS) is a voluntary organization with local affiliates in 55 states and regions. A variety of publications and audiovisual materials is available. The ACS helps people learn about the health hazards of smoking and become successful ex-smokers.

3. American Heart Association
7320 Greenville Avenue
Dallas, Texas 75231
Telephone: 214/730-5300

The American Heart Association (AHA) is a voluntary organization with 130,000 members (physicians, scientists, and laypersons) in 55 state and regional groups. AHA produces a variety of publications and audiovisual materials about the effects of smoking on the heart. AHA also has developed a guidebook for incorporating a weight-control component into smoking cessation programs.

4. American Lung Association
1740 Broadway
New York, NY 10019
Telephone: 212/245-8000

A voluntary organization of 7500 members (physicians, nurses, and laypersons), the American Lung Association (ALA) conducts numerous public information programs about health effects of smoking. ALA has 59 state and 83 local units. The organization actively supports legislation and information campaigns for non-smokers' rights and provides help for smokers who want to quit, for example, through "Freedom From Smoking," a self-help smoking cessation program.

ATTACHMENT 1

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5. Office of Smoking and Health
U.S. Department of Health and Human Services
5800 Fishers Lane
Park Building, Room 110
Rockville, Maryland 20857

The Office of Smoking and Health (OSH) is the Department of Health and Human Services' lead agency in smoking control. OSH has sponsored distribution of publications on smoking-related topics such as free flyers on relapse after initial quitting, helping a friend or family member quit smoking, the health hazards of smoking, and the effects of parental smoking on teenagers.

Spanish-speaking staff members are available during daytime hours to callers from the following areas: California, Florida, Georgia, Illinois, New Jersey (area code 201), New York, and Texas. Consult your local telephone directory for listings of local chapters.

(01891.hdb)

HQ 001440

A T T A C H M E N T 2

FROM H. DEAN BELK, M.D.

TO MEMORANDUM

PITTSBURGH OFFICE - 6

June 23, 1987

RE: RECOMMENDED PROCEDURES FOR MEDICAL SURVEILLANCE OF
EMPLOYEES EXPOSED AT OR ABOVE THE ACTION LEVEL FOR ASBESTOS

In mid-1986 the Occupational Safety and Health Administration issued a revised standard for asbestos. The effective date for the Revised Standard at Alcoa's domestic locations was January 16, 1987.

Attached for your review and implementation are actions recommended to assure Alcoa's compliance with medical requirements of the Revised Standard. The first attachment is a revised medical protocol for employees exposed to asbestos at or above the action level (0.1 fiber/cc for 30 or more days a year).

The second attachment contains recommended medical administrative procedures. Implementation of these procedures will assure good medical management of employees under medical surveillance as well as compliance with the Standard.

The Revised Standard requires that employees be given a written statement after the medical examination. Attachment 3 contains examples of letters which contain information required by OSHA.



H. DEAN BELK, M.D.

HDB:bal



Memorandum
June 23, 1987
Page 2

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cc: Marcelo D. Barreto Vianna, Sao Paulo, Brazil
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D. G. Applegate, Mobile Works
J. E. Burns, Pittsburgh 6
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G. Schmitz, Vanexo
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Pittsburgh Industrial Hygienists

ATTACHMENT 1

PROTOCOL DESCRIPTION: OCCUPATIONAL MEDICAL EVALUATION: ASBESTOS

CONTENTS:

PROCEDURES:

RECOMMENDED:

- o Cardiovascular History
- o Respiratory History
- o Physical Examination

OPTIONAL:

- o Medical History (Short Form)

TESTS:

RECOMMENDED:

- o Blood Analyses (Series 24)
- o Blood Count
- o Chest X-Ray
- o ECG
- o Spirometry

OPTIONAL:

- o Blood Gases with pH
- o Urinalysis

SCHEDULE:

No tissue reaction - annual medical evaluation for employees exposed at or above the action level.

Evidence of pulmonary/pleural tissue reactions - annual medical evaluation offered as long as individual employed at Alcoa.

