HB

5

COMMITTEE REPORT

HOUSE

(7)

FURTHER: FINANCE

2/4/85

Date: Feb. 11 1985

The Committee on LABOR & COMMERCE has had SSHB 5

"An Act establishing an asbestos health hazard abatement program; and providing for an effective date."

under consideration and recommends:

[ ] do pass [ ] do not pass

[ ] do pass with attached amendments(s)

[✓] replace with CS for SSHB 5 (L&C) [ ] same title [✓] new title

and recommends ~~[illegible]~~ Sub to Z.O.

[ ] AND attaches a "Letter of Intent" [✓] New Fiscal Note

[✓] Zero Fiscal Note Attached

[X] reports it back without recommendation individual

[ ] referred to the _____ Committee

MEMBERS SIGNING DO PASS

[illegible]

BOUCHER [illegible]

[illegible] PEARCE

MEMBER. HAVING OTHER RECOMMENDATIONS:

[illegible]

[illegible]

[illegible]

Mike Hanna

CHAIRMAN

STATE OF ALASKA 1985 LEGISLATIVE SESSION

FISCAL NOTE

Revision Date:

REQUEST

Bill/Resolution No.: SS for HB 5
Title: "An act establishing an asbestos health hazard abatement"
Sponsor: Gruenberg
Requestor: House HESS
Date of Request: 1/16/85

FISCAL DETAIL

Agency Affected: Labor
Program Category Affected: Public Protection
BRU, Program or Subprogram(s) Affected: Occupational Safety & Health

EXPENDITURES/REVENUES: (Thousands of Dollars)

	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90
OPERATING						
100 PERSONAL SERVICES		122.6	84.7			
200 TRAVEL		23.5	5.4			
300 CONTRACTUAL		53.0	24.8			
400 SUPPLIES		6.0	1.6			
500 EQUIPMENT		18.3	-0-			
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS						
800 MISCELLANEOUS						
TOTAL OPERATING	-0-	223.4	116.5	-0-	-0-	-0-
CAPITAL						
REVENUE						

FUNDING: (Thousands of Dollars)

GENERAL FUND		223.4	116.5			
FEDERAL FUNDS						
OTHER						
TOTAL	-0-	223.4	116.5	-0-	-0-	-0-

POSITIONS:

FULL-TIME	-0-	2	2	-0-	-0-	-0-
PART-TIME	-0-	1				
TEMPORARY						

ANALYSIS: Attach a separate page if necessary

Prepared By: NB Robert J. Bacolas
Phone: 465-4870
Division: Labor Standards & Safety
Date: 1/22/85

Approved by Commissioner: NB SR Jim Robison
Date: 1/22/85
Agency: Department of Labor

Distribution (by Agency preparing fiscal note):
- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)

7/1/84

FISCAL NOTE

THE LEGISLATURE OF THE STATE OF ALASKA
FOURTEENTH LEGISLATURE
BILL/RESOLUTION NO: SS for HB 5
TITLE: "An Act relating to establishing asbestos health hazard abatement"
AGENCY AFFECTED: Department of Labor

According to the latest information available from the U.S. Environmental Protection Agency and the Department of Education, 33 of 53 school districts have completed asbestos surveys of their buildings in compliance with 40 C.F.R. Part 763. The 20 school districts that have not completed the survey contain an estimated 100 buidings.

It is important that these school districts survey their buildings within two years to allow them time to budget and plan for the work necessary to abate the asbestos health hazards in their school districts.

It is assumed that the responsibility for training and certification outlined in AS 18.38.030 of SS HB 5 will mainly be with the employer and that the department will only be responsible for establishing training guidelines and certifying training programs.

Three positions will be needed for the first year--two Industrial Hygienists and one Clerk Typist III. During the second year only one hygienist and a clerk typist will be required. To assure that the program is implemented without delay, we would need to hire one hygienist and a clerk on July 1, 1985. We estimate that it will take two months to set up the schedule for surveying schools and three months to develop the regulations and guidelines for the certification program. An industrial hygienist is required to perform this task as the work requires a person who has an educational background and experience in industrial health evaluation. The other industrial hygienist would be hired by September, 1985. It is estimated that by the end of the first year, we would survey and evaluate potential health hazards in approximately 70 of the 100 school buildings yet to be surveyed. In the first year of operation the one time special costs would include:

- One set of sampling pumps for the 2 Industrial Hygienists	$4,000.00
- Training Films	$4,000.00
- Protective clothing and respirators	$4,000.00
- Contract to analyze the bulk asbestos samples (5 per building)	$20,000.00

	Position Title			Range/Step	Barg. Unit	Form 12 Page/Line	GOV.	APPROV.	DISAPP.
1	Industrial Hygienist I			19A	GGU				
	Type of Position	Staff Months	RP Number / PCN Number	BRU Priority	Location	Election District	LEG.		
2	PFT	12			Anch.				

3	CONTINUATION LEVEL		ADDITION
4	Type of Expenditure		Amount
	1	2	3
	PERSONAL SERVICES		
5	Salary	40.032	
6	Benefits	6.659	
7	Supplemental Benefits	2.454	
8	Fixed Benefits	2.732	
9	TOTAL PERSONAL SERVICES	01	51,887
10	Travel	02	12,000
11	Contractual	03	20,404
12	Commodities	04	2,500
13	Equipment	05	7,100
14	Other		
15	TOTAL COST		93,891

	RECEIPT CODE	FUNDING SOURCE		
16		Federal Receipts	1002	
17		G.F. Match	1003	
18		General Funds	1004	93,891
19		I-A Receipts	1005	
20		Program Receipts	1028	
21		Other		

For M&B Use Only
4A Key Number ___ - ___ - ___ - ___ - ___

JUSTIFICATION

As lead position of the Asbestos Health Hazard Abatement Program, this position will set up the scheduling system for surveying approximately 100 buildings and develop guidelines for the certification program. This position will survey approximately 40 buildings the 1st year and 30 buildings the 2nd year. In the second year this position would be maintained to monitor and evaluate the certification program; provide information and training to contractors, their workers, and other interested parties of the potential health hazards of asbestos.

13 REQUEST FOR NEW POSITION

AGENCY Labor

PROGRAM Public Protection

BRU Occupational Safety & Health

COMPONENT Occupational Safety & Health

FY 86

Revised Date

LEG:F:31

	Position Title			Range/Step	Barg. Unit	Form 12 Page/Line	GOV.	APPROV.	DISAPP.
1	Industrial Hygienist I			19A	GGU				
	Type of Position	Staff Months	RP Number / PCN Number	BRU Priority	Location	Election District	LEG.		
2	Seasonal	10			Anch.				

3	CONTINUATION LEVEL	ADDITION	
4	Type of Expenditure		Amount
	1	2	3
	PERSONAL SERVICES		
5	Salary	33.360	
6	Benefits	5.558	
7	Supplemental Benefits	2.045	
8	Fixed Benefits	2.277	
9	TOTAL PERSONAL SERVICES	01	43.240
10	Travel	02	11.500
11	Contractual	03	19.603
12	Commodities	04	2.500
13	Equipment	05	7.100
14	Other		
15	TOTAL COST		83.943

	RECEIPT CODE	FUNDING SOURCE		
16		Federal Receipts	1002	
17		G.F. Match	1003	
18		General Funds	1004	83,943
19		I-A Receipts	1005	
20		Program Receipts	1028	
21		Other		

For M&B Use Only
4A Key Number ___ - ___ - ___ - ___ - ___

JUSTIFICATION

This is a one year position responsible for surveying approximately 30 school buildings to determine if there are any asbestos materials present in the buildings and to take samples of such materials. This position will assure the integrity of the samples and will analyze the sample results. The industrial hygienist will prepare a report to the school district based on this analysis and recommend methods to control or remove the asbestos materials. This position will also provide information to contractors and school officials on the proper methods and safeguards that must be used to encapsulate or remove the asbestos material. Other duties include assisting the lead industrial hygienist monitor and evaluate the employer certification program.

13 REQUEST FOR NEW POSITION

AGENCY Labor

PROGRAM Public Protection

BRU Occupational Safety & Health

COMPONENT Occupational Safety & Health

FY 86

Revised Date

LEG:F:32

	Position Title			Range/Step	Barg. Unit	Form 12 Page/Line	GOV.	APPROV.	DISAPP.
1	Clerk Typist III			8B	GGU				
	Type of Position	Staff Months	RP Number	BRU Priority	Location	Election District	LEG.		
2	PFT	12			Anch.				

3	CONTINUATION LEVEL	ADDITION	
4	Type of Expenditure		Amount
	1	2	3
	PERSONAL SERVICES		
5	Salary	20,136	
6	Benefits	3,355	
7	Supplemental Benefits	1,234	
8	Fixed Benefits	2,732	
9	TOTAL PERSONAL SERVICES	01	27,457
10	Travel	02	0
11	Contractual	03	13,016
12	Commodities	04	1,000
13	Equipment	05	4,100
14	Other		
15	TOTAL COST		45,573

	RECEIPT CODE	FUNDING SOURCE		
16		Federal Receipts	1002	
17		G.F. Match	1003	
18		General Funds	1004	45,573
19		I-A Receipts	1005	
20		Program Receipts	1028	
21		Other		

For M&B Use Only
4A Key Number ___ - ___ - ___ - ___ - ___

JUSTIFICATION

This position will keep track of the asbestos samples taken by the industrial hygienists and will assure that these samples are mailed to and returned from the contract laboratory. The clerk typist will take, type, and proces the reports and correspondence about the asbestos program to the school districts, contractors, and Department of Education personnel who are required to be informed of the program. This position will also provide the clerical support necessary for the monitoring and evaluation of employer and employee training certification programs.

13 REQUEST FOR NEW POSITION

AGENCY Labor

PROGRAM Public Protection

BRU Occupational Safety & Health

COMPONENT Occupational Safety & Health

FY 86

Revised Date

LEG:F:34

STATE OF ALASKA 1985 LEGISLATIVE SESSION

FISCAL NOTE

Revision Date:

REQUEST

Bill/Resolution No.: HB 5

Title: ...asbestos..abatement...

Sponsor: Rep. Gruenberg

Requestor: House HESS

Date of Request: 1/21/85

FISCAL DETAIL

Agency Affected: Department of Education

Program Category Affected: K-12 Support

BRU, Program or Subprogram(s) Affected: Facilities

EXPENDITURES/REVENUES: (Thousands of Dollars)

	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90
OPERATING						
100 PERSONAL SERVICES						
200 TRAVEL						
300 CONTRACTUAL						
400 SUPPLIES						
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS						
800 MISCELLANEOUS						
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL	0	0	0	0	0	0
REVENUE						

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL						

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS: Attach a separate page if necessary

This bill has no fiscal impact.

Prepared By: James E. Tozer Phone: 465-2865

Division: Management, Law and Finance Date: 1/21/85

Approved by Commissioner: Harold Reynolds, Jr. Date: 1/21/85

Agency: Department of Education

Distribution (by Agency preparing fiscal note):

Legislative Finance
Legislative Sponsor
Requestor
Office of Management and Budget
Impacted Agency(ies)

7/'/84

POSITION PAPER OF THE DEPARTMENT OF EDUCATION

FOURTEENTH ALASKA LEGISLATURE
House Bill 5
January 21, 1985

The Department supports the provisions contained in House Bill 5. The requirements imposed on the Department are consistent with procedures already established. It is believed that the Department can cooperate with the Department of Labor in implementing an asbestos abatement program in the public schools throughout the state. The above position reflects the Department's position pending State Board Action.

Harold Raynolds, Jr., Commissioner

STATE OF ALASKA 1985 LEGISLATIVE SESSION

FISCAL NOTE

Revision Date: January 30, 1985

REQUEST

Bill/Resolution No.: SS for HB 5
Title: "An act establishing an asbestos health hazard abatement"
Sponsor: Gruenberg
Requestor: House HESS
Date of Request: 1-16-85

FISCAL DETAIL

Agency Affected: Labor
Program Category Affected: Public Protection
BRU, Program or Subprogram(s) Affected: Occupational Safety & Health

EXPENDITURES/REVENUES: (Thousands of Dollars)

	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90
OPERATING						
100 PERSONAL SERVICES		79.3	84.7			
200 TRAVEL		12.0	12.0			
300 CONTRACTUAL		171.9	24.8			
400 SUPPLIES		4.5	1.6			
500 EQUIPMENT		16.4	-0-			
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS						
800 MISCELLANEOUS						
TOTAL OPERATING	-0-	284.1	123.1	-0-	-0-	-0-
CAPITAL						
REVENUE						

FUNDING: (Thousands of Dollars)

GENERAL FUND		284.1	123.1			
FEDERAL FUNDS						
OTHER						
TOTAL	-0-	284.1	123.1	-0-	-0-	-0-

POSITIONS:

FULL-TIME	-0-	2	2	-0-	-0-	-0-
PART-TIME	-0-					
TEMPORARY						

ANALYSIS: Attach a separate page if necessary

Prepared By: Robert J. Bacolas Phone: 465-4870
Division: Labor Standards & Safety Date: 1/30/85

Approved by Commissioner: Jim Robison Date: 1/30/85
Agency: Department of Labor

Distribution (by Agency preparing fiscal note):
- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)

7/1/84

FISCAL NOTE

THE LEGISLATURE OF THE STATE OF ALASKA
FOURTEENTH LEGISLATURE
BILL/RESOLUTION NO: SS for HB 5
TITLE: "An Act relating to establishing asbestos health hazard abatement"
AGENCY AFFECTED: Department of Labor

There are approximately 550 school buildings in Alaska. Of these buildings we know that 140 buildings have been surveyed for asbestos. This is based on information from the U.S. Environmental Protection Agency (EPA), that they have made on-site inspections for compliance with their regulations in the Juneau, Anchorage, Fairbanks, Ketchikan, Sitka and Kodiak school districts. These school districts contain approximately 140 buildings. We are estimating that of the approximately 410 other school buildings, that a third have been properly surveyed or a school district will use a private consultant to survey their buildings. We estimate therefore, that the department will be required to make physical inspections of approximately 270 buildings that have either not been surveyed or have been improperly surveyed.

It is important that these school districts survey their buildings within two years to allow them time to budget and plan for the work necessary to abate the asbestos health hazards in their school districts.

It is assumed that the responsibility for training and certification outlined in AS 18.38.030 of SS HB 5 will mainly be with the employer and that the department will only be responsible for establishing training guidelines and certifying training programs.

A lead industrial hygienist, a clerk typist and monies to enter into a contract for surveying and abatement evaluation will be needed for the first year. To assure that the program is implemented without delay, we would need to hire the industrial hygienist and clerk on July 1, 1985. We estimate that it will take two months to set up the schedule for surveying schools and three months to develop the regulations and guidelines for the certification program. An industrial hygienist is required to perform this task as the work requires a person who has an educational background and experience in industrial health evaluation. Because of difficulties we anticipate in hiring a full-time position for only 10 months, we would enter into a contract by September with two other health specialists to perform the majority of the surveys. It is estimated that by the end of the first year, we would survey and evaluate potential health hazards in approximately 220 of the 270 school buildings yet to be surveyed. In the first year of operation the one time special costs would include:

- Sampling Pumps (3)	$6,000.00
- Training Films/Slides	$4,000.00
- Air Supplied Respirators (3)	$3,000.00
- Protective Clothing (3)	$3,000.00
- Contract for Two Health Specialists	$110,000.00
- Contract to Analyze the Bulk Asbestos Samples (5 per buildings)	$38,500.00

During the second year only the hygienist and clerk would be maintained to monitor the completion of the program.

1.	POSITION TITLE Clerk Typist III			RANGE/STEP 8B	BARG. UNIT GGU	FORM 12 PAGE/LINE	GOV.	APPROV. / DISAPP.
2.	TYPE OF POSITION PFT	STAFF MONTHS 12	RP NUMBER	PCN NUMBER	BRU PRIORITY	LOCATION Anch	ELECTION DISTRICT	LEG.