Frequency for chest x-rays --

X-ray chest (exposure <10 years): every 5 years

X-ray chest (exposure >10 years):

- a. <35 years: every 5 years
- b. Age 35 <45 years: every 2 years
- c. Age ≥45 years: annually

ATTACHMENT 2

FROM H. DEAN BELK, M.D.
PITTSBURGH OFFICE - 6

TO MEMORANDUM

June 23, 1987

RE: STANDARD PROCEDURES FOR MEDICAL SURVEILLANCE OF
EMPLOYEES HAVING POTENTIAL ASBESTOS EXPOSURE AT WORK

Since OSHA revised its asbestos standard in 1986, Alcoa physicians discussed the Revised Standard at our April, 1987 Meeting and agreed upon some general procedures for medical follow-up in Alcoa's Asbestos Medical Surveillance Program. The following procedures encompass the collective judgment of the physicians and should be followed to assure compliance with OSHA's requirements and Alcoa's medical standards.

For the purpose of defining standard procedures, employees have been grouped below into categories determined by whether medical findings are positive or not and by whether the findings could be related to asbestos exposure or not.

- A. Employees without significant medical findings
 - a. A written statement should be provided to the employee indicating no significant medical findings related to asbestos exposure. From findings at this medical examination the employee is not at increased risk of developing asbestosis.
 - b. No special medical follow-up is necessary at this time; however, medical monitoring for asbestos will continue as long as the employee is exposed at or above the action level for asbestos.
 - c. No work restrictions are indicated.
- B. Employees with significant medical findings but unrelated to asbestos exposure (assumes abnormality for organ other than the lung)
 - a. Positive findings should be discussed with the employee by medical personnel, and a recommendation for medical follow-up should be made. The employee is not at increased risk for developing asbestosis.
 - b. Periodic medical monitoring for asbestos exposed employees will continue as long as the employee is exposed at or above the action level; medical surveillance for other medical problems are at the discretion of the plant physician.
 - c. No work restriction is indicated for potential asbestos exposure. Work restrictions for other conditions are at the discretion of the physician.

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- C. Employee with significant medical findings related to the lung but not caused by asbestos
 - a. After medical findings have been discussed with the employee by medical personnel, a recommendation for medical follow-up should be made. If positive finding(s) are localized on chest x-ray and pulmonary function test results demonstrate little or no impairment, the employee is not at increased risk of developing asbestosis. Should asbestosis develop, this employee may suffer additional lung impairment. If the employee smokes, he should be urged to stop.
 - b. Periodic medical monitoring for asbestos must continue for employees as long as he/she is exposed at or above the action level for asbestos. The physician must apply good medical judgment in making a decision regarding the need for medical monitoring for the non-asbestos lung problem.
 - c. If the pulmonary lesion is localized on the chest x-ray and pulmonary function tests are normal, no work restriction is indicated for asbestos exposure. If the chest x-ray lesion is generalized and/or pulmonary function tests are abnormal, the employee should be restricted from asbestos exposure. Although the risk of developing asbestosis is very small today when exposures are minimal, asbestosis, if it should develop, could severely aggravate already impaired pulmonary function.
- D. Employees with significant medical findings consistent with tissue reactions to asbestos
 - 1. Pleural plaques or calcifications on chest x-ray (without evidence of parenchymal disease of the lungs)
 - a. A written statement to the employee must indicate presence of pleural plaques and/or other evidence consistent with tissue reactions to asbestos. The employee should be informed that he does not have asbestosis, which is a disease of the lung tissue, and we cannot with certainty predict whether such a reaction will or will not occur in the future. The employee is at greater risk for developing asbestosis and should carefully follow industrial hygiene guidelines for safe tear-out of asbestos, and the plant industrial hygienist should be notified about this risk. If the employee smokes, he should be urged to stop.
 - b. Periodic medical monitoring for asbestos exposure will continue as long as the person is employed at Alcoa, and medical personnel will keep him informed if further changes occur.

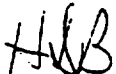
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June 23, 1987
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- c. Unless asbestos work is undertaken with conscientious application of work practices prescribed by industrial hygiene guidelines for personal protection of workers, the employee should be restricted from work involving potential exposure to asbestos.
2. X-ray evidence of parenchymal disease of the lung consistent with a lung tissue reaction to asbestos
- a. Upon the initial discovery of x-ray evidence of lung changes consistent with a reaction to asbestos the employee should be referred to a local specialist in lung disease for a thorough medical evaluation. In advance the physician should be given all relevant information and should be informed that the purpose of the evaluation is to establish a diagnosis for the x-ray changes. After positive findings have been discussed with the employee by medical personnel, the employee should be given a copy of the report unless information contained in it could cause emotional stress. If the specialist diagnoses asbestosis, the plant Workers' Compensation Administrator should receive a copy of the report to initiate an investigation of the employee's asbestos exposure at Alcoa.

Once asbestos exposure at Alcoa and/or elsewhere has been determined, the plant physician, Workers' Compensation Administrator and hygiene/safety professional should arrange for a telephone conference call with their respective functional staff members in Pittsburgh to discuss all findings in the case and attempt to establish whether or not (1) the findings are likely caused by asbestos exposure, (2) exposure likely did occur during work at Alcoa, (3) the case should be filed with OSHA as a case of occupational disease (asbestosis).

Because of the risk for progression of asbestosis, the employee should be informed that he must avoid all future exposure to asbestos. In addition, if he smokes, he should stop immediately.

- b. Periodic medical monitoring will continue as long as the individual is employed by Alcoa.
- c. The employee should be restricted from work which may result in further asbestos exposure.


H. DEAN BELK, M.D.

HDB:bal (ASP:HDB)

ATTACHMENT 3

Proposed Letters Containing Medical Findings and Recommendations
for Employees in the Asbestos Medical Surveillance Program

A. For employees without significant medical findings

To: _____
(employee's name) (date)

Re: Results of Examination Provided Under
Alcoa's Asbestos Medical Surveillance Program

OSHA and Alcoa health standards require that regular medical examinations be offered to employees while they are potentially exposed to asbestos at work. You completed your medical examination on _____. As far as we can determine medically at this time, you demonstrated no medical evidence of reaction to asbestos and you are not at increased risk of developing asbestosis.

(physician's signature)

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June 23, 1987
Page 2

- B. Employees with significant medical findings but unrelated to asbestos exposure (assumes abnormality for organ other than the lung)

TO: _____
(employee's name) (date)

Re: Results of Examination Provided Under
Alcoa's Asbestos Medical Surveillance Program

OSHA and Alcoa health standards require that regular medical examinations be offered to employees while they are potentially exposed to asbestos at work. You completed your medical examination on _____. As far as we can determine medically at this time, you demonstrated no medical evidence of reaction to asbestos, and you are not at increased risk of developing asbestosis.

In accordance with OSHA's requirements this letter will not address medical findings, if any, which are unrelated to asbestos exposure. Such significant medical findings with recommendations for follow-up have been discussed with you by medical personnel.

(physician's signature)

Attachment 3
June 23, 1987
Page 3

- C. Employees with significant medical findings related to the lung but not caused by asbestos

TO: _____
(employee's name) (date)

Re: Results of Examination Provided Under
Alcoa's Asbestos Medical Surveillance Program

OSHA and Alcoa health standards require that regular medical examinations be offered to employees while they are potentially exposed to asbestos at work. You completed your medical examination on _____. As far as we can determine medically at this time, you demonstrated no medical evidence of reaction to asbestosis, and you are not at increased risk of developing asbestosis.

In accordance with OSHA's requirements this letter will not address medical findings, if any which are unrelated to asbestosis exposure. Such significant medical findings with recommendations for follow-up have been discussed with you by medical personnel.

(physician's signature)

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Attachment 3
June 23, 1987
Page 4

D-1. For employees with significant medical findings consistent with tissue reactions to asbestos (pleural plaques)

TO: _____
(employee's name) (date)

OSHA and Alcoa health standards require that regular medical examinations be offered to employees while they are potentially exposed to asbestos at work. You completed your medical examination on _____. As a result of this examination, medical personnel discovered the presence of (pleural plaques) (pleural calcifications) which may be evidence that your body is reacting to previous asbestos exposures. You do not have asbestosis, which is a disease of the lungs. On the basis of present medical findings we cannot predict whether you will develop asbestosis in the future, but you are at increased risk of doing so. (We urge you to stop smoking now because smoking will increase your risk of further, more serious lung problems in the future.) [where applicable]

(If your job requires you to work with asbestos and you faithfully follow industrial hygiene recommendations for your protection, you will not further increase your risk for developing asbestosis in the future.)
or as a plant medical option for consistent application --
(Because your risk for developing asbestosis is greater, you are restricted from jobs which require occasional work with asbestos.)