3.	CONTINUATION LEVEL	ADDITION	
4.	TYPE OF EXPENDITURE		AMOUNT
	1	2	3
	PERSONAL SERVICES		
5.	Salary	20,136	
6.	Benefits	3,355	
7.	Supplemental Benefits	1,234	
8.	Fixed Benefits	2,732	
9.	TOTAL PERSONAL SERVICES 01		27,457
10.	Travel 02		0
11.	Contractual 03		13,016
12.	Commodities 04		1,000
13.	Equipment 05		1,700
14.	Other		
15.	TOTAL COST		43,173

	RECEIPT CODE	FUNDING SOURCE	
16.		Federal Receipts 1002	
17.		G.F. Match 1003	
18.		General Funds 1004	43,173
19.		I-A Receipts 1005	
20.		Program Receipts 1028	
21.		Other	

FOR B&M USE ONLY
4A KEY NUMBER __ __ - __ __ - __ __ - __ __ - __ __

JUSTIFICATION

This position will keep track of the asbestos samples taken by the industrial hygienists and will assure that these samples are mailed to and returned from the contract laboratory. The clerk typist will take, type, and process the reports and correspondence about the asbestos program to the school districts, contractors, and Department of Education personnel who are required to be informed of the program. This position will also provide the clerical support necessary for the monitoring and evaluation of employer and employee training certification programs.

Contractual costs include rent of $3,600, indirect of $2,400, and other normal expenses, including word processing of $7,000.

Normal commodities of $1,000 and equipment of $1,700 are also included.

13. REQUEST FOR NEW POSITION

AGENCY Labor

PROGRAM Public Protection

BRU Occupational Safety & Health

COMPONENT Occupational Safety & Health

Revised Date

FY 86

LEG:F:34

1.	POSITION TITLE Industrial Hygienist I			RANGE/STEP 19A	BARG. UNIT GGU	FORM 12 PAGE/LINE	GOV.	APPROV.	DISAPP.
2.	TYPE OF POSITION PFT	STAFF MONTHS 12	RP NUMBER	PCN NUMBER	BRU PRIORITY	LOCATION Anch.	ELECTION DISTRICT	LEG.		

3.	CONTINUATION LEVEL		ADDITION
4.	TYPE OF EXPENDITURE		AMOUNT
	1	2	3
	PERSONAL SERVICES		
5.	Salary	40,032	
6.	Benefits	6,669	
7.	Supplemental Benefits	2,454	
8.	Fixed Benefits	2,732	
9.	TOTAL PERSONAL SERVICES	01	51,887
10.	Travel	02	12,000
11.	Contractual	03	10,404
12.	Commodities	04	1,500
13.	Equipment	05	4,700
14.	Other		
15.	TOTAL COST		80,491

	RECEIPT CODE	FUNDING SOURCE		
16.		Federal Receipts	1002	
17.		G.F. Match	1003	
18.		General Funds	1004	80,491
19.		I-A Receipts	1005	
20.		Program Receipts	1028	
21.		Other		

FOR B&M USE ONLY
4A KEY NUMBER ___ - ___ - ___ - ___ - ___

JUSTIFICATION

As lead position of the Asbestos Health Hazard Abatement Program, this position will set up the scheduling system for surveying approximately 270 buildings and develop guidelines for the certification program. This position will survey approximately 50 buildings the 1st year and 50 buildings the 2nd year. In the second year this position would be maintained to monitor and evaluate the certification program; provide information and training to contractors, their workers, and other interested parties of the potential health hazards of asbestos.

Contractual costs include rent $3,600, indirect costs $4,800 and other normal costs of $2,000.

Commodities include protective clothing $1,000 and other costs $500.

Equipment costs include sampling pumps $2,000, air respirator $1,000, and other normal costs of $1,700.

13 REQUEST FOR NEW POSITION

AGENCY Labor

PROGRAM Public Protection

BRU Occupational Safety & Health

COMPONENT Occupational Safety & Health

Revised Date

FY 86

LEG:F:31

STATE OF ALASKA 1985 LEGISLATIVE SESSION

FISCAL NOTE

Revision Date:

REQUEST

Bill/Resolution No.: CS SS HB5 (L&C)
Title: "An act establishing an asbestos health hazard abatement"
Sponsor: Gruenberg
Requestor: House Labor & Commerce
Date of Request: 2-11-85

FISCAL DETAIL

Agency Affected: Labor
Program Category Affected: Public Protection
BRU, Program or Subprogram(s) Affected: Occupational Safety & Health

EXPENDITURES/REVENUES: (Thousands of Dollars)

	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90
OPERATING						
100 PERSONAL SERVICES		79.3	84.7	87.7	90.7	93.9
200 TRAVEL		12.0	12.0	12.7	13.5	14.3
300 CONTRACTUAL		171.9	24.8	26.3	27.9	29.5
400 SUPPLIES		4.5	1.6	1.7	1.8	1.9
500 EQUIPMENT		16.4	-0-	-0-	-0-	-0-
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS						
800 MISCELLANEOUS						
TOTAL OPERATING	-0-	284.1	123.1	128.4	133.9	139.6
CAPITAL						
REVENUE						

FUNDING: (Thousands of Dollars)

GENERAL FUND		284.1	123.1	128.4	133.9	139.6
FEDERAL FUNDS						
OTHER						
TOTAL	-0-	284.1	123.1	128.4	133.9	139.6

POSITIONS:

FULL-TIME	-0-	2	2	2	2	2
PART-TIME	-0-					
TEMPORARY						

ANALYSIS: Attach a separate page if necessary

(See Attached)

Prepared By: Robert J. Bacolas Phone: 465-4870
Division: Labor Standards & Safety Date: 2/13/85

Approved by Commissioner: Jim Robison Date: 2/13/85
Agency: Department of Labor

Distribution (by Agency preparing fiscal note):
- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)

7/1/84

FISCAL NOTE

THE LEGISLATURE OF THE STATE OF ALASKA
FOURTEENTH LEGISLATURE
BILL/RESOLUTION NO: CS SS for HB 5 (House Labor and Commerce Committee)
TITLE: "An Act relating to establishing asbestos health hazard abatement"
AGENCY AFFECTED: Department of Labor

There are approximately 550 school buildings in Alaska. Of these buildings we know that 140 buildings have been surveyed for asbestos. This is based on information from the U.S. Environmental Protection Agency (EPA), that they have made on-site inspections for compliance with their regulations in the Juneau, Anchorage, Fairbanks, Ketchikan, Sitka and Kodiak school districts. These school districts contain approximately 140 buildings. We are estimating that of the approximately 410 other school buildings, that a third have been properly surveyed or a school district will use a private consultant to survey their buildings. We estimate therefore, that the department will be required to make physical inspections of approximately 270 buildings that have either not been surveyed or have been improperly surveyed.

It is important that these school districts survey their buildings within two years to allow them time to budget and plan for the work necessary to abate the asbestos health hazards in their school districts.

It is assumed that the responsibility for training and certification outlined in AS 18.38.030 of CS SS HB 5 (L&C) will mainly be with the employer and that the department will only be responsible for establishing training guidelines and certifying training programs.

A lead industrial hygienist, a clerk typist and monies to enter into a contract for surveying and abatement evaluation will be needed for the first year. To assure that the program is implemented without delay, we would need to hire the industrial hygienist and clerk on July 1, 1985. We estimate that it will take two months to set up the schedule for surveying schools and three months to develop the regulations and guidelines for the certification program. Because of difficulties we anticipate in hiring a full-time position for only 10 months, we would enter into a contract by September with two other health specialists to perform the majority of the surveys. It is estimated that by the end of the first year, we would survey and evaluate potential health hazards in approximately 220 of the 270 school buildings yet to be surveyed. In the first year of operation the one time special costs would include:

- Sampling Pumps (3)	$6,000.00
- Training Films/Slides	$4,000.00
- Air Supplied Respirators (3)	$3,000.00
- Protective Clothing (3)	$3,000.00
- Contract for Two Health Specialists	$110,000.00
- Contract to Analyze the Bulk Asbestos Samples (5 per buildings)	$38,500.00

During the second year only the hygienist and clerk would be maintained to monitor the completion of the program and to continue the certification program. These positions will also be retained in FY 88, 89, and 90 to certify, evaluate, and monitor the training programs of contractors who work with asbestos. It is assumed in FY's 88-90 that personal services costs will increase by 3.5% per year and non-personal services will increase by 6% per year.

1.	POSITION TITLE Clerk Typist III			RANGE/STEP 8B	BARG. UNIT GGU	FORM 12 PAGE/LINE	COV.	APPROV. DISAPP.
2.	TYPE OF POSITION PFT	STAFF MONTHS 12	RP NUMBER	PCN NUMBER	BRU PRIORITY	LOCATION Anch	ELECTION DISTRICT	LEG.
3.	CONTINUATION LEVEL		ADDITION					

4.	TYPE OF EXPENDITURE		AMOUNT
	1	2	3
	PERSONAL SERVICES		
5.	Salary	20,136	
6.	Benefits	3,355	
7.	Supplemental Benefits	1,234	
8.	Fixed Benefits	2,732	
9.	TOTAL PERSONAL SERVICES	01	27,457
10.	Travel	02	0
11.	Contractual	03	13,016
12.	Commodities	04	1,000
13.	Equipment	05	1,700
14.	Other		
15.	TOTAL COST		43,173

	RECEIPT CODE	FUNDING SOURCE	
16.		Federal Receipts 1002	
17.		G.F. Match 1003	
18.		General Funds 1004	43,173
19.		I-A Receipts 1005	
20.		Program Receipts 1028	
21.		Other	

FOR B&M USE ONLY
4A KEY NUMBER ___ - ___ - ___ - ___ - ___

JUSTIFICATION

This position will keep track of the asbestos samples taken by the industrial hygienists and will assure that these samples are mailed to and returned from the contract laboratory. The clerk typist will take, type, and process the reports and correspondence about the asbestos program to the school districts, contractors, and Department of Education personnel who are required to be informed of the program. This position will also provide the clerical support necessary for the monitoring and evaluation of employer and employee training certification programs.

Contractual costs include rent of $9,600, indirect of $2,400, and other normal expenses, including word processing of $7,000.

Normal commodities of $1,000 and equipment of $1,700 are also included.

13 REQUEST FOR NEW POSITION

AGENCY Labor

PROGRAM Public Protection

BRU Occupational Safety & Health

COMPONENT Occupational Safety & Health

Revised Date

FY 86

LEG:F:34

	POSITION TITLE	RANGE/STEP	BARG. UNIT	FORM 12 PAGE/LINE	GOV.	APPROV.	DISAPP.
1.	Industrial Hygienist I	19A	GGU				
2.	TYPE OF POSITION: PFT / STAFF MONTHS: 12 / RP NUMBER / PCN NUMBER	BRU PRIORITY	LOCATION: Anch.	ELECTION DISTRICT	LEG.		
3.	CONTINUATION LEVEL / ADDITION						

	TYPE OF EXPENDITURE		AMOUNT
	1	2	3
	PERSONAL SERVICES		
5.	Salary	40,032	
6.	Benefits	6,669	
7.	Supplemental Benefits	2,454	
8.	Fixed Benefits	2,732	
9.	TOTAL PERSONAL SERVICES	01	51,887
10.	Travel	02	12,000
11.	Contractual	03	10,404
12.	Commodities	04	1,500
13.	Equipment	05	4,700
14.	Other		
15.	TOTAL COST		80,491

	RECEIPT CODE	FUNDING SOURCE		
16.		Federal Receipts	1002	
17.		G.F. Match	1003	
18.		General Funds	1004	80,491
19.		I-A Receipts	1005	
20.		Program Receipts	1028	
21.		Other		

FOR B&M USE ONLY
4A KEY NUMBER ___ - ___ - ___ - ___ - ___

JUSTIFICATION

As lead position of the Asbestos Health Hazard Abatement Program, this position will set up the scheduling system for surveying approximately 270 buildings and develop guidelines for the certification program. This position will survey approximately 50 buildings the 1st year and 50 buildings the 2nd year. In the second year this position would be maintained to monitor and evaluate the certification program; provide information and training to contractors, their workers, and other interested parties of the potential health hazards of asbestos.

Contractual costs include rent $3,600, indirect costs $4,800 and other normal costs of $2,000.

Commodities include protective clothing $1,000 and other costs $500.

Equipment costs include sampling pumps $2,000, air respirator $1,000, and other normal costs of $1,700.

13 REQUEST FOR NEW POSITION

AGENCY Labor

PROGRAM Public Protection

BRU Occupational Safety & Health

COMPONENT Occupational Safety & Health

Revised Date

FY 86

LEG:F:31

01-1133 (7/82) - 13

House Labor and Commerce
February 18, 1985

HB 5 SUPPLEMENTAL FILE

Material added for February 13, 1985

1) Updated CS for CSSSHB 5 (L & C)

2) Sectional Analysis comparing L & C CS with HESS CS by Ed Hine, Legislative Legal Counsel & Bill Drafter (requested by the Committee)

3) Additional Materials - EPA

   a. Summary Overview of EPA Asbestos School Hazard Abatement Act

   b. Copy of Federal Title V Act: "Asbestos School Hazard Abatement Act of 1984"

   c. Interim Guidelines for Evaluating Asbestos Hazardsd and Appropriate Abatement Actions (Gives a preliminary overview of the Prioritization approach EPA will employ, in accord with L & C Committee request).

4) Letter from Jackie Jones (local carpenter who worked untrained on an asbestos construction project) -- Added to record at request of Committee after her testimony February 11.

Material added for February 14 Meeting:

5) Updated Fiscal Note from Dept. of Labor dated 2-11-85 for CS SS HB 5 (L & C; with fiscal analysis

6) Two Fairbanks North Star Borough employees fired after testifying to HESS committee on HB 5 and HB 57 (Fairbanks News Miner 2/11/85)

Material added for February 18 Meeting:

7) Report of Asbestos Abatement Fact Finding Committee to the Dept. of Labor (requested by Rep. Hanley)

8) CS for SSHB 5 (L & C) proposed by sponsor Gruenberg (in response to Dept. of Labor Jan. 20, 85 Position Paper

Unmatte

Asbestos Abatement Fact Finding Committee

I Introduction

Commissioner Robison to satisfy many petitions to approve asbestos abatement training programs, such as described by the following excerpt from a "Request for Proposals" by the Municipality of Anchorage:

> "Contractor shall provide notarized certification by name and social security (number) certifying that all employees involved in asbestos removal have been thoroughly instructed through an Asbestos Removal Training Program as approved by the State of Alaska Department of Labor in the hazards of exposure to asbestos fibers; proper care and use of protective clothing; decontamination procedures and all other conditions and requirements as reviewed under relevant DOSH, EPA, and OSHA standards."

and a response by the purchasing officer to the members of the request for proposal evaluating committee to wit: That eight of the nine proposers offered training programs of varying scope and strength. "Not withstanding inferences to the contrary, no federal, state, or municipal guidelines exist against which specific training programs can be objectively evaluated. Absent such guidelines, the adequacy of individual programs remain in question."

The Commissioner recognizing the need as identified above and his responsibility to lead the way in this critical area of worker safety and health, appointed our industry (government, labor and management) task force to act as a fact finding committee for asbestos abatement and related problems.

The committee represents all aspects of this industry with over 125 years combined experience in asbestos-related work.

The committee includes:

1. Chair, Ambrose Bittner - State Director
   U.S. Department of Labor - Bureau of Apprenticeship and Training; Member, Alaska Safety Advisory Council

2. Co-Chair, Ron Cunningham - Safety and Health Director
   Alaska General Construction Company
   Member AGC Safety Committee

3. Ray Jorgensen - Chief of Industrial Health Compliance
   Alaska Department of Labor, Division of Labor Standards and Safety, Occupational Safety and Health Section

4. Dan Middaugh - Member Asbestos Workers Local 97
   Joint Apprenticeship and Training Committee
   Asbestos Abatement Instructor
   President, Board of Directors, Alaska Health Project

5. Leonard Limtiaco - Occupational Safety & Health Manager
   U.S. Department of Labor, Occupational Safety and
   Health Administration

6. Joe Churchill - Manager
   E. J. Bartell Company
   Secretary - Asbestos Workers Joint Apprenticeship and
   Training Committee
   President, Alaska Chapter, Western Insulation
   Contractors Association
   Secretary-Treasurer - Western Insulation Contractors
   Association

7. Les Lauinger - Training Director
   AGC - Laborers Training Trust
   Instructor - Asbestos Abatement

8. Nancy Cannington - Special Assistant to the Commissioner
   Executive Assistant - Alaska Safety Advisory Council

The Committee in its collective wisdom did not attempt to reinvent a wheel, but rather outline and describe existing practices and procedures. The committee report outlines procedures and programs to deal with the safety and health concerns of those involved in an asbestos abatement project.