(physician's signature)

Attachment 3
June 23, 1987
Page 5

D-2. For employees with medical findings in the lung consistent with asbestosis

TO: _____
(employee's name) (date)

OSHA and Alcoa health standards require that regular medical examinations be offered to employees while they are potentially exposed to asbestos at work. You completed your medical examination on _____. As a result of your examination in the Medical Department and your evaluation by a specialist in lung diseases, doctors discovered the presence of _____ in your lungs. These findings are consistent with changes which occur in cases of asbestosis. To reduce further damage to your lungs in the future, we urge you to avoid exposure to substances potentially harmful to your lungs. (If you smoke, we urge you to stop.) [if appropriate] You should not hold a job which requires you to work with asbestos, and a medical restriction has been issued in this regard.

(physician's signature)

HQ 001451



From L.L. RIPPEY

R. L. EAFB
PITTSBURGH OFFICE

PITTSBURGH OFFICE

1991 April 30

RE: ALCOA CORPORATE ASBESTOS MANAGEMENT POLICY - FINAL

The attached Alcoa Asbestos Management Policy has been developed as a subset of Alcoa's Environmental Policy. This policy was jointly written by representatives of Environmental, Industrial Hygiene and Safety, Procurement, Real Estate and Legal. Drafts were twice reviewed by operating locations from some of the U.S. and non-U.S. plants. Input from these sources has been incorporated into the attached policy. All of the locations polled agreed that the attached policy should represent a minimum operating standard for the protection of Alcoa employees and the management of risk. Any location could write their own internal management program to exceed the standard set in this policy.

The basic philosophy expressed in this policy is that when Alcoa controls a facility, asbestos can be managed via remediation and monitoring, but if a facility is sold, friable asbestos must be removed to minimize Alcoa's long term liability.

The policy itself doesn't contain an implementation schedule for the development of the written Asbestos Management Program described in item 3. Each Alcoa location's implementation plan and schedule should be negotiated within their business unit and approved by the appropriate Management Committee Member. This concept is modeled after the written plans for corrective action described in the Environmental Policy.

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C.F. DiMascio, Pgh 6
J.L. Fungaroli, Pgh 13
R.E. Yester, Pgh 20
R.M. James, Pgh 6
W.L. Wells, Pgh. 26



HQ 001452

ASBESTOS POLICY MEMO
1991 April 30
Page 2

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DISTRIBUTION:

Plant Managers - Worldwide
IH and Safety contacts - Worldwide
Environmental Contacts - Worldwide
Procurement Managers - Worldwide

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G.E. Bergeron, Tennessee
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R.C. Rawe, Tennessee
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R.F. Slagle, Pgh. 29
M. J. Schreier, Arkansas
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Executive Safety Committee

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T.L. Carter, Pgh. 29
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HQ 001453

1991 April 30

ALCOA CORPORATE ASBESTOS MANAGEMENT POLICY

SCOPE:

Proposed policy will apply to all Alcoa owned or controlled facilities including industrial as well as office buildings. Relevant aspects of the policy also extend to properties leased by Alcoa where Asbestos Management Programs should be required of building owners. Some variations may occur where local regulations or special circumstances dictate.

POLICY OBJECTIVES:

1. Uniform and consistent practices are hereby established for the purchase of facilities, equipment and new products and for the divestiture of equipment and facilities including real estate.
 - A. Sponsoring managers shall require that environmental surveys conducted prior to purchase of new facilities involve asbestos surveys and risk assessments. Full compliance with all Alcoa asbestos management policies will apply if properties with asbestos are purchased.
 - B. Procurement agents shall insure that only non-asbestos products are purchased. Every effort will be made to find non-asbestos substitutes for the remaining asbestos containing products used in Alcoa facilities. Deviations from this policy will require written approval of the Location Manager. The Procurement Manager must maintain written records of asbestos products purchased in exception to this policy.
 - C. Procurement agents shall insure that equipment sold by Alcoa must be free of friable asbestos prior to sale unless an exception is made by Pittsburgh Environmental Control. Where an exception is granted, written disclosure of the presence of asbestos must be provided to the purchaser and this record shall be maintained for a period of 30 years.
 - D. Sponsoring managers shall insure that before any sale of real property, an asbestos survey will be conducted. All friable asbestos materials must be removed and disposed of properly. In some cases, non-friable asbestos materials should also be removed if it is suspected that the future use of the property will subject them to damage, thereby releasing asbestos fibers. Exceptions to the removal policy can only be made by Pittsburgh Environmental Control. Buyers must be informed in writing of the presence of any asbestos in buildings which are sold. This record shall be maintained for a period of 30 years.

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2. Operations Managers shall require surveys for all Alcoa facilities to determine the presence of Asbestos Containing Materials, "ACM" (greater than 0.1 % of any fibrous asbestos mineral forms). Surveys must follow the general format recommended in the Alcoa Engineering Standard on Asbestos Surveys and must include the condition of ACM in addition to the location accessibility and an estimate of ACM quantity.

3. Plant managers operating facilities having any ACM shall develop written Asbestos Management Programs which must be approved by a member of Alcoa's management committee or by the Managing Director Alcoa of Australia as is appropriate. The Location Asbestos Management Program is to include:

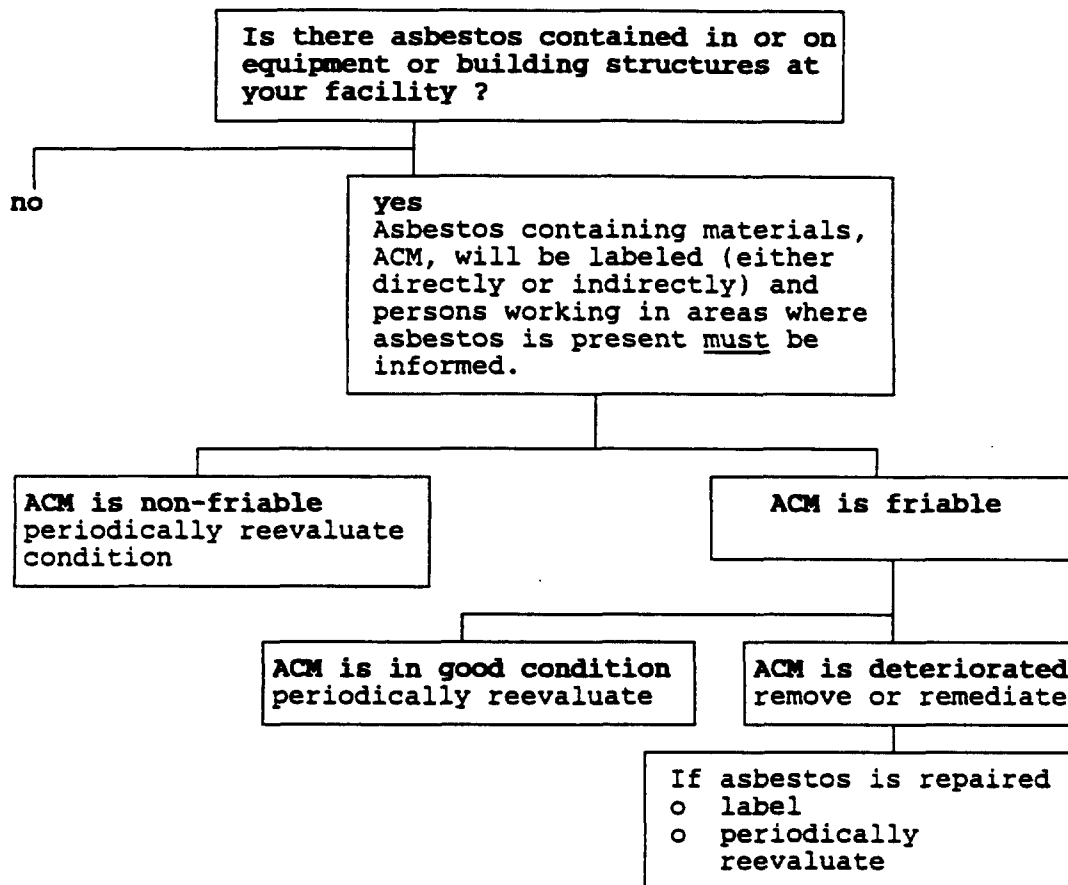
- A. Identification of ACM via direct labels or any alternatives to direct labeling which would clearly communicate the presence of ACM to affected employees. Such alternatives could include placards, inventories, diagrams, or marked blueprints. To effectively communicate the presence and location of ACM, some of the alternatives should be associated with training and be made accessible to employees.
- B. Communication of the presence of asbestos to facility employees and contractors who work in areas where asbestos is present
- C. A plan for reinspection of ACM on a periodic basis (minimally, every 3 years) with written inspection reports
- D. Remediation, through removal, repair, enclosure or encapsulation of ACM in a deteriorated condition (Attachment 1)
- E. Assurance that all asbestos work including removal and disposal is carried out in compliance with all relevant Federal, State and local regulations (ref. Alcoa Engineering Standard 18.18 "Asbestos Removal Standard")
- F. Directions to ensure that Operation and Maintenance procedures will be defined to prevent employee exposure to asbestos during normal day- to-day operation of facilities where ACM is present.
- G. Acknowledgement that all U.S. asbestos contracts will be written in Pittsburgh in close cooperation with the various field Procurement Departments and will be retained for a minimum of 30 years accordance with the 1989 Pittsburgh Procurement policy. Sample contracts can be provided to international Alcoa locations for informational purposes.