Our report follows.

II Scope

This report is intended to describe recommended rules which are in existence and to establish minimum content for an acceptable training program, provide for certification of trainers, recognition of trainers, and to establish the requirements for a presurvey and provide disposal procedures while performing demolition, removal, enclosure, remodeling and disposal of asbestos contaminated materials.

III Asbestos Abatement Safety and Health Standards, Rules and Regulations

A. Agencies

There are many regulations that must be followed to implement an effective asbestos abatement program. There are, for the most part, four agencies that are responsible for administering asbestos related regulation:

1. U.S. Environmental Protection Agency (EPA)

2. Alaska Department of Environmental Conservation (DEC)

3. U.S. Department of Labor, Occupational Safety and Health Administration (OSHA)

4. Alaska Department of Labor, Labor Standards and Safety Division, Occupational Safety and Health Section (DOSH)

B. Regulations

EPA and DEC regulation covers non-work related exposures, transportation and disposal of asbestos containing material. Municipalities have set up procedures and areas for the disposal sites. Virtually all of the OSHA regulations are mirrored by DOSH regulation. The State Department of Labor has enforcement jurisdiction at most places of employment in Alaska (exceptions are navigable water ways and federal/military employees). The regulations and/or industry standards are:

1. EPA 40 CFR Part 61 Subpart M

The Environmental Protection Agency's 40 CFR Part 61 is the national emission standard for hazardous air pollutants. Subpart M is the national emission standard for asbestos.

2. Occupational Safety and Health Standards Subchapter 4, Article 1, Occupational Health and Environmental Control (OH & EC)

Occupational SAfety and Health Standards Subchapter 4, Article 1, Occupational Health and Environmental Control (OH & EC) Section 04.0102 specifically lists the requirements to abate exposure to asbestos. It defines the permissible exposure to airborne concentrations of asbestos fibers, methods of compliance, monitoring and medical records.

3. Occupational Safety and Health Standards Subchapter/General Safety and Health Code (GSC) Articles/Section 01.0101 to Article 15

   Occupational Safety and Health Standards Subchapter/General Health Safety Code Articles/ Section 01.0101 to Article 15.15.0101(j)(14) lists the requirements for establishing an accident prevention program, work platforms, hazardous materials and operations, personal protective equipment including respiratory protection, medical and first aid, fire protection, etcetera on to hazard communication (the right to know and be informed of hazardous substances in the work places).

4. 30 CFR Part II (37F.R. 6244, Mar. 25, 1972)

   Provides for the approval of respirators by NIOSH.

5. Alaska Statutes (AS) Section 1860.010-18.60.105

   Alaska Statutes Secs. 18.60.010-18.60.105 Alaska Department of Labor, Division of Labor Standards and Safety "Prevention of Accident and Health Hazards". This statute lists the duties of the Department of Labor. Some of the duties described enable the Department of Labor to (a) plan and execute safety programs, including educational campaigns, (b) establish and enforce occupational safety and health standards, (c) participate in occupational safety and health programs, and (d) assist employers to identify and obtain information on toxic and hazardous substances and develop employee education programs.

6. Alaska Administrative Code (AAC) Title 8 8AAC60.010-8AAC 80.010.

   Alaska Administrative Code Title 8 8AAC60.010-8AAC80.010 Alaska Department of Labor Division of Labor Standards and Safety charge the division with the responsibility and the authority to:

   a. Enforce all laws and lawful orders requiring work and work places to be safe and healthful;

   b. Investigate disabling or fatal occupational injuries and illnesses;

   c. Develop occupational safety and health standards which, after adoption, have the affect of law and,

d. Establish special orders, or rules and regulations, to cover a specific place of employment or process or work.

Section 8 AAC 61.270 provides for the access to records of employee's past or present exposure to toxic substances or harmful physical agents and job duties or working conditions by the Department of Labor and employees or their representatives.

7. American National Standards (ANSI) 288.2-1969 and 1980 are adopted by reference in the GSC and OH & EC.

American National Standards 288.2 - 1969 and 1980 cover the use of respiratory protection.

288.2 - 1980 section 7.2 requires the respirator issuer and wearer be given adequate training by a qualified person and describes training subjects (topics).

288.2 - 1969 section 7.4 requires the supervisors and workers be so instructed by competent persons and lists minimum training (topics).

American National Standards 29.2 - 1971 addresses the design and operation of local exhaust systems required to control exposure to asbestos.

In addition to enforced regulations, the agencies have enforcement policies and regulation interpretations that affect the owner/operator, contractor/employer, and worker/employee of asbestos abatement/compliance programs.

IV Asbestos Abatement Project Responsibilities

A review of the standards and regulations in Section III of this report revealed a need for the assignment of specific responsibilities of owners/operators, contractors/employers and workers/employees prior to the initiation or commencement of work on any asbestos abatement project. Therefore, this Fact Finding Committee has determined that specific responsibilities be assigned:

A. Owners/Operators

1. Ensure that a survey is conducted to identify the presence of asbestos materials and the actual location of these materials prior to the preparation of bid specifications for the abatement project.

2. Include in the bid specifications the designated disposal site and methods/procedures for disposal.

3. Provide in the bid specifications the requirements for inspection and monitoring of the work performance during the abatement project.

B. Contractor/Employer

1. Provide a skilled workforce of qualified workers who have received safety and health training prior to commencement of any asbestos abatement work.

2. Provide adequate material and equipment to safely perform the asbestos abatement project such as: approved respirators, personal protective equipment and clothing, work clothing change rooms, disposal packaging materials and monitoring equipment. (Reference - Attachment 1)

3. Ensure that trainers/instructors and supervisors are familiar with Safety and Health Rules and Regulations and Environmental Protection Agency Standards.

4. Provide a written training program for workers and maintain documentation of the completed training of each worker.

C. Workers/Employees

1. Be familiar with and abide by Safety and Health requirements and procedures when working with asbestos materials.

2. Be familiar with personal protective equipment and ensure that equipment and protective clothing are used and worn when working with asbestos materials.

V Recommended Procedures for Abatement Projects

In Alaska, the magnitude of the asbestos problem is just now being uncovered. Recently, many of our schools, military structures, and other public and private buildings have been found to contain asbestos. Legislation has been introduced this year to determine in more detail the extent of the asbestos problem in Alaska. At issue is the actual and potential dangers from "intermittent" asbestos exposure Alaskan construction workers face as they remodel and/or demolish these structures. In order to combat this problem and prevent future unsuspected asbestos exposure to Alaskan

workers, a proper survey of any building and plant prior to remodel or demolition is the most important first step.

Such a survey would check all materials in a building or plant that are known to possibly contain asbestos. Materials found to contain asbestos would then be charted as to type and amount (percentage) of asbestos present. This would allow the survey personnel to recommend removal/handling techniques to keep exposure at a minimum. (Reference Attachment 2)

A. Owner/Operator

1. Have survey performed by appropriate agency. (Reference Attachment 3)

Only properly trainined personnel should pre-survey remodel/demolition operations for asbestos-bearing materials. Survey personnel must be familiar with building construction, as well as be acquainted with all materials that may contain asbestos. Such persons should be capable of locating the suspect materials, collecting bulk samples, checking the samples and following them through the lab procedure and making recommendation on how to handle these materials during demolition/remodel.

The training of survey technicians is very important. These persons are the key in preventing unnecessary exposure to asbestos. Survey personnel must be proficient in self protection, removal, encapsulation, monitoring, lab techniques, basic building construction and identification of asbestos bearing materials.

2. Disposal Site

It is recommended that each owner/operator be be required to identify, in the bid specifications of all asbestos abatement projects, the location of the disposal site and provide disposal procedures to include as a minimum : (Reference Attachment 3)

a. The geographical area or locale which the disposal facility will accept materials from.

b. The time and dates that the facility will accept asbestos materials for disposal.

c. Procedures for making arrangements for disposal to include contact points and telephone numbers.

d. Procedures for packaging, transporting, labeling and processing of the materials for acceptance at the disposal facility.

3. Specifications for Worker Safety-Health and Environmental Concerns.

The following general specifications are recommended for demolition, removal, disposal, enclosure and remodeling of asbestos abatement projects. If these recommended specifications are incorporated into contracts and strictly enforced, the exposure of asbestos to both public and employees will avoid unsafe and unhealthful exposures. Contractors must receive training and must train their workers in safe work practices. Owners/operators of buildings must identify projects with asbestos contained materials prior to issuance of bids. (Reference Attachment 4)

a. Regulations

Contractors shall comply with the requirements of the EPA regulations, OSHA regulations on asbestos, and any applicable State and Local Government regulations which are incorporated by reference.

b. Scope of Work

1. The contractor shall furnish all labor, materials, services, insurance, and equipment necessary to carry out the operation in accordance with the EPA and OSHA regulations (and any applicable State and Local Government regulations).

2. The contractor shall be responsible for obtaining approval for a waste disposal site in compliance with section 61.25 of the EPA regulations.

3. Contractors shall post the EPA, OSHA, State DOSH and any applicable Local Government regulations at the job site.

c. Workers Protection (any and all personnel entering contaminated area)

1. The contractor shall provide workers with approved respirators as determined by the exposure level (filtration or air supplied) as applicable. The contractor shall provide a sufficient quantity of filters approved for asbestos so that workers can change filters

during the work day. Filters shall not be used any longer than one (1) work day. The respirator filters shall be stored at the job site in the change room and shall be totally protected from exposure to asbestos prior to their use.

2. Workers shall always wear a respirator properly fitted on the face in the work area.

3. Contractors shall instruct and train workers in proper respirator use.

4. Workers shall wear disposable, full-body coveralls and disposable head and foot wear in the work area. Footwear may be disposable. Non-disposable footwear shall be left in the work area at all times until disposal at job completion.

5. The contractor shall set up a decontamination facility to include a shower outside of the work area. (Example: Reference Attachment 5)

6. All workers without exception shall:

   a. Remove street clothes in the change room and put on the disposable coveralls and head covers and respirator before entering the work area.

   b. Remove the disposable coveralls, head covers and footwear in the work area before leaving the work area. Still wearing their respirators, proceed to the showers and remove their respirators while showering with soap and water.

   c. Shower at the end of each day's work before entering the change room to change into street clothes.

7. Workers shall not eat, drink, smoke, chew gum, or chew tobacco in the work area. To eat, drink or smoke, workers shall remove the disposable work clothes and footwear in the work area before leaving the work area. Still wearing their respirators, workers shall proceed to the showers and remove respirators while showering with soap and water. Workmen shall then dress into new, clean, disposable coverall to eat, smoke, or drink. The new coverall can be worn to reenter the work area.

8. The contractor shall provide a respirator and disposable coveralls, head cover, and footwear to any official representative who inspects the job site.

9. All persons entering the work area shall wear an approved respirator and disposable coveralls, head cover, and footwear.

d. Work Area Preparation

1. The Contractor shall set up a decontamination facility outside of the work area which will consist of a change room, shower area, and equipment area. (Reference Attachment 5)

2. The contractor shall isolate the work area for the duration of the work by completely sealing off all openings and fixtures in the work areas including, but not limited to, heating and ventilation ducts, doorways, corridors, windows, skylights, and lighting with plastic sheeting taped securely in place.

3. The contractor shall build double barriers of plastic sheeting at all entrances and exits to the work area so that the work area is always closed off by one barrier when workers enter or exit.

4. All floor and wall surfaces in the work area shall be covered with plastic sheeting taped securely in place to protect from water damage (or damage by sealants).

5. Before the work has begun, the contractor shall wet clean all removable items and equipment, remove them from the work area, and then return these items and equipment to the work area after the job has been completed and the area has been decontaminated.

6. The contractor shall cover all non-removable items and equipment in the work area with plastic sheeting taped securely in place.

7. After work area isolation the contractor shall take out detachable electrical heating, ventilation equipment, and other items located on the asbestos material, clean them before covering with plastic sheeting taped securely in place, and return them to their proper places after the has been completed and the work . has been decontaminated.

8. The contractor shall remove all heating, ventilation, and air conditioning system filters, pack them in sealable plastic bags (6-mil minimum) for burial in the approved waste disposal site and replace them with new filters.

9. The contractor shall establish emergency and fire exits from the work area. Emergency procedures shall have priority.

e. Method of Removal

1. The asbestos material shall be sprayed with water containing a wetting agent to enhance penetration. A fine spray of the amended water shall be applied to reduce fiber release preceeding removal of the asbestos material. The material shall be sufficiently saturated to prevent emission of airborne fibers in excess of the exposure limits prescribed in the OSHA and State regulations referenced in these specifications.

2. The asbestos material shall be removed in small sections by two-man teams on staging platforms. Before beginning the next section, the material shall be packed while still wet into sealable plastic bags (6-mil minimum) and placed into fiber or metal drums or skips for transport. Bags, drums, and skips shall be marked with the OSHA/State DOSH label prescribed by the OSHA/State DOSH regulations referenced in these specifications. The outside of all containers shall be clean before leaving the work area.

3. All plastic sheeting, tape, cleaning material, clothing and all other disposable material or items used in the work area shall be packed into sealable plastic bags (6-mil minimum) and placed into metal or fiber drums or skips for transport. The drums and skips shall be marked with the OSHA/State DOSH label prescribed by the OSHA/State DOSH regulations referenced in these specifications.

4. The contractor shall transport the sealed drums or skips to the approved waste disposal site. The sealed plastic bags may be dumped from the drums into the burial site unless the bags have been broken or damaged. The damaged bags shall be left in the drum and the entire contaminated drum shall be buried. Uncontaminated drums may be recycled.

5. As a highly recommended engineering control method and as an industrywide practice whenever feasible, HEPA filtered air exhaust should be used to create a negative pressure and allow for thorough cleanup.

f. Decontamination of Work Area

1. The contractor shall completely decontaminate all tools before removal from work area. The contractor shall clean all surfaces with a HEPA filtered vacuum (HEPA - High Efficiency Particulate Absolute) and/or water. (HEPA vacuums fail when used on wet material.) After cleaning the work area, the contractor shall wait 24 hours to allow for settlement of dust and then wet-clean all surfaces in the work area. After completion of wet-cleaning and when all surfaces are completely, dry, the contractor shall take two air samples, minimum six hours duration each, within 48 hours and 24 hours apart. Such air samples shall be taken while activities normal to the use of the area are simulated i.e., sweeping floor, dusting counters, vacuuming with standard vacuum, air handling system functioning, or any other air disturbing activity that would normally take place in the area after takeover by owner/operator.

2. If the air samples results show that the work area has not been decontaminated, the contractor shall repeat the cleaning and air monitoring until the work area is in compliance.

3. After the work area is found to be in compliance, all entrances and exits are unsealed and the plastic sheeting, tape, and any other trash and debris is disposed of in sealable plastic bags (6-mil minimum) and buried in the approved waste disposal site.

g. Air Monitoring

1. Air monitoring shall be conducted by a certified agency/laboratory to ensure compliance with the OSHA/State DOSH regulations.

2. Air monitoring will be conducted according to the method prescribed by OSHA/State DOSH regulations.

3. Air monitoring shall be performed to provide the following samples during the period of asbestos operations.

Area to be Sampled	Minimum Number of Samples for each Work Day	Each Sample Minimum Time
Work Area	2	6 Hrs.
Personnel	Each Job Title	6 Hrs.
Outside Building	1	6 Hrs.
Outside Work Area	1	6 Hrs.

B. Contractor/Employer

1. Provide Asbestos Abatement Training Program

The Committee recommends a minimum three-day asbestos training program, as outlined in Attachment 6.

2. Provide Qualified Supervisors and Instructors

The Committee recommends the following minimum requirements:

a. Recognize distinction between legal vs. recommended practices.

b. Capable of reading analyses between bul[illegible] and air samples.

c. Know requirements of OSHA, State DOSH, EPA and DEC in regards to asbestos.

d. Knowledge of jurisdictional issues between regulatory agencies listed in item C.

e. Knowledgeable in respirator requirements.

C. Worker/Employee

1. The employee should receive instruction pertaining to aforementioned training. (Health effects, respirator program, abatement procedures, engineering controls, waste disposal, and any applicable regulations.)