ASBESTOS POLICY
1991 April 30
Page 3

- H. A plan to address any potential emergencies where asbestos may be released in the facility. The SPCC (Spill Prevention Control and Countermeasures Plans) could be revised to include this contingency where appropriate.
 - I. A long range strategic plan that recognizes that at the end of a facilities life, prior to its sale or demolition, all friable asbestos must be removed
4. Alcoa locations will comply with all applicable asbestos laws and regulations and will employ more restrictive internal standards where necessary to conform with the above policy.

Attachment 1

MANAGEMENT OF ASBESTOS CONTAINING MATERIALS IN ALCOA FACILITIES



ACM - Asbestos Containing Materials both friable and non-friable materials containing > 0.1% fibrous asbestos mineral forms.

Friable - EPA definition - asbestos containing materials which can be crushed with hand pressure. Examples of friable asbestos include sprayed on fireproofing, most asbestos insulation and any other ACM which is deteriorated to the point that it can be crushed with hand pressure.

Non-friable - Examples asbestos include transite (asbestos cement products) and vinyl asbestos tile.

PROCUREMENT CONTACTS

T. W. Dodson, Arkansas
R. Hartmayer, San Diego (Alcoa Electronic Packaging)
J. Feder, TRE-Aztech
T. C. Spurlock, Vernon
R. A. Topp, Fort Meade
L. Lauderdale, Tifton - GA
W. R. Pottgen, HC Products
J. R. Mitchell, Lafayette
G. C. Bailey, Richmond
A. Atkins, Richmond
E. T. Klenske, Jr., Warrick
V. Poleshaj, Davenport
H. R. Sands, New Orleans (Alcoa Export Supply Division)
A. R. Hering, Vidalia
F. E. Lux, Massena
D. W. Pettit, Badin
J. R. Rettinger, Cleveland
G. Branco, Stolle
T. G. Snyder, ATC
D. L. Utley, Lebanon
G. E. Babinsack, Halco Mining
T. Agostine-Allen, Warrendale
L. Blackwell, AFL - Spartanburg
W. S. Zuber, Tennessee
B. McDevitt, El Paso
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J. R. Fry, Rockdale
C. H. Barker, Jr., Paradise Point
M. Brooks, Northwest Alloys (Addy)
R. Surbeck, Vanexco
R. D. Huber, Wenatchee
V. L. Hammersmith, Permatech

KEY\Procure.key

PLANT ENVIRONMENTAL CONTACTS (Domestic)

KEY\Environ.key

J. A. Shockey, ATC
J. Harper, Arkansas
C. A. Carter, Badin
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K. L. Adams, Lebanon
J. A. Lease, Massena
D. G. Applegate, Mobile
O. E. Wilkinson, Northwest Alloys
C. H. Barker, Paradise Point
J. C. Mayfield, Point Comfort
J. L. Eicher, Richmond
J. C. Saxton/C. L. Green, Rockdale
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W. Housworth, Tifton-GA
T. Schmidt, Tifton-Delhi
M. B. Dalrymple, Washington Office
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G. Emanuelson, ACI - Monrovia, CA
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B. R. Hopper, Vidalia
J. K. Mackay, Warrick
J. A. Thompson, Wenatchee
J. Jackson, AFL/Nashville
D. Heatherl, AFL/Spartanburg
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S. L. Anderson, Alcotec Wire Co. - Traverse City, MI
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J. K. Clark, HC Industries - Crawfordsville, IN
G. Calvery, HC Industries of MS - Olive Branch, MS
G. R. Hartnett, HC Products - Princeville, IL
F. Kile, Illinois Water Treatment - Rockford, IL
J. K. Steelman, Permtech - Graham, NC
D. A. Krich, Pimalco - Chandler, AZ
J. E. Francis, Alcoa Separations - Warrendale, PA
J. H. Gemmill, Southco Metals Services - Atlanta, GA
J. McCarty, TEPCO - El Paso, TX
F. F. Viguerie, Alcoa Coastal - Houston
R. K. Shuler, Alcoa Coastal - Nashville
C. Webster, Ragsdale Machinery - Englewood, CO
A. Titscomb, Randolph Machinery - Randolph, NY
M. Decker, Randolph Machinery - Randolph, NY
P. DeSocio, Autoprod - Clearwater, FL
R. H. Gatewood/J. M. Brown, Stolle Corp. - Sidney, OH

PLANT ENVIRONMENTAL CONTACTS (Worldwide)

KEY\Environ.key

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J. Kerkhof, Drunen
G. Thomas, Swansea
G. Slessar, Booragoon
J. Lippelgoes, Portland
J. Eyles, Pt. Henry
R. H. Ramden, Suriname
J. R. Archibald, Mexico City
J. M. Leach, Barcelona
Y. Shibazaki, Tokyo
R. Armbruester, Worms
H. J. Preub, Worms
H. H. Pohland, Ludwigshfen

Laura L. Rippey 1990 Jan 2

We can't wait for tomorrow!

To: Bob Barr

In response to your VMX about the
Bob Blum (Union Carbide) question
concerning Alcoa's policy - RE:
Asbestos roofing. His concern
centers around some recent CSHA
moves in some regions to ab
asbestos jobs w/o enclosures regard-
less of the asbestos level.

Alcoa does not believe this is a
correct way to interpret standards
Our policy generally follows the IH
practice of tying the controls/work practices



1501 Alcoa Building
Pittsburgh, Pennsylvania 15219



HQ 001461

NEGATIVE PRESSURE CONTAINMENT NEEDED
FOR ROOF ASBESTOS REMOVAL, OSHA DECIDES

OSHA's plans to treat certain roof removal jobs the same as asbestos abatement has left roofing contractors stunned. The agency's pending regulation will force contractors to construct negative pressure containment around roofs when feasible.

The decision is "absolutely ludicrous," said Carl Good, director of the Asbestos Task Force of the National Roofing Contractors Association. NRCA had sought to exempt the roofing industry from OSHA's asbestos standard. Instead, OSHA notified NRCA last month that, "in essence, OSHA plans to regulate roofing
(Continued)

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Occupational Health & Safety Letter

October 4, 1989

ROOF REMOVAL REGULATED AS 'ABATEMENT' (Continued)

jobs as asbestos removal jobs," Good said Sept. 19 at a conference sponsored by the Asbestos Information Association/North America.

The ruling promises to "virtually change our entire industry," Good said. NRCA intends to pursue the matter further, Good told OHSL, and will take it to federal court if necessary.

An OSHA compliance official confirmed the decision during a session at the National Asbestos Council trade show in Indianapolis Sept. 26. "Roofing is considered by the standard to be an asbestos abatement activity," said Joseph Hopkins of OSHA's compliance office. Each job would need to be evaluated to determine whether it could be exempted from the regulation, he said.

If a roofing job is regular maintenance, the contractor would not be required to construct negative pressure containment, he said. However, if the job entails "removing an entire roof, it is considered an abatement job" requiring containment, Hopkins added. OSHA will waive the requirement if the contractor can demonstrate it is not feasible to construct containment, such as if the roof is very steep or winds are too severe.

HQ 001463



From L. L. RIPPEY
PITTSBURGH 6

To PENNY BOBER
PITTSBURGH 6

1989 JULY 7

RE: HEALTH & SAFETY NEWSLETTER

An article from the June 22, 1989 issue from Plant Engineering indicates that although OSHA will not exempt the roofing industry from air monitoring for asbestos, individual contractors may be able to obtain variances for particular jobs. (See attached article)

Data from an ATC roofing job where contractors removed areas of roof flashing which contained asbestos indicated exposures were all less than the 0.1 f/cc action level. 8hr TWAs ranged from 0.0015 to 0.0353 f/cc with a median level of 0.0057 f/cc.