2. Follow procedures outlined in the training program.

3. Participate in on-the-job safety meetings.

4. Work with the contractor to identify and participate in any corrective actions deemed necessary.

5. Avoid shortcuts in work procedures involving safety.

6. Be a productive and safe worker by following recommended practices.

VI. Conclusions - Committee Recommendations to the Commissioner

1. Require pre-surveys for asbestos containing materials in demolition and remodeling projects. Pre-survey should be performed by competent person using a check list of prominent asbestos containing materials.

2. Identify appropriate sites and provide operational guidelines for disposal of asbestos containing materials consistent with VA2, page 7.

3. Adopt minimum training standards for asbestos abatement (Reference Attachment 6)

4. Establish instructor qualifications for Asbestos Abatement training (Reference VB2, page 8)

5. Require workers to successfully complete minimum training program prior to employment in hazardous or contaminated work areas. (Reference VC2 Page 9)

We further recommend that the Commissioner adopt certification procedures for standards of training, instructor qualifications and worker skills.

Respectfully Submitted:

Ambrose Bittner II — Chairman

Ronald E. Cunningham — Co-Chairman

Daniel McLaughlin — Member

Joseph L. Churchill — Member

Leslie H. Lovinger — Member

Leonardo P. Fuentecilla — Member

Raymond L. Jorgensen — Member

Nancy E. Carrington — Member

Attachment 1

ASBESTOS ABATEMENT

EQUIPMENT MANUFACTURERS

Mention of trade names of specific products does not constitute endorsement by the committee.

1. High Efficiency Particulate Air (H.E.P.A.) Vacuum

    a. Nilfisk
    b. Pullman-Holt

2. Protective Clothing

    a. Durafab
    b. Tyviek
    c. Best Manufacturing

3. Respirators

    a. Filtered Face Masks

        1. HSC
        2. Norton
        3. Wilson

    b. Self Contained Air Supplied Systems

        1. 3M
        2. Aqualung-Safety Division
        3. Scott

    c. Grade "D" Air Supplied Systems

        1. Racal
        2. Scott

4. Negative Air Pressure Systems With H.E.P.A. Filters

    a. Nilfisk
    b. Pullman-Holt

5. Removal Bags

    a. Profo
    b. Durafab
    c. Safe-T-Strip

6. Disposal Bags

    a. Profo
    b. Associated Bag
    c. DuraFab

7. Warning Signs

   a. Sa-So
   b. National Marker Co.

8. Decontamination Trailers

   a. Mators Mobile Detox

9. Surfactant Wetting Application Sprayer

   a. Hudson

ASBESTOS ABATEMENT

EQUIPMENT SUPPLIERS

Sahlberg Equipment Inc.
1702 Ship Ave.
Anchorage, Alaska 99501

E. J. Bartells Co.
601 Whitney Rd.
Anchorage, Alaska 99501

Reynolds Equipment Co., Inc.
1537 E 5th Ave
Anchorage, Alaska 99501

Safety and Supply Co.
901 Orca
Anchorage, Alaska 99502

EQUIPMENT NEEDED FOR ASBESTOS ABATEMENT

1. On Site Decontamination

   a. Portable Trailer
   b. Visqueen Enclosure

2. Scaffolding

3. Showers

4. H.E.P.A. Vacuum

TOOLS REQUIRED

1. Saws

2. N..ppers (Wire Cutters)

3. Scissors

4. Scrapers

5. Knife and Sharpener

MATERIALS NEEDED

1. Framing Lumber

2. Visqueen Walls and Ceilings 4 Mil; Floors 6 Mil

3. Respirators

4. Protective Clothing

5. H.E.P.A Filters

6. Removal and Disposal Bags

7. Warning Signs

8. Tape

Attachment 2

ASBESTOS ABATEMENT

WHERE TO LOOK IN A BUILDING FOR ASBESTOS BEARING MATERIALS

1. Floors

   Vinyls
   Linoleum
   Underlayment for Sheet Type Flooring

2. Ceilings
   Accoustic Tiles
   Sprayed/Non-Sprayed Textures
   Paints

3. Outer Walls (Outside)

   Sidings

4. Above Ceilings

   Sprayed Fireproofing
   Insulation Products - Asbestos Insulation
   Asbestos Insulation Cement, i.e., Grease Ducts
   Mud Fittings, Mud Seams on Air Ducts with Canvas
   Covers Over Insulation

5. Walls

   Drywall Seam Filler (Taping Mud)
   Asbestos Wallboard (Cement Asbestos Board)
   Asbestos Millboard (At Fireplaces or Around Furnaces)
   Paints (Masonry or Concrete Filler Type)
   Wall Texture
   Felt Type Vapor Barriers (Under Drywall)
   Chalkboards (Schools)
   Plaster

6. Mechanical Rooms

   Electrical Switchboards
   Insulations on any Mechanical Appliance or Piping System
   Mud Seams on Ductwork with Canvas over Insulation
   Insulation on Flues
   Insulation on Emergency Generator
   Exhaust Systems

7. Roofs

   Fire Retardant Cedar Underlayment
   Shingles
   Felt Type Vapor Barrier
   Built-Up Roofing Membrane
   Roofing Felt
   Asphalt/Asbestos Roof Coatings

8. Laboratories

Furniture
Hoods/Vents for Corrosive Chemicals
Gas Vapor Ducts for Corrosive Compounds
Table Pads/Heat Protective Mats
Fire proof Draperies

9. Theaters

Curtains
Sprayed Accoustic Materials

Attachment 3

MUNICIPALITY OF ANCHORAGE
SOLID WASTE SERVICES

OPERATIONS PROCEDURE

TITLE: ASBESTOS DISPOSAL

EFFECTIVE DATE:

1. Only asbestos generated within the Municipality will be accepted for disposal.

2. Asbestos will be accepted at the Merrill Field Landfill on a scheduled basis. (The time and dates will be established by the department.)

3. Prior arrangements, by the asbestos generator/disposer, will be made with the Processing and Disposal General Foreman before asbestos is accepted.

4. Asbestos must be transported, packaged, and marked in accordance with all federal, state, and municipal regulations. These regulations include, as a minimum:

   -transport in a closed vehicle
   -asbestos must be thoroughly wetted and placed in a water tight container before burial. Containers may be barrels, drums, or doubled 6 mil or thicker plastic bags. All asbestos containers will display the following label:

   CAUTION
   CONTAINS ASBESTOS
   AVOID OPENING OR BREAKING CONTAINER
   BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH

   -all containers will be hand placed in designated area.
   -any asbestos containers determined by Solid Waste Services to be inadequate will be repackaged or removed, by the disposer, from the Merrill Field Landfill immediately.

5. All asbestos will be covered on a daily basis by at least six inches of soil.

6. Cost for disposal of asbestos will be based on actual time and materials and will include but not be limited to equipment rental, equipment operator's time, administrative time and cover material as required.

Attachment 4

GENERAL INSTRUCTIONS AND GUIDELINES FOR ASBESTOS REMOVAL

1. Notify proper authorities of intent to remove asbestos

2. Seal off work area, put up caution signs and build change areas and transition area.

3. If possible, have adequate "wet down" water supply available. If a pressure system is not available, provide sprayer cans.

4. Provide each employee with duplicate copies of the Asbestos Removal Instructions. Retain employee-signed copy in files.

5. Have all equipment necessary, i.e., disposable coveralls, respirators, etc., available.

6. Have air monitoring equipment in position.

7. Proceed with the removal and bagging procedure.

8. Dispose of waste. The dump area should be checked out prior to actual haouling to be sure it will accept asbestos waste.

9. Provide to each employee, by hand or mail, duplicate copies of the medical examination form. Retain employee-signed copy in files.

10. Records of all medical examinations shall be retained for the required 20 years storage.

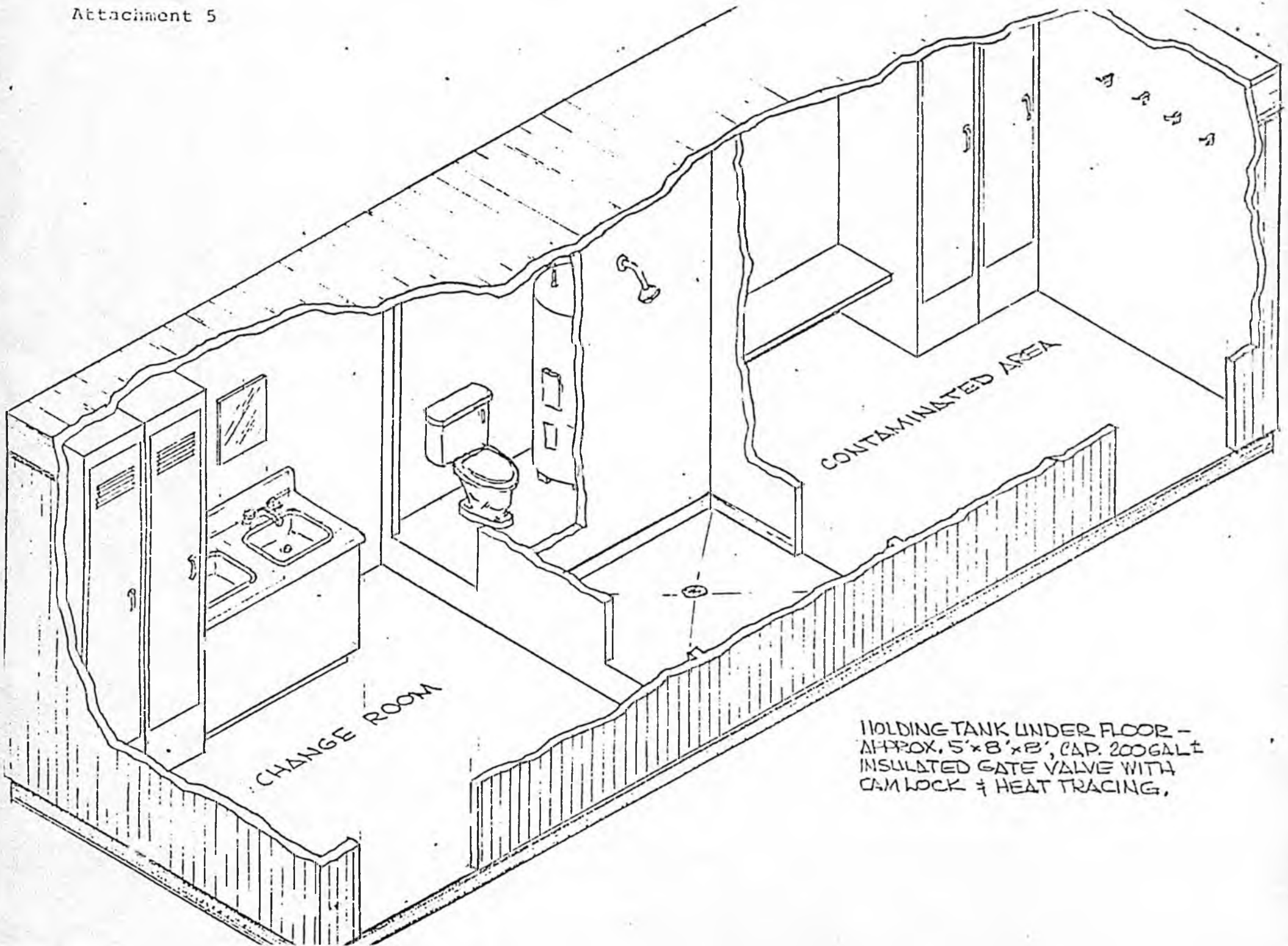
11. Monitoring records will also be retained for the required 20 years storage.

12. Any employee found to have been exposed to airborne concentrations of asbestos fibers in excess of the limits set in paragraph (b) of the)SHA standards shall be notified in writing within five (5) days.

13. The key to a successful operation is the keep the fiber count down. This means containment of the fibers either by water or encapsulation.

14. Check local EPA or State requirements.

Attachment 5



Attachment 6

MINIMUM ASBESTOS ABATEMENT TRAINING

DAY 1

8:00 - 12:00	INTRODUCTIONS - Asbestos History Health Affects (Lecture, film, slides, materials, speakers) "More Than A Paycheck" "A Way To A Dusty Death"
12:30 - 1:30	Federal Asbestos Standards State Asbestos Standards (Each Student Should Receive A Copy Of The Current Standards And The Class Should Go Through It In Its Entirety)
1:30 - 3:30	Respirator Protection/Standards (Different Types, Uses, Fit Testing, What A Respirator Program Consists Of, Filters, Maintenance)
3:30 - 4:30	Respirator Lab (Part Of The Class Does Fit Testing With Different Masks)

MINIMUM ASBESTOS ABATEMENT TRAINING

DAY 2

8:00 - 12:00	Engineering Controls
	(Lowering Fiber Count With Encapsulation Negative Air Pressure, HEPA Vacuums, Decontamination Rooms, Protective Clothi Wet Methods, House Keeping.)
12:30 - 1:30	Air Monitoring
	(Instructional Film, Practical Applicatic
1:30 - 2:30	Work Area Preparation - Hazard Recognitic
	(Taping, Planning, Draw Schematic of Actu Work Site) Ask Students to Outline How T Proceed With This Particular Project.
2:30 - 3:30	Waste Disposal
	(EPA Regulations, Labeling, Double Baggin Land Fills)
3:30 - 4:30	Respirator Fit Testing
	(Other Half of Group Doing Fit Testing Wi Different Masks)

MINIMUM ASBESTOS ABATEMENT TRAINING

DAY 3

8:00 - 10:00	Working With Scaffolding (Setting Up, Tearing Down, Safety Regulation, Asbestos Abatement Applicati
10:00 - 12:00	Actual Work Area Preparation (Scaffold Setting, Taping, Setting Up Change Rooms)
12:30 - 2:30	Continuing Hands On Work Area Preparatio (Switch Tasks, Suit Up In Asbestos Abatement Gear, Using Respirators, And Perform Work Area Preparation.)
2:30 - 3:30	Review and Give Final Test on Material Covered

To: Mike
From: Roger February 12, 1985

The general overview on this can be found in the Committee Memo I wrote for the February 11 Meeting on Monday. Also in your folder are some notes I wrote for Mike Davis on February 8, but most of that info is already in the Committee Memo. I provided an outline of materials for everything that has happened up to date on HB 5, and then on the HESS Committee's SS and CS, as well as our proposed CS. At the very front of your file is additional material on the bill that has come in since the Monday Feb. 11 meeting, mostly in response to committee requests.

I think the latest revised CS from L & C drafted by ED Hine will encorporate all the latest amendment suggestions. Mike Davis requested that Ed also draw up a Sectional Analsysis comparing the L & C CS with the HESS CS, which should be available from Ed by the hearings on Wednesday. He attended the hearings on Monday, and we will ask him to attend again on Wednesday.

Also included in the Supplemental file is a letter from Jackie Jones which Mike asked to have included in the record, and some materials from EPA, which includes response on the prioritization issues raised by several people including Boucher. Hopefully, by tomorrow, we will be able to get from EPA their Phase II prioritization plan outline, which is due in May and will have a formula established on how to distribute the $50 million in federal funds, so the state will have some idea at the DOL on how to do this for any state funds that become available. It was a big issue at the meeting on Monday--in fact, Red Boucher brought up an additional point. The prioritizations talked about deal with which schools are to be determined to be most in need and get the funds first--he said if we make it statewide and have it deal with buildings, it could get into additional levels of prioritization like whether schools should come before Pioneer Homes which maybe should come before state office buildings, which may come before the capitol, etc.

Alice Hanley asked if we needed to include specific language to deal with remodeling and restoration issues. For example, what if we wanted to add an annex onto a school building, and to do it, had to cut into asbestos walls. Shouldnt that be included as eligible for inclusion in this program? Niilo Koponen said he is planning to include this issue in with a separate bill he will be submitting. Hanely is a member of the Bartlett School Board, so she is smack in the middle of this issue and is raising lots of points from a knowledgeable point of view.

I think we are running dangerously close to having both of these bills go down the tubes. With 3 committee referrals in each house, it aint gonna make it thru unless we expedite the process; so you might want to consider moving it out of committee soon just to send it on its way. I think the critical issue is the funding, as I explained in my Committee Memo, and if we can get bucks to HB 5, then HB 57 can rise or fall as a separate issue (I think it will fall, so this would salvage HB 5 at least, and save us a lot of federal lawsuits down the road). You may want to just let Finance Committee handle this issue, as they may wish to deal with it as a line-item appropriation to DOL's budget.

MIKE: THESE ARE NOTES THAT I GAVE AS BACKGROUND TO MIKE DAVIS ON THE BILL BEFORE HE LEFT LAST FRIDAY: SINCE THEN, MOST OF THE INFORMATION IN IT HAS BEEN INCL'DED IN THE COMMITTEE MEMO I wWROTE TO THE MEMBERS IN THEIR HB 5 FILE FOR MONDAY"S MEETING.

To: Mike Davis
From: Roger Poppe February 8, 1985 Notes on HB 5, 57

I will be trying to get at least some of the following information to the Committee in their file folders by Monday; a lot keeps coming in, and its been made more complicated by the fact that Gruenberg and perhaps Koponen wanted all sorts of amendments to be added in with a Committee Substitute.

1) The proposed Committee Substitute has two separate aspects to it; the first is a change of wording in several places in the bill to reflect the concerns of Don Rouleau of the Alaska District Council of Laborers (see attached). This would change the asbestos certification program of the Department of Labor from being for just the schools to being a statewide program. Max G. liked them and thought they were appropriate. However, conversation with Ed Hine, the bill drafter, indicates that the original bill was drafted poorly and would need some further re-writing on this point to plug some possible loopholes that would otherwise leave the state open to lawsuits.

The second set of amendments, mostly technical, have been proposed by the U.S. EPA in a January 30, 1985 memo; Max Gruenberg looked them over and thought they were all okay. I will get a closer read-out on this from the bill drafter, Ed Hein, to see if there are any problems with them from a technical point of view.

(Subnote: I just found out that Mike Navarre and Niilo Koponen had met and Mike directed Niilo to write up a CS ; so Niilo is meeting now with Max to include the additional amendments mentioned above that Max wanted into the same CS rather than submitting a second CS from House Labor and Commerce through our office or Max's that would just confuse things further. Niilo's CS was essentially going to just include the info. from Ed Hine mentioned above, so now any additions Max makes to the CS will also go thru Niilo too.)

2) It seems to me that if it hasnt been discussed already, the majority caucus should be thinking about this whole issue of spending $27 million + for asbestos removal in HB 57; that's a lot of bucks, and its not gonna fly unless it gets broad-based support. This issue becomes critical for our hearings because there is a fiscal note of zero. Therefore if the appropriation bill HB 57 doesnt pass, the certification program in HB 5 won't be able to operate, unless we consider a) adding it in as a line-item to the DOL budget, or b) pulling out $300,000 for this program from the HB 57 appropriation and submitting instead HB 5 with a FN of $285,000.

The EPA is starting to apply financial sanctions against school districts who have not done asbestos testing; a lot of this would end up in the State's lap with the state paying the fines, if we are not careful (particularly REAA). So, the certification program is important to salvage in some manner with some strategy of attack regarding its funding, because it could end up not only costing the state a lot of money, but they would end up having to comply thru a court order and have to cough up the bucks for a certification program anyway.

Nationwide, the feds only appropriate $50 million for asbestos removeal, and those funds are earmarked primarily for dealing with the problem on schools located on federal land. In Alaska that just means Bartlett, which is already on tap for asbestos removal.

3) There is a problem that was raised by Hanley in HESS on inserting the word public before schools in the bill, because she was worried about the issue of separating church and state here. M[illegible] apparently included it because he wants her support for the bill, but the EPA regulations apply in any case to both public and private schools, so public schools in this bill could cause some problems by excluding private schools from at least having a certification program available to them in case they want it. The state isn't required to have its own asbestos program, so we don't have to put private schools in.

4) Hanley also put in an amendment that schools who do this get reimbursed if they did it after January 1, 1985; but 2 or 3 smaller schools already did their inspections, and so it seems they are being unfairly discriminated against.

5) The Department for $258,000 would be approving training programs as part of the use of those funds, but they would not be doing the training programs themselves. The Associated General Contractors feels this would cause a lot of expense by sending workers out of state to get training in Georgia; the reality is that there are unions right here in the state that run training programs dealing with issues like hazardous substances. The Laborer's union in Anchorage runs a 3 -day program dealing with asbestos, including the use of respirators, etc. Non-union contractors who got bids could do a special contract to have their employees trained thru one of these union workshops or some other workshop being run in-state.

House Labor and Commerce
February 13, 1985

HB 5 SUPPLEMENTAL FILE

1) Updated CS for CSSSHB 5 (L & C)

2) Sectional Analysis comparing L & C CS with HESS CS by Ed Hine, Legislative Legal Counsel & Bill Drafter (requested by the Committee)

3) Additional Materials - EPA

   a. Summary Overview of EPA Asbestos School Hazard Abatement Act

   b. Copy of Federal Title V Act: "Asbestos School Hazard Abatement Act of 1984"

   c. Interim Guidelines for Evaluating Asbestos Hazardsd and Appropriate Abatement Actions (Gives a preliminary overview of the Prioritization approach EPA will employ, in accord with L & C Committee request).

4) Letter from Jackie Jones (local carpenter who worked untrained on an asbestos construction project) -- Added to record at request of Committee after her testimony February 11.

Material added for February 14 Meeting:

5) Updated Fiscal Note from Dept. of Labor dated 2-11-85 for CS SS HB 5 (L & C; with fiscal analysis

6) Two Fairbanks North Star Borough employees fired after testifying to HESS committee on HB 5 and HB 57 (Fairbanks News Miner 2/11/85)

Hein
2/11/85

Original sponsors: Gruenberg, Goll,
Davis, et al

IN THE HOUSE

BY THE LABOR AND
COMMERCE COMMITTEE

CS FOR SPONSOR SUBSTITUTE FOR HOUSE BILL NO. 5 (L&C)

IN THE LEGISLATURE OF THE STATE OF ALASKA

FOURTEENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act establishing a program for the abatement of asbestos health hazards in public schools and the University of Alaska; providing for certification of asbestos workers; and providing for an effective date."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. AS 14.03.030 is amended to read:

Sec. 14.03.030. SCHOOL TERMS. A [THE] school term begins and ends on the dates fixed by the governing body of a [THE] school district. A school [HOWEVER, THE] term shall include not less than 180 days in session, except that, with [SUBJECT TO] the approval of the commissioner,

(1) a day used for in-service training of teachers may be substituted for a day in session, up to a maximum of 10 days; [AND]

(2) an "emergency closure day" may be substituted for a day in session because of conditions posing a threat to the health or safety of students; and

(3) a school board may adopt a school term of not less than 150 days for a school if the commissioner finds that

(A) the shorter term is necessary for abating asbestos health hazards in the school; and

(B) the school board has submitted an acceptable plan under which students will receive the approximate educational equivalent of a 180-day term.

* Sec. 2. AS 18 is amended by adding a new chapter to read:

CHAPTER 28. ASBESTOS.

ARTICLE 1. ASBESTOS HEALTH HAZARD ABATEMENT PROGRAM.

Sec. 18.28.010. PROGRAM ESTABLISHED. The asbestos health hazard abatement program is established in the Department of Labor to coordinate efforts of state departments and agencies to abate asbestos health hazards in schools in the state. The program applies to all work in public schools and the University of Alaska involving

(1) demolition, removal, encapsulation, salvage, repair, transportation, disposal, storage, and containment of asbestos products;

(2) construction, alteration, repair, maintenance, or renovation that will cause asbestos fibers to become airborne.

Sec. 18.28.020. DUTIES OF THE DEPARTMENT OF LABOR. In order to abate asbestos health hazards from public schools and from the University of Alaska the Department of Labor shall

(1) in a school district or regional educational attendance area that has not complied with Environmental Protection Agency asbestos regulations (40 C.F.R. Part 763), inspect school buildings to determine the presence of asbestos, take samples as needed, answer inquiries on the subject, ensure quality control of asbestos sampling, or enter into contracts for these purposes;

(2) distribute, retrieve, and store training materials concerning inspection and sampling for asbestos;

(3) establish guidelines, in conformity with Environmental Protection Agency asbestos regulations (40 C.F.R. Part 763), for abating asbestos health hazards, for inspecting and collecting samples of suspected asbestos, and for analyzing the samples;

(4) evaluate analysis results and distribute the results to

affected schools;

(5) coordinate efforts by state departments and agencies and by school officials to identify and abate asbestos health hazards;

(6) cooperate with the Department of Education to administer state money appropriated for the asbestos health hazard abatement program;

(7) establish classifications of asbestos health hazards according to the severity of the hazard and determine on the basis of those classifications the order in which abatement projects should proceed;

(8) review and approve all asbestos health hazard abatement projects relating to respirator use and employee training, including training materials;

(9) oversee an employee certification program;

(10) establish guidelines and procedures to prevent damage to asbestos products in daily operations;

(11) whenever the department is informed of scheduled work to abate an asbestos health hazard, inform the contractors and other concerned persons of the health hazards of asbestos;

(12) assist the University of Alaska in its efforts to abate asbestos health hazards; and

(13) adopt regulations necessary to implement the provisions of this chapter.

Sec. 18.28.030. DUTIES OF THE DEPARTMENT OF EDUCATION. To assist in implementing the asbestos health hazard abatement program, the Department of Education shall

(1) cooperate with the Department of Labor, school districts, and regional educational attendance areas to ensure inspection of public schools for asbestos health hazards and to ensure that

identified asbestos health hazards are abated;

(2) maintain records, files, and reports on asbestos health hazards in public schools;

(3) administer state money appropriated to finance renovation contracts under AS 18.28.040(5);

(4) in accordance with priorities established by the Department of Labor under AS 18.28.020(7), distribute grants to school districts and regional educational attendance areas for the abatement of health hazards in public schools;

(5) reimburse school districts and regional educational attendance areas for asbestos health hazard abatement work undertaken on or after January 1, 1985, with other than federal or state funds; and

(6) inform the Department of Labor when renovation contracts are awarded under AS 18.28.040(5), to enable the Department of Labor to advise contractors and other concerned persons of the health hazards of asbestos that may be encountered in the renovation project.

Sec. 18.28.040. DUTIES OF SCHOOL OFFICIALS. To assist in implementing the asbestos health hazard abatement program, each city or borough school district and each regional educational attendance area shall

(1) maintain records of all inspections, including sample dates, location, condition, and analysis of materials;

(2) notify school personnel of the location of asbestos materials and ways to reduce exposure;

(3) notify the parents of students about the results of asbestos inspections in their children's schools;

(4) either

(A) contract for the inspection of its school

buildings in compliance with Environmental Protection Agency asbestos regulations (40 C.F.R. Part 763) and in accordance with guidelines established by the Department of Labor and under the supervision of the Department of Labor; or

(B) notify the Department of Labor that the school district or regional educational attendance area has not entered and does not intend to enter into a contract for an inspection for asbestos health hazards; and

(5) contract for renovating school buildings to abate asbestos health hazards, and supervise and monitor the renovation contracts, applying the standards in AS 18.60.075 to protect the health of persons who renovate the school buildings.

Sec. 18.28.050. REPAYMENT OF GRANT FUNDS. A school district or regional educational attendance area that receives a state grant for the abatement of asbestos health hazards in schools shall repay the grant from any money the district or the regional educational attendance area recovers from asbestos manufacturers or other parties in a claim for damages arising from the use of asbestos in a school. Repayment shall be made after deducting legal fees and other costs associated with the claim for damages.

ARTICLE 2. CERTIFICATION OF ASBESTOS WORKERS.

Sec. 18.28.200. CERTIFICATION PROGRAMS. (a) The Department of Labor shall

(1) establish guidelines for employee training certification programs, including respiratory and competency tests to be completed successfully, to ensure that a person who is employed to work with asbestos is trained to do the work safely and is informed about the danger of working with asbestos;

(2) review certification programs proposed by contractors,

labor organizations, public and private vocational training programs, and others for persons who will be employed to work with asbestos;

(3) approve proposed certification programs that meet the department's guidelines under this subsection;

(4) assist in meeting the certification guidelines those whose certification program proposals have been found unacceptable.

(b) Before a contractor may undertake work involving asbestos, the contractor shall

(1) propose to the Department of Labor a plan for the certification of its employees as adequately trained to handle asbestos in a safe and knowledgeable way;

(2) receive approval from the department of that plan; and

(3) certify that each person who will work with asbestos is adequately trained to handle asbestos in a safe and knowledgeable way.

(c) A person may not be employed to work with asbestos unless the person has been certified in a program approved by the Department of Labor under (a) of this section.

(d) A contractor who violates (b) or (c) of this section is subject to a civil penalty not to exceed $1,000, as determined by the commissioner of labor.

(e) A contractor who violates (b) of this section is guilty of a class A misdemeanor.

(f) A contractor who violates (c) of this section is guilty of a class B misdemeanor.

ARTICLE 3. MISCELLANEOUS PROVISIONS.

Sec. 18.28.500. DEFINITIONS. In this chapter

(1) "asbestos" means chrysotile, amosite, crocidolite, fibrous tremolite, fibrous anthophyllite, and fibrous actinolite;

(2) "asbestos health hazard" means the presence of material

containing asbestos that carries a risk of releasing asbestos fibers into the atmosphere;

(3) "asbestos product" means a product that produces airborne asbestos.

* Sec. 3. This Act does not apply to work involving asbestos or the abatement of asbestos health hazards underway on October 1, 1985.

* Sec. 4. This Act takes effect October 1, 1985.

House Labor and Commerce
February 13, 1985

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STATE OF ALASKA
THE LEGISLATURE

LEGISLATIVE AFFAIRS AGENCY

POUCH Y STATE CAPITOL
JUNEAU, ALASKA 99811
907 465 3800

M E M O R A N D U M February 13, 1985

SUBJECT: Comparative sectional analysis of CSSSHB 5(L&C)(2/11/85 draft) and CSSSHB 5 (HESS)

TO: Representative Mike Davis
Vice-Chairman, House Labor and Commerce Committee

FROM: Edward H. Hein
Legislative Counsel

The following is an explanation of the changes to CSSSHB 5 (HESS) that appear in draft CSSSHB 5 (L&C) (page and line references are to the HESS Committee Substitute, unless specified otherwise):

Page 1, lines 8-9: the bill title has been changed to reflect the broadening of the asbestos worker certification program.

Section 1 of both bills are identical.

Section 2

Page 2, line 2: the title of new Chapter 28 has been shortened and the chapter itself has been broken into three articles. Article 1 encompasses the asbestos health hazard abatement program; Article 2 covers the worker certification program; Article 3 is for definitions that apply to both programs. The certification program was separated from the abatement program to make clear that the certifications program's coverage is different from and broader than the abatement program.

Page 2, lines 6 and 15; page 3, line 3: the word "eliminate" has been changed to "abate".

Page 2, lines 25 - 26: new language has been inserted requiring that guidelines of DOL conform with federal EPA asbestos regulations.

Page 3, lines 7 - 10: a new paragraph has been inserted directing the Department of Labor to establish classifications of asbestos hazards and set priorities for abatement work; these priorities also serve as the basis for distribution of grants by the Department of Education at page 4, lines 6 - 9.

Page 5, lines 3 -4: new language has been inserted requiring that inspections of schools contracted by local school officials be supervised by DOL.

Page 5, line 21 - page 6, line 24: the certification program for asbestos workers has been expanded to include all asbestos work in the state, not just work done in schools under the abatement program.

Page 6, line 29 - page 7, line 2: the definition of "asbestos health hazard" has been changed.

Page 7, lines 5 - 6: the applicability of the Act has been rewritten to reflect the separation of the certification program from the abatement program.

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ANKS

/S - Miner

ndent Daily Newspaper

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DAY, FEBRUARY 11, 1985 35¢ Per Copy 20 pages



ot·'·g for nothing but air, but he gives a good
e high jump this weekend at Skiland.
(Staff photo by Vince DeWitt)

Borough fires two after asbestos flap

By MARGARET NELSON
Staff Writer

Two members of the borough's risk management department have been fired as the result of testimony one of them gave last month to legislators regarding asbestos in borough schools.

Borough Chief Executive Director Greg Strong said today that Mike Oden, who held the position of safety coordinator/inspector, and his supervisor, Barney Mulligan, the director of the risk management department, were discharged last week. Their last day was Thursday.

The risk management office, which handles safety inspections of borough buildings, has been under fire recently for its position on the removal of asbestos in borough schools and facilities.

Neither Mulligan or Oden could be reached today for comment.

Oden, who had been with the borough since October, was fired because "he had destroyed the relationship he had with the school district," Strong said. "It wasn't a workable relationship."

Strong said Mulligan was fired because he was "not providing the direction necessary for the safety inspector (Oden)."

The action leaves the borough's risk management office without any inspectors. The office is responsible for insurance, health care benefits and safety throughout the borough, including the school district.

Strong said the borough has hired University of Alaska-Fairbanks Fire Chief Bill Shechter on a temporary basis to review nine reports of safety inspections of borough schools completed by the risk management office.

Oden's dismissal stemmed from testimony last month to the Legislative Health and Social Services Commission regarding asbestos in Fairbanks schools. He said asbestos was prevalent in Joy Elementary School. Later, he corrected his testimony to say he meant asbestos in the Main Building, not at Joy. He was testifying on House Bill 5, which would require any worker removing asbestos to have minimum formal training.

Local school district officials said Oden was wrong in his testimony regarding exposure to asbestos. They said the district has far exceeded federal requirements on protective measure for handling asbestos as well as in its intention to remove all asbestos from schools by the fall of 1986.

According to district officials, asbestos was removed at Joy School in December 1983, and all federal requirements for removal were followed.

Les Riedlinger, school facilities planner, said Main Building is one of 11 older buildings in the district where asbestos insulation has been "encapsulated" or encased until it can be removed. All 11 school district buildings are to be rid of asbestos by late 1986 at a cost of more than $3 million, in addition to the $1.26 million that has already been spent.

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were propped open. Smoke was cleared from the building by opening all the stairway doors and doors to the roof. Hotel guests waited outside in subzero temperatures as firefighters opened doors and brought in fans to clear the hallways of smoke.

Department said the blaze was reported at 5:22 a.m. Sunday, after a passerby spotted it and called Alaska State Troopers.

The fire began in the business's furnace room, according to Lundfelt. The state fire marshal's office is investi-

TITLE V—ASBESTOS SCHOOL HAZARD ABATEMENT

Asbestos School Hazard Abatement Act of 1984.
20 USC 4011 note.

SEC. 501. This title may be cited as the "Asbestos School Hazard Abatement Act of 1984".

FINDINGS AND PURPOSES

Congress.
20 USC 4011.

SEC. 502. (a) The Congress finds that—

(1) exposure to asbestos fibers has been identified over a long period of time and by reputable medical and scientific evidence as significantly increasing the incidence of cancer and other severe or fatal diseases, such as asbestosis;

(2) medical evidence has suggested that children may be particularly vulnerable to environmentally induced cancers;

(3) medical science has not established any minimum level of exposure to asbestos fibers which is considered to be safe to individuals exposed to the fibers;

(4) substantial amounts of asbestos, particularly in sprayed form, have been used in school buildings, especially during the period 1946 through 1972;

(5) partial surveys in some States have indicated that (A) in a number of school buildings materials containing asbestos fibers have become damaged or friable, causing asbestos fibers to be

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dislodged into the air, and (B) asbestos concentration far exceeding normal ambient air levels have been found in school buildings containing such damaged materials;

(6) the presence in school buildings of friable or easily damaged asbestos creates an unwarranted hazard to the health of the school children and school employees who are exposed to such materials;

(7) the Department of Health and Human Services and the Environmental Protection Agency, as well as several States, have attempted to publicize the potential hazards to school children and employees from exposure to asbestos fibers, but there is no systematic program for remedying hazardous conditions in schools;

(8) because there is no Federal health standard regulating the concentration of asbestos fibers in noncommercial workplace environments such as schools, school employees and students may be exposed to hazardous concentrations of asbestos fibers in the school buildings which they use each day;

(9) without a program of information distribution, technical and scientific assistance, and financial support, many local educational agencies and States will not be able to mitigate the potential asbestos hazards in their schools; and

(10) the effective regulation of interstate commerce for the protection of the public health requires the establishment of programs under this title to mitigate hazards from exposure to asbestos fibers and materials emitting such fibers.

(b) It is the purpose of this title to—

(1) direct the Administrator of the Environmental Protection Agency to establish a program to assist States and local educational agencies to ascertain the extent of the danger to the health of school children and employees from asbestos materials in schools;

(2) provide continuing scientific and technical assistance to State and local agencies to enable them to identify and abate asbestos hazards in schools;

(3) provide financial assistance for the abatement of asbestos threats to the health and safety of school children or employees; and

(4) assure that no employee of any local educational agency suffers any disciplinary action as a result of calling attention to potential asbestos hazards which may exist in schools.

ASBESTOS HAZARD ABATEMENT PROGRAM

Establishment.
20 USC 4012.

SEC. 503. (a)(1) There is hereby established a program within the Environmental Protection Agency to be known as the Asbestos Hazards Abatement Program (hereinafter in this title referred to as "Program").

(b) The duties of the Administrator in implementing and effectuating the Program shall include—

(1) the compilation of medical, scientific, and technical information including, but not limited to—

(A) the health and safety hazards associated with asbestos materials;

(B) the means of identifying, sampling, and testing materials suspected of emitting asbestos fibers; and

(C) the means of abating the threat posed by asbestos and asbestos containing materials;

(2) the distribution of the information described in paragraph (1) (in any appropriate form such as pamphlets, reports, or instructions) to State and local agencies and to other institutions for the purpose of carrying out activities described in this title;

(3) the development within forty-five days of enactment of this title of an interim or final application form, which shall be distributed promptly to local educational agencies; and

(4) the review of applications for financial assistance, and the approval or disapproval of such applications, in accordance with the provisions of section 505.

STATE PLANS

SEC. 504. (a) Not later than three months after the date of enactment of this title, the Governor of each State shall submit to the Administrator a plan which describes the procedures to be used by the State for maintaining records on— 20 USC 4013.

(1) the presence of asbestos materials in school buildings of local educational agencies;

(2) the asbestos detection and abatement activities conducted by local educational agencies (including activities relating to the replacement of the asbestos materials removed from school buildings with other appropriate building materials);

(3) repairs made to restore school buildings to conditions comparable to those which existed before the abatement activities referred to in subparagraph (B) were undertaken.

(b)(1) Not later than six months after the date of enactment of this title, and annually thereafter, the Governor of each State shall:

(A) submit to the Administrator and the Secretary of the Department of Education a priority list of all schools under the authority of a local educational agency within the State, without regard to the public or private nature of the school involved, that are candidates for abatement;

(B) forward to the Administrator and the Secretary of the Department of Education for each candidate for abatement all applications for financial assistance prepared by the local educational agencies in accordance with the provisions of section 503(b)(3) and section 505; and

(C) forward to the Secretary of the Department of Education a copy of all information submitted to the Administrator in accordance with subsection (b)(3).

(2) The priority list shall rank the potential candidates for abatement action based on the nature and magnitude of the existing and potential exposure presented by the asbestos materials.

(3) For each school listed, the Governor shall certify that the statement of need contained in the application for assistance accurately reflects the financial resources available to the local educational agency for the asbestos abatement program.

(4) For the purpose of determining the adequacy of the financial resources available to a local educational agency for the abatement of asbestos threats the Governor shall, to the extent practicable, consider the following:

(A) A measure of financial need used by the State in which the local educational agency is located.

(B) The estimated per capita income of the locality of such agency or of those directly or indirectly providing financial support for such agency.

(C) The extent to which the local school millage rate falls above or below (i) the millage rate average of the State and (ii) the millage rate of other local educational agencies with comparable enrollment, per capita income and resource base.

(D) The ratio, expressed as a percentage, of the estimated cost of the project to the total budget of the local educational agency.

(E) The borrowing capacity of the local educational agency.

(F) Any other factor that demonstrates that the local educational agency has limited financial resources.

Report.

(c) Not later than nine months after the submission of the plan described in subsection (a), and each twelve months thereafter, the Governor shall submit to the Administrator a report which describes the actions taken by the State in accordance with its plan under such subsection.

FINANCIAL ASSISTANCE

Asbestos Hazards Abatement Assistance Program.
20 USC 4014.

SEC. 505. (a) There is hereby established within the Environmental Protection Agency an Asbestos Hazards Abatement Assistance Program (hereinafter in this Act referred to as the "Assistance Program"), which shall be administered in accordance with this section.

(b)(1) Applications for financial assistance shall be submitted by a local educational agency, to the Governor, or the Governor's designee, who shall establish a priority list based on the criteria of section 504(b)(2).

(2) Pursuant to section 504, applications shall be submitted, together with the Governor's report and priority list, to the Administrator who shall review and rank such applications pursuant to section 505(c)(2) and propose financing pursuant to the criteria of section 504(b)(4).

Study.

(3) Within sixty days of receipt of the information described in section 504(b)(1), the Secretary of the Department of Education shall review such information and, in the Secretary's discretion, provide to the Administrator comments and recommendations based upon the needs of local educational agencies for financial assistance. Within sixty days of receipt of the Secretary's report, or expiration of the time allowed for such report, the Administrator shall approve or disapprove applications for financial assistance.

(c)(1) The Administrator shall provide financial assistance on a school-by-school basis to local educational agencies in accordance with other provisions of this section to carry out projects for—

(A) abating the threat posed by materials containing asbestos to the health and safety of children or employees;

(B) replacing the asbestos materials removed from school buildings with other appropriate building materials; and

(C) restoring school buildings to conditions comparable to those existing before abatement activities were undertaken pursuant to this section.

(2) The Administrator shall review and list in priority order applications for financial assistance. In ranking applications, the Administrator shall consider—

(A) the priority assigned to the abatement program by the Governor pursuant to section 504(b)(2);

(B)(i) the likelihood of release of asbestos fibers into a school environment;

(ii) any other evidence of the risk caused by the presence of asbestos including, but not limited to, situations in which there is a substantial quantity of dry loose asbestos-containing material on horizontal surfaces or asbestos-containing material is substantially deteriorated or damaged, and there is asbestos-containing material in an air plenum or in a high traffic area, confined space or within easy reach of a passerby;

(iii) the extent to which the corrective action proposed by the applicant will reduce the exposure of school children and school employees; and

(iv) the extent to which the corrective action proposed by the applicant is cost-effective compared to other techniques including management of material containing asbestos.

(3) In determining whether an applicant is eligible for assistance, and the nature and amount of financial assistance, the Administrator shall consider—

(A) the financial resources available to the applicant as certified by the Governor pursuant to section 504(b)(4); and

(B) the report, if any, of the Secretary of Education pursuant to section 504(b)(5).

(d) In no event shall financial assistance be provided under this title to an applicant if the Administrator determines that such applicant has resources adequate to support an appropriate asbestos materials abatement program. In making such a determination, the Administrator may consult with the Secretary of Education.

(e)(1) An applicant for financial assistance may be granted a loan of up to 100 per centum of the costs of an abatement program or, if the Administrator determines the applicant is unable to undertake and complete an asbestos materials abatement program with a loan, such applicant may also receive a grant (alone or in combination with a loan) not to exceed 50 per centum of the total costs of abatement, in the amount which the Administrator deems necessary. Loans. Grants.

(2) In approving any grant, the Administrator shall state with particularity the reasons why the applicant is unable to undertake and complete the abatement program with loan funds. Grants.

(f) Loans under this section shall be made pursuant to agreements which shall provide for the following: Loans.

(1) the loan shall not bear interest;

(2) the loan shall have a maturity period of not more than twenty years (as determined by the Administrator) and shall be repayable during such period at such times and in such amounts as the Administrator may specify in the loan agreement;

(3) repayment shall be made to the Secretary of the Treasury for deposit in the general fund; and

(4) such other terms and conditions that the Administrator determines necessary to protect the financial interest of the United States.

(g)(1) No financial assistance may be provided under this section unless an application has been submitted to the Administrator within the five-year period beginning on the effective date of this title.

(2) The Administrator shall not approve an application unless—

(A) the application contains such information as the Administrator may require, including but not limited to information describing—

(i) the nature and extent of the asbestos problem for which the assistance is sought;

(ii) the asbestos content of the material to be abated;

(iii) the methods which will be used to abate the asbestos materials;

(iv) the amount and type of financial assistance requested;

(v) a description of the financial resources of the local educational agency; and

(vi) a justification for the type and amount of the financial assistance requested.

(B) the application contains a certification that—

(i) any employee engaged in an asbestos material abatement program will be trained and equipped pursuant to section 506(b)(2)(B); and

(ii) no child or inadequately informed or protected school employee will be permitted in the vicinity of any asbestos abatement activity;

(C) the application contains assurances that the local educational agency will furnish such information as is necessary for the Administrator to make the report required by section 507 of this title.

(3) No financial assistance may be provided by the Administrator under this section for projects described in subsection (a)(2) on which abatement action was completed prior to January 1, 1984.

(B) Except as provided in section 512(b)(1) in approving applications the Administrator shall provide assistance to the local educational agencies having the highest priority among applications being considered in order of ranking until the appropriated funds are expended.

Regulations.
20 USC 4015.

SEC. 506. (a) The Administrator shall promulgate rules and regulations as necessary to implement the authorities and requirements of this title.

(b) The Administrator shall also establish—

(1) procedures to be used by local educational agencies, in programs for which financial assistance is made available under section 505 for—

(A) abating asbestos materials in school buildings;

(B) replacing the asbestos materials removed from school buildings with other appropriate building materials; and

(C) restoring such school buildings to conditions comparable to those existing before asbestos containment or removal activities were undertaken; and

(2) within ninety days, standards for determining—

(A) which contractors are qualified to carry out the activities referred to in paragraph (1), and

(B) what training, equipment, protective clothing and other information and material must be supplied to adequately advise and protect school employees utilized to carry out the activities in paragraph (1).

(3) nothing contained in this title shall be construed, interpreted or applied to diminish in any way the level of protection required under State or Federal worker protection laws.

(c) In order to effectuate the purposes of this title, the Administrator may also adopt such other procedures, standards and regulations as the Administrator deems necessary, including—

(1) procedures for testing the level of asbestos fibers in schools, including safety measures to be followed in conducting such tests;

(2) standards for evaluating (on the basis of such tests) the likelihood of the leakage of asbestos fibers into the school environment; and

(3) periodic reporting with respect to the activities that have taken place using funds loaned or granted under this title.

ANNUAL REPORT

SEC. 507. During each of the ten calendar years after the year in which this title is enacted, the Administrator shall prepare and submit not later than February 1 of each year a report to the Committee on Environment and Public Works of the United States Senate and the Committee on Energy and Commerce of the United States House of Representatives on the loan and grant program authorized by section 505 of this title. The report shall— Loans. Grants. 20 USC 4016.

(1) describe the number of applications received;

(2) describe the number of loans and grants made in the preceding calendar year and specify each applicant for and recipient of a loan or grant;

(3) specify the number of loan or grant applications which were disapproved during the preceding calendar year and describe the reasons for such disapprovals;

(4) describe the types of programs for which loans or grants were made;

(5) specify the estimated total costs of such programs to the recipients of loans or grants and specify the amount of loans or grants made under the program authorized by this section; and

(6) estimate the number of schools still in need of assistance.

SEC. 508. (a)(1) As a condition of the award of any financial assistance under section 505, the recipient of any such loan or grant shall permit the United States to sue on behalf of such recipient any person determined by the Attorney General to be liable to the recipient for the costs of any activities undertaken by the recipient under such sections. Suits. 20 USC 4017.

(2) The proceeds from any judgment recovered in any suit brought by the United States under paragraph (1) (or, if the recipient files a similar suit on its own behalf, the proceeds from a judgment recovered by the recipient in such suit) shall be used to repay to the United States, to the extent that the proceeds are sufficient to provide for such repayment, an amount equal to the sum of—

(A) the amount (i) outstanding on any loan and (ii) of any grant made to the recipient; and

(B) an amount equal to the interest which would have been charged on such loan were the loan made by a commercial lender at prevailing interest rates (as determined by the Administrator).

(b) The Attorney General shall, where appropriate, proceed in an expeditious manner to recover the amounts expended by the United States to carry out this title from the persons identified by the Attorney General as being liable for such costs.

Discrimination, prohibition.
20 USC 4018.

SEC. 509. No State or local educational agency receiving assistance under this title may discharge any employee or otherwise discriminate against any employee with respect to the employee's compensation, terms, conditions, or privileges of employment because the employee has brought to the attention of the public information concerning any asbestos problem in the school buildings within the jurisdiction of such agency.

Prohibitions.
20 USC 4019.

SEC. 510. Except as otherwise provided in section 508, nothing in this title shall—

(1) affect the right of any party to seek legal redress in connection with the purchase or installation of asbestos materials in schools or any claim of disability or death related to exposure to asbestos in a school setting; or

(2) affect the rights of any party under any other law.

20 USC 4020.

SEC. 511. For purposes of this title—

(1) the term "asbestos" means—

(A) chrysotile, amosite, or crocidolite; or

(B) in fibrous form, tremolite, anthophyllite, or actinolite;

(2) the term "Attorney General" means the Attorney General of the United States;

(3) the term "threat" or "hazard" means that an asbestos material is friable or easily damaged, or within each reach of students or employees or otherwise susceptible to damage (including damage from water or air circulation) which could result in the dispersal of asbestos fibers into the school environment;

(4) the term "local educational agency" means—

(A) any local educational agency as defined in section 198(a)(10) of the Elementary and Secondary Education Act of 1965; and

20 USC 2854.

(B) the governing authority of any nonprofit elementary or secondary school;

(5) the term "nonprofit elementary or school" means—

(A) any elementary or secondary school as defined in section 198(a)(7) of the Elementary and Secondary Education Act of 1965 owned and operated by one or more nonprofit corporations or associations no part of the net earnings of which inures, or may lawfully inure, to the benefit of any private shareholder or individual; and

(B) any school of any agency of the United States;

(6) the term "school buildings" means—

(A) structures suitable for use as classrooms, laboratories, libraries, school eating facilities, or facilities used for the preparation of food;

(B) any gymnasium or other facility which is specially designed for athletic or recreational activities for an academic course in physical education;

(C) other facilities used for the instruction of students, for research, or for the administration of educational or research programs; and

(D) maintenance, storage, or utility facilities essential to the operation of the facilities described in subparagraphs (A) through (C) of this paragraph;

(7) the term "Administrator" means the Administrator of the Environmental Protection Agency, or the Administrator's designee;

(8) the term "State" means each of the several States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the Virgin Islands, the Northern Mariana Islands, the Trust Territory of the Pacific Islands, and the Bureau of Indian Affairs.

SEC. 512. (a)(1) There are hereby authorized to be appropriated for the asbestos abatement program not more than $50,000,000 for the fiscal year ending on September 30, 1984, $50,000,000 for the fiscal year ending on September 30, 1985, and $100,000,000 for each of the five succeeding fiscal years.

Appropriations authorization. 20 USC 4021.

(2) The sums appropriated under this title shall remain available until expended.

(b)(1) A State with qualified applicants shall receive no less than one-half of 1 per centum of the sums appropriated under this title or the total of the amounts requested by such applicants, whichever is less. Those amounts available in each fiscal year under this paragraph shall be obligated before the end of that fiscal year. For the purposes of this paragraph the term "State" means each of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Bureau of Indian Affairs and, taken together, Guam, American Samoa, the Virgin Islands, the Northern Mariana Islands, and the Trust Territory of the Pacific Islands.

(2) Of those sums appropriated for the implementation of this title, up to 10 per centum shall be reserved during the fiscal year ending September 30, 1984, and up to 5 per centum for the fiscal year ending September 30, 1985, for the administration of this title and for programs including, but not limited to, the following:

(A) the establishment of a training center for contractors, engineers, school employees, parents and other personnel to provide instruction on asbestos assessment and abatement;

(B) the development and dissemination of abatement guidance documents to assist in evaluation of potential hazards, and the determination of proper abatement programs;

(C) the development of rules and regulations regarding inspection, reporting and record-keeping; and

(D) the development of a comprehensive testing and technical assistance program.

Kayley

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION X

1200 SIXTH AVENUE

SEATTLE, WASHINGTON 98101

REPLY TO ATTN OF: M/S 524

NOV 2 6 1984

Honorable William Sheffield
Governor
State of Alaska
State Capitol
Pouch A
Juneau, AK 99811

Dear Governor Sheffield:

The Asbestos School Hazard Abatement Act (ASHAA) was signed into law on August 11, 1984. It provides for the availability of Federal loans and grants to assist in the abatement of friable asbestos-containing materials in public and private schools. The Environmental Protection Agency (EPA) will administer the loans and grants to Local Education Agencies (LEAs) on a school-by-school basis. Details are listed on the enclosed fact sheet.

Within the next few weeks, EPA will distribute the loan application forms directly to LEAs. The LEAs are responsible for selecting individual schools as candidates for assistance. LEAs will then submit their applications to Governors or their designees for prioritization based on degree of risk.

The Act requires this Governor's priority list to be submitted to EPA by March 1, 1985.

Because of the short time available to implement this program, we are requesting that, at your earliest convenience, you designate a state office or contact person for us to work with on the details of this program. A response by phone would be appreciated in the interest of time. The necessary information concerning your plan for maintaining records can be sent to us by mail thereafter.

Sincerely,

Ernesta B. Barnes
Regional Administrator

Asbestos School Hazard Abatement Act - Fact Sheet

General Information About the Asbestos School Hazard Abatement Act of 1984

The Asbestos School Hazard Abatement Act (ASHAA) was signed into law on August 11, 1984. It provides for: 1) the availability of Federal loans and grants to assist in the abatement of friable asbestos-containing materials in public and private schools, and 2) continued scientific and technical assistance by EPA to state and local agencies to enable them to identify and abate asbestos hazards in schools. EPA will administer the loans and grants to Local Education Agencies (LEAs) on a school-by-school basis. Major details of the program are as follows:

- The Act authorizes funds of up to $50 million for 1984, $50 million for 1985, and $100 million per year for each of the five subsequent years. At present, Congress has appropriated the first $50 million increment, but no money has been appropriated for the future years.

- EPA may award a loan of up to one hundred percent of the cost of a specific abatement project. These no-interest loans are repayable over 20 years. If the Agency determines that an applicant is unable to undertake and complete an abatement program with a loan, the applicant will be eligible for a grant not to exceed 50 percent of the cost of an abatement program. Grants and loans are also available in combination.

- The first step in awarding the $50 million is to prioritize the applications. The governor of each state must prioritize the applications from his/her state based on degree of risk. Following this prioritization, the governors forward the lists to EPA.

- EPA's responsibility is to assure that financial assistance will be provided to only the most serious exposure problems within LEAs having the most severe financial need. EPA must determine the eligibility of applicants for funds based on the following criteria:
  a) the priority assigned to each applicant by the governor of the state;
  b) the likelihood of release of asbestos fibers into the school environment;
  c) the degree to which corrective action proposed by the applicant is cost-effective and will reduce the potential for exposure; and
  d) the financial resources of the applicant.

- The Act prohibits the allocation of funds to schools which are determined to have adequate financial resources to fund appropriate abatement programs, or which have completed abatement programs prior to January 1, 1984.

- The $50 million currently appropriated will likely only provide enough funds for financial assistance to a few schools in each state. Therefore, the Agency strongly encourages LEAs and state governments to continue their abatement activities and not delay or revise current plans in anticipation of Federal assistance.

ASHAA Application Process and State Responsibilities

EPA will distribute the application form directly to LEAs. The LEAs are responsible for selecting individual schools as candidates for assistance. LEAs will then submit their applications to state governors or their designees. Major state responsibilities are summarized below.

State Recordkeeping Requirement

Governors are asked to submit to EPA at their earliest convenience a very short plan for maintaining records on:
1) The presence of asbestos in school buildings;
2) asbestos abatement activities conducted by LEAs;
3) repairs made to restore buildings to pre-abatement conditions.

This recordkeeping requirement applies specifically to schools applying for funding. Individual questions on the application form will provide the necessary information regarding items one and two. In addition, any information the state has in its possession for non-applying schools should be added to the records.

Priority List and Certification for Financial Need

Governors will be asked to submit to EPA a priority list which ranks applications according to the nature and magnitude of the existing and potential exposure presented by the asbestos materials. EPA will give guidance to governors on how to perform this risk assessment. In addition, governors will be asked to certify the accuracy of the statement of financial need presented by each school. EPA is also considering requesting that states provide a preliminary judgment of financial need.

DEADLINE: By March 1, 1985, states must submit to EPA all the applications, their hazard priority listing, and their financial need assessments, if such are requested.

Note: States must determine their own deadlines for receipt of applications from LEAs in order to meet their March 1 submission requirement.

Annual Report of Actions under ASHAA

Governors will be asked to submit to EPA an annual report describing action taken by the state in accordance with the state's recordkeeping plan for abatement activities.

DEADLINE: August 10, 1985, and annually thereafter.

EPA Assistance to State for Implementation of ASHAA Requirements

- EPA will provide states with as much assistance as possible in their requirements under ASHAA. EPA will send copies of the Act and the application package to state governors or their designees. The Agency will also provide guidance concerning the state recordkeeping plan and methodologies for developing both the hazard priority list and the certification and potential assessment of financial need.

- The Regional Asbestos Coordinator, Walter Jaspers (206) 442-2870, can provide information concerning the ASHAA applications and review process. Also, a toll-free phone line will be set up soon to respond to LEA or individual school questions about the form.

- EPA also plans to assist the Regions in conducting informational briefings for state and local officials to explain provisions of ASHAA and answer questions about the application form.

D. INTERIM GUIDELINES FOR EVALUATING ASBESTOS HAZARDS AND APPROPRIATE ABATEMENT ACTIONS

Congress directed that the Agency develop guidelines for classifying and evaluating asbestos hazards and appropriate abatement options. To supplement the information provided in the documents cited in Unit IV.B.2. of this notice, EPA is providing the following interim guidance. Final guidance will be provided in June of 1985 which will supercede this guidance and will be useful in classifying and evaluating asbestos hazards in the future.

The purpose of this section is to assist school officials and other persons in identifying and evaluating potential asbestos hazards and in selecting appropriate measures to effectively reduce the risk to which people are exposed. The process of identifying and evaluating asbestos hazards and selecting abatement actions involves three basic questions which will serve as the framework of this document. The three questions are:

- Is asbestos actually present?
- If it is present, how significant is existing or potential exposure?
- What actions are most appropriate to prevent or reduce exposure?

Below are factors to consider and procedures to use in answering these questions. Much of the information contained here was drawn from the EPA publication entitled "Guidance for Controlling Friable AsbestosContaining Materials in Buildings." EPA recommends use of that publication by persons dealing with asbestos hazards.

1. Detecting Asbestos: Is Asbestos Actually Present?

The first task in an asbestos control plan is to determine whether asbestos-containing materials are present. Professional assistance such as from an engineering or architectural firm, may be useful for this and other tasks.

Asbestos-containing materials may be found in schools in the form of sprayed on acoustical and thermal insulation, cement products, acoustical plaster, fireproofing textiles, vinyl floor tiles, and other construction materials. EPA recommends the following steps for detecting the presence of asbestos:

a) Check Building Records: Investigate building plans, remodeling records, and other sources (such as personal knowledge) for specification of asbestos-containing materials. Information on the type and location of asbestos-containing materials will help target a building inspection. Figure 1 provides more information about the type of building materials which could contain asbestos. Building records may not always be a conclusive source of information. EPA experience shows that the actual composition of building products and their description in building records can differ significantly.

b) Inspect for Friable Materials: Friable materials are those which can be crumbled, pulverized or reduced to powder by hand pressure. Typically, friable materials have been sprayed or trowelled onto surfaces for fireproofing, insulation soundproofing, or decoration. A building inspection should start with those areas where asbestos-containing materials are reported to be present and then expand to all parts of the building. If friable materials are found they should be sampled and analyzed in accordance with procedures described in Figure 2. If the presence of asbestos in the friable materials is confirmed, then the assessment of corrective action is begun. (such assessment is discussed in Section 2 of this document).

c) Inspect for Nonfriable Materials: 1. If the inspection of building records or the building inspection indicates that nonfriable asbestos-containing materials are present, these materials should be inspected periodically for changes in their condition. Reinspection is especially important for friable materials that have been painted or covered with a hard wrapping (and thus would be classified as "nonfriable") such as pipe and boiler insulation. If the painted or wrapped material is not damaged the best course of action is to be aware of its location and leave it undisturbed. Damage or slow deterioration of the wrapping or paint however could cause release of asbestos fibers, thus periodic maintenance and reinspection is required.

If the sampling and analysis of bulk material show that asbestos is not present, there is no need for further action, although documentation of the assessment should be retained.

2. Evaluating the Asbestos Hazard: How Significant are Existing or Potential Exposure Problems?

After determining that asbestos is present in friable materials or in damaged nonfriable materials, an assessment of the existing or potential hazard must be made. EPA recommends the following in evaluating the exposure problem.

a) Evaluate friable asbestos first: Because friable materials have a greater potential for asbestos-fiber release, they pose a greater hazard, and special attention should be given to them.

b) Evaluate the condition of Asbestos-containing materials: EPA believes three factors regarding condition of material are most useful in assessing exposure problems:

i) evidence of deterioration or delamination (i.e., separation into layers) from the underlying surface;
ii) evidence of phyical damage;
iii) evidence of water damage.

If any of these conditions is evident, then fiber release has occurred, is occurring, or is likely to occur in the future. Evidence is obtained from the appearance of the material and from the presence of asbestos-containing dust, broken or crumbled material on the floor, tables, or other surfaces.

If none of these three factors is present the best course of action may be to leave the materials alone and to periodically reinspect the area to assure that damage has not occurred.

c) Assess potential for exposure, particularly in locations where materials may be subject to further disturbance or erosion.

Once the condition of the material is evaluated, its location is an important factor in further evaluating the potential risk from asbestos, since it affects the number of people exposed, and the magnitude of the exposure. EPA believes that the presence of friable asbestos-containing material in four types of locations should receive special attention: (note: these locations are not ranked in any priority.

i) air plenums (when returned or conditioned air moves at low pressure through a space between the actual ceiling and suspended ceiling or ducts);

ii) high-traffic areas (e.g., hallways, gymnasiums, classrooms, dining areas);

iii) areas within easy reach of passersby (e.g., low ceilings above stairways);

iiii) confined spaces (e.g., boiler rooms, supply closets).

Asbestos-containing materials located in an air plenum or near a forced airstream (such as an air conditioning or heating duct intake) are likely to suffer surface erosion. Fibers released into an airsteam may be transported to other parts of the building, possibly increasing the number of people exposed. The presence of asbestos-containing dust, debris or damaged material in a supply air plenum or in a direct air stream, presents the greatest concern.

The presence of fibers in ventilation ductwork or louvers can be confirmed by physical inspection, or more thoroughly, by taking wipe samples of the suspected areas and having them analyzed by Polarized Light Microscopy (PLM) for asbestos content. (A draft protocol for taking wipe samples is available from EPA upon request by calling 1-800-424-9065. The presence of asbestos in ducts, on return registers or louvers, or on horizontal surfaces in occupied areas is evidence that occupants are currently exposed to asbestos.

Asbestos materials located in high traffic areas are more directly exposed or easily visible than materials in air plenums. The release of asbestos fibers into heavily traveled or occupied areas presents a high risk due to the number of people exposed and the increased potential for distribution of asbestos fibers throughout the building. Fibers in these areas are regularly disturbed and therefore do not settle out of the air.

In addition, exposed and highly accessible materials in areas frequented by building occupants or subject to maintenance activities are more vulnerable to physical damage than materials in other locations. In this category are high traffic areas such as hallways and dining areas. This category also includes materials subject to vibration from mechanical equipment, sound or athletic activities. Examples include materials near a gymnasium or band room, or materials in buildings near an airport or highway. Damaged or deteriorated asbestos-containing material which is within easy reach of passersby or occupants of a room also pose increased potential for release of asbestos fibers through contact with persons or objects.

Confined spaces present a particular hazard to maintenance and custodial employees because of the limited circulation of external air. The concentration of asbestos fibers in such areas can increase due to poor air circulation.

Finally, a change in building use can affect the extent and severity of exposure and the potential for material erosion. For example, the change in use of a room from a classroom or cafeteria to a gymnasium could significantly increase the number of people exposed and the potential for erosion from objects such as basketballs striking the ceiling.

d) Using the Assessment Factors: EPA's evaluation of several proposed "formulas" or indices of assessment factors indicate that numerical ratings derived from subjective assessments of fiber release potential are not consistently accurate indicators of measured airborne asbestos levels. However, employing the assessment factors specified in this Section in a qualitative manner can help identify a high potential for present or future fiber release and help determine whether potential asbestos problems are severe, moderate, minor, or non-existent.

For example, small quantities of asbestos-containing materials which are badly damaged and located in a high traffic area would warrant a higher priority than similar amounts of asbestos-containing materials which are newer, in good condition, and are less accessible to a large number of persons (e.g., well-insulated pipes contained in a space between ceiling tiles and a building's roof.) However, the absolute number of persons potentially exposed should not be the single controlling factor. High concentrations of friable asbestos-containing materials in a frequently serviced boiler room may present a more serious exposure hazard to maintenance workers than would be the case with a large number of students in a large space exposed to smaller amounts of asbestos-containing materials.

The presence of any one of the conditions (friability, poor condition of material, potential for disturbance or erosion, and location of material in high exposure areas) may present a condition necessitating corrective action. However, the presence of two or more of these conditions may dramatically increase the potential for release of fibers to which students and school employees may be exposed. These situations should receive priority ranking for the most immediate attention.

3. Response to the Presence of Asbestos: What Abatement Action is Most Appropriate?

Since each situation possesses special circumstances, attempts to develop a set of definitive decision rules with broad applicabilty are of little value. Therefore, deciding which abatement action is most appropriate involves careful analysis of the circumstances of each situation. Four approaches to asbestos control can be used individually or in combination: 1) special operations and maintenance practices combined with periodic reassessment of asbestos-containing materials; 2) material encapsulation; 3) material enclosure; and 4) material removal. Figure 3 provides a guide to selecting a course of action.

a) Special Operations and Maintenance Programs: Where asbestos-containing material is in good condition and has a low potential for disturbance or erosion, an active program of proper maintenance and periodic reassessment of the need for other control measures is appropriate. Other control measures will depend on the results of future reassessments. This choice minimizes current costs (although there are recurring costs from reinspection) while providing reasonable assurance of protection to building occupants. If this alternative is selected, a periodic reinspection program is required to assess the material's condition and the potential for erosion or disturbance. This option is advised when the friable material is in good condition and has a low potential for erosion or disturbance. It is also advised when the material is nonfriable. Operations and maintenance

programs should also be established when encapsulation or enclosure is selected as the preferred abatement alternative (see below).

b) Encapsulation: This involves spraying asbestos-containing material with a sealant. Encapsulation is appropriate when the material still retains its bonding integrity, when damage to the material is not likely, when the material is not highly accessible to building users, or the material is granular or cementitious, (e.g., friable materials that are densely packed and non-fibrous). Ideally, this activity helps bind together the asbesotos fibers and other material components and offers some resistance to impact damage. The asbestos-containing materials will still have to be removed before building demolition. The advantages of encapsulation include temporary elimination of asbestos fiber release from materials and lower initial costs than other abatement methods because the replacement of materials with substitutes is not required. Encapsulation will require an operation and maintenance program including periodic reinspection to check for damage or deterioration of the materials. Repair of damaged or deteriorating encapsulated surfaces may eventually be necessary. Because encapsulation surfaces are generally difficult to remove, and will not easily asbsorb water they may ultimately require use of removal techniques without wetting solutions. Such dry removal may increase the amount of fiber release during abatement work.

c) Enclosure: Enclosure involves construction of airtight walls and ceilings around surfaces coated with asbestos-containing materials. Enclosure is an appropriate choice when materials need to be isolated from building occupants and disturbance or entry into the enclosed area is unlikely. Enclosures should be constructed with impact-resistant materials. Since the asbestos-containing materials will have to be removed when the building is remodeled or demolished, enclosure may only be a temporary solution. On the other hand, carefully constructed, airtight enclosures may reduce, if not eliminate, emission of fibers within the building for its remaining life. The initial cost of enclosure may be lower than removal, unless it necessitates the relocation of utilities or other major changes. Replacement of materials with substitutes will usually not be required. Decision makers should be aware that fiber release will continue behind the enclosed surface. The choice of enclosure requires a special operations program to control access to the enclosure for maintenance and renovation work. Periodic reinspection should be conducted and repair of enclosures will be necessary if damage occurs. Enclosure may be inappropriate when damaged or deteriorating materials are causing rapid fiber release, where water damage is evident, if damage or entry into enclosure is likely, or if a ceiling is to be enclosed which is low to the ground and accessible. Containment barriers and worker protection equipment will be necessary during the enclosure process.

d) Removal: The removal of friable asbestos-containing materials significantly reduces or eliminates the asbestos. Replacement of the removed material with substitutes may be necessary. However, improper removal will result in an increased level of airborne asbestos fibers. Therefore, the choice of removal must carry with it a strong commitment to worker and occupant protection. Containment barriers will be needed as will worker protection equipment. Wet removal (e.g., use of water and a wetting agent to reduce fiber release) is required for all types of asbestos. Proper disposal is required by EPA regulation and, therefore, approved facilities must be identified in advance.

It is important to reiterate that removal of asbestos-containing materials may not be appropriate if the material is in good condition or another abatement option would provide equal protection. If improperly performed, removal projects may result in much higher airborne levels of asbestos fibers than would be expected if the materials had been left in place and a management program instituted. Therefore, a building owner, using EPA guidance and professional advice, (such as an engineering or architectural firm), must carefully consider each abatement option before deciding an appropriate course of action.

In summary, if friable asbestos-containing materials are present and determined to be 1) in bad condition (e.g., damaged), or 2) subject to erosion or disturbance, then the material should be removed, enclosed or encapsulated. Periodic reinspection and special maintenance should also be conducted. If the material is in good condition and unlikely to be disturbed or eroded, a special operations, maintenance, and periodic reinspection program should be selected as the corrective action. If the asbestos-containing materials are nonfriable, no corrective action is needed. Instead, the nature and location of these materials should be documented and their condition should be reassessed periodically.

Jackie Jones
Box 210112
Auke Bay AK
99821

To Whom it May Concern,

I am a carpenter of Local #2247. While working on remodeling Harborview Elementary School I came into contact with asbestos and became aware of the great hazard that it poses to public health. The hazard is significantly increased by the ignorance and apathy of many people involved in all phases of remodel work, from the architects to the construction workers.

By the time an anonymous worker reported his suspicions of material at Harborview containing asbestos, most of the remodeling had been already completed. The upper four feet or so of the first and

second floor hallways had been sealed off as ducts for the return air on the ventilation system. Throughout these large ducts were pipes insulated with old asbestos which flaked off when touched and often had to be cut away to allow room for framing.

This insulating material and broken ceiling tiles, also containing asbestos (as later testing proved) were ground into dust on the floor by the workers feet. By the time the testing was completed to determine the nature of the suspicious materials, the workers had been carelessly removing it where necessary and breathing the dust filled air for ~~for~~ many months.

~~It~~ that one worker had

not realized and reported the danger, the children at Hardaway School might now be breathing air filled with asbestos fibers loosened by the constant air flowing over the pipes within the ductwork.

Due to this experience I realized that the workers are responsible themselves for judging a working environment to be safe or not. I recently called the Dept. of Labor to test material which had been sprayed years ago on a ceiling and which was now dropping on us with the slightest contact. I was told when the samples were taken that the results would not be available for a month.

I propose that a bill be written and supported that would place responsibility on the owner of a building being remodeled to have any suspicious material tested so that during the design process plans can be made to remove or seal any asbestos discovered on a proposed jobsite. Contractors could then make more accurate bids if additional time would be needed and workers could work on the jobsite with the knowledge of any materials that should be avoided or handled cautiously.

Having witnessed widespread ignorance about asbestos among construction workers, I also support the proposal that workers involved

in removal of this hazardous substance be certified through a training program designed to teach proper handling techniques. The program could be designed and administered by the State Dept. of Labor.

Thank you for your attention and your concern about the dangers that asbestos poses to your constituents.

Sincerely,

Jackie Jones

HB 5 File Contents

CS, SS, Proposed CS

1) Brief Summary --Legislative REporting Service

2) Overview -- House L & C Committee Staff

3) Proposed House L & C Committee Substitute for CSSSHB 5

4) Fiscal Note and Analysis for CS SS HB 5 -- Dept. of Labor

5) Fiscal Note and Analysis for SS HB 5 -Dept. of Labor

6) Sectional analysis SS HB 5 -- by HESS staff

7) Letters and positions on SS HB 5

   a. Alaska State District Council of Laborers

   b. Dept. of Law -- Ron Lorensen

   c. SSHB 5 Questions -- Associated General Contractors

   d. Position Statement: Dept. of Labor (Arab and Thorn)

   e. Position Statement--Asbestos Abatement Fact Finding Committee, with full report coming February 15, 1985.

   f. U. S. Environmental Protection Agency

8) Testimony of Senator Josephson SSHB 5

9) Asbestos Licensing and Control Regulations: State of Maryland

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HB 5

1) Overview -- HESS Committee Staff -- HB 5 (provides good background history of problem in Alaska and break down of School District Needs)

2) Overview articles (excellent background) -- State Government News, March 1984 beginning with "Asbestos: Still A Danger in Schools."

3) Medical Aspects of Asbestos Exposure --By Holstein from the 1984 Asbestos Symposium in Atlanta, Georgia

4) Asbestos Health Project Materials -- Excerpts from Asbestos: Its Hazards and How to Fight Them.

5) Miscellaneous additional articles on Asbestos

6) Newspaper article on Carpenter in Fairbanks refusing to work at the Fairbanks Center

7) Asbestos Time-Line Info (Draft) from the Department of Environmental Conservation regarding E.P.A. guidelines

8) Position Statements on HB 5:

   a. Associated General Contractors

   b. Alaska Federation of Natives, INc.

   c. Alaska Public Health Association

   d. Ombudsman -- Jack Chenoweth (abatement in prisons)

   e. NEA - Alaska

   f. University of Alaska-Fairbanks --George Riley

9) Anchorage School District Legislative Requests Summary Sheet on Asbestos removal

10) Minutes from House HESS meeting, May 24, 1984

M E M O R A N D U M

TO: All Members, House Labor and Commerce Committee

FROM: Committee Staff

DATE: February 11, 1985 Monday

SUBJECT: Overview, HB 5 & HB 57

On Monday, February 11, at 1:15 in Room 102 of the Capitol Bldg., the House Labor and Commerce Committee met on HB 5: "Asbestos Health Hazard Abatement," and HB 57: Appropriation for Asbestos Abatement."

A good brief history of the asbestos problem is found in the HESS staff memo of January 18 in your file under HB 5, (1); and good background material is found in the immediately following series of articles taken from State Government News, beginning with the article "Asbestos: Still a Danger in Schools."

Last year, this issue received extensive coverage in both Houses: SB 373 by Josephson, (similar to HB 5) died in House HESS at the end of the session; and SB 374 by Josephson (similar to HB 57) died in Senate Finance Committee. The minutes of the House HESS hearings are included in the very back of your file under HB 5 (10).

The Sponsor Substitute for HB 5 essentially dropped out the Findings and Purposes section, and re-worded some of the phrasing to make it more readable.

The Committee Substitute for the SSHB 5 encorporated many additional changes at the request of the HESS committee members Hanley, Koponen, and Gruenberg, and most of these were of a housekeeping variety (they are included in your file behind the CSSSHB 5). Three substantive changes the committee may wish to be aware of are: 1) the inclusion of the U. of Alaska in the program; 2) a date of January 1, 1985 as the earliest date schools can claim reimbursement, thus eliminating the claims of a few schools that did their inspections before that date; and finally 3) wording to insert public schools, so that the bill would not apply to private schools.

There is a further committee substitute that is proposed and being drafted up for consideration by the committee, and should be available for the meeting. This proposed CS for CSSSHB 5 (L & C) would encorporate the following general groups of amendments:

1) A group of amendments proposed by Don Rouleau of the Alaska District Council of Laborers that would change the asbestos certification program of the Department of Labor from being just for the schools to being a statewide program. Because of additional problems with statutory references discovered in Legislative drafting, the bill is being re-written to account for this whole certification issue.

2) A set of amendments, mostly technical, that have been proposed by the U.S. EPA in their January 30, 1985 memo (see your file).

3) A final set of amendments that would deal with the issue of directing the Department of Labor to prioritize sites into classes, in terms of which sites would be treated first, second, etc.

4) Another problem area, according to Legislative Legal Counsel, is that HB 5 does not set up a grant program enabling the Department of Education to distribute and/or reimburse schools for funds obtained for asbestos removal, including the HB 57 appropriation sources. This may have to be included in the final CS from L & C.

Because of the short notice time, some of the above material may not be present in the proposed draft Committee Substitute in time for the hearings this afternoon.

Finally, there is a separate issue here that should be considered regarding the funding of the activities under HB 5. To ensure that the certification and testing programs remain intact, it would be appropriate to consider changing the Fiscal Note from zero to $285,000 to fund the program in HB 5, and then amend HB 57 to reduce that appropriation bill by $285,000 (actually, by $300,000, since it is a rounded figure), and thus eliminating section 1 of HB 57.

The EPA is starting to apply financial sanctions against schools that have not done any testing; a lot of the possible consequent fines and litigation could end up at cost to the state (particularly with REAAs). The end result is that after extensive and expensive litigation, the state would most likely have to set up a certification program anyway, so the funds for this particular program are needed.

HB 4 (cont'd)

state's credit record. The report would also show which long-term debt is supported by taxes and which is supported from project revenues; all long-term capital lease obligations of the state; the volume of short-term debt issued and retired during the year; specific identification of each issue for which the state has pledged support; future bonding and debt capacity implications of legislation enacted during the previous legislative session; and the recommended debt issuance capacity of the state for the next two years.

The Bond Committee is also required to develop written policies and informational guidelines listing recommended level of debt, outlining debt management, bidding procedures and bid awards and compensation for financial service. Municipalities and state agencies would be required to submit a calendar of bonds to be issued each year, followed by monthly reports showing any changes to the calendar.

Provides for appointment of an executive director, and places employees of the Committee in the partially exempt service under the State Personnel Act (AS 39.25). Provides Act takes effect immediately.

On January 18 Rep. Gruenberg was added as a co-sponsor.

Introduced January 14 and referred to the House Special Committee on State Loans, then to Finance.

Asbestos Health Hazards (abatement program)

SPONSOR SUBSTITUTE FOR HOUSE BILL NO. 5, by Rep. Gruenberg. Establishes an asbestos health hazard abatement program in the Dept. of Labor to coordinate efforts of state departments and agencies to eliminate asbestos health hazards in schools in the state. Directs the Department to inspect school buildings in a school district or regional educational attendance area that has not complied with the Environmental Protection Agency (EPA) asbestos regulations, to determine the presence of asbestos, take samples, answer inquiries, ensure quality control of asbestos sampling, or enter into contracts for these purposes.

The Department of Labor is also responsible for establishing guidelines for employee training certification programs, to ensure that a person who is employed in the abatement program is trained to do the work safely and is informed about the danger of working with asbestos. Before a contractor can work on the asbestos program he must propose a plan to the Department for the certification of employees and receive approval. Prohibits a person from working in the abatement program unless certified in an approved program. Outlines penalties for violations.

Requires the Department of Education to assist in the program by cooperating with the Dept. of Labor, maintaining records and files, administering money appropriated to finance renovation contracts, and to distribute money to the schools. School officials are required to maintain records, and to notify personnel and parents

SSHB 5 (cont'd)

of students of the location of asbestos. School officials are also responsible for contracting for inspection of the building to comply with EPA asbestos regulations, and for contracting for removal of asbestos.

School boards may adopt a shorter school term of not less than 150 days if it is necessary for removal of asbestos and the board has submitted an acceptable plan under which students will receive the approximate educational equivalent of a 180-day term.

Provides Act takes effect immediately.

On January 14 Representatives Goll, Davis, Koponen and Navarre added their names as co-sponsors.

Introduced January 14 and referred to Health, Education & Social Services, Labor & Commerce, then Finance.

Workers' Compensation (reporting requirements)

HOUSE BILL NO. 6, by Rep. Collins. Changes wording of law which requires employers to report certain information regarding payment of workers' compensation to the Workers' Compensation Board. Employers are given 28 days to notify the Board and employee that payment of compensation has begun