LAURA L. RIPPEY

LLR:jf
0016.11r

ATTACHMENT

cc: R. M. James, Pittsburgh 6
Asbestos file: Typical Exposures

→ L. Rippey GAB

NEWS

Edited by Vera M. Steiner, Senior Editor

Made in America — Good Enough?

What are the industrial weaknesses holding back America? What are the strengths? To uncover the underlying issues, the Massachusetts Institute of Technology (MIT) undertook a 2-year investigation of eight industries that account for about 50% of America's total volume of imports and exports of manufactured goods, and 28% of American manufacturing activity. The recently published findings describe what went wrong and suggest ways the U.S. can get back on the path of high productivity.

Weaknesses cited by the MIT commission are longstanding: outdated strategies, short time horizons, technological weakness in development and production, neglect of human resources, failures of cooperation between individuals and between organizations, and government and industry at cross purposes.

Five imperatives were drawn up by MIT's investigating commission on what America must do if it is to continue as a major economic power:

- Focus on producing well; put production ahead of finance and monetary manipulation. The report said managers who do not know production will lose the competitive battle to managers who know their business intimately.
- Cultivate a new economic citizenship with an involved, educated, responsible, and rewarded work force, who will maximize productivity.
- Promote the most productive blend of individualism and cooperation. Or-

ganizational hierarchies should be restructured into fewer job categories to promote cooperation.

- Learn to live in the world economy; understand other languages, cultures and technologies. Protectionism only invites retaliation, but the U.S. must also insist that our goods are treated abroad as fairly as theirs are treated here.

- Provide for the future; invest in education and save for productive investment.

Americans must be provided with a fundamentally different education from what they receive today. The report points out that, "Only a tiny fraction of young Americans are technologically literate and have some knowledge of foreign societies. Unless the nation begins to remedy these inadequacies, it can make no real progress."

Emerging patterns of best industrial practice among successful U.S. firms were noted by the commission. In the MIT view, these practices are mutually reinforcing and form an integrated strategy:

- Simultaneous improvement in quality, cost, and delivery
- Staying close to the customer
- Closer relations with suppliers
- Using technology for strategic advantage
- Flatter and less compartmentalized organizations.

Affirming the importance of the country's industrial base for future economic health, MIT's President Paul E. Gray stated, "We believe manufacturing is absolutely essential to this nation's economic future. Technology is the main engine that drives the economy."

BRIEFING

EPA Monitoring Chemical Emissions

Results of the Environmental Protection Agency's (EPA) first national inventory of chemical releases into the environment have just been made public. The Toxic Release Inventory (TRI) reports a total of 22.5 billion lb of chemicals were released in 1987, including more than 2.4 billion lb of toxic pollutants released into the air and 9.7 billion lb of chemicals that were released to streams and other surface waters. The chemical industry was the largest source of air toxics, releasing some 886.5 million lb annually. Texas had the most toxic air pollutant releases of any state, with 230 million lb emitted. Seven other states (Illinois, Indiana, Louisiana, Michigan, Ohio, Tennessee, and Virginia) had emissions greater than 100 million lb annually.

An EPA spokesperson called the TRI results "startling and unacceptably high," underscoring the need for changes in manufacturing processes to reduce the amount of toxic substances produced.

Exemptions Possible for Asbestos in Roofing Materials

The Occupational Safety and Health Administration's (OSHA) position on asbestos regulations and exemptions was recently clarified with regard to asbestos-containing roofing materials. Although the agency denied an industry-wide exemption from air monitoring requirements as requested by the National Roofing Contractors Association, individual contractors may be able to gain exemption on specific jobs and for specific asbestos-containing products. To date, OSHA has no evidence on file to indicate there is a health hazard to roofing industry personnel from handling asbestos-containing roofing materials.

Plant Modernization Strategy Adopted for Competitive Gain

Despite grim predictions for the metals industry in the mid-1980s, Alcoa was one manufacturer that chose to believe a decline was not inevitable. The 100-year-old

ASBESTOS

HQ 001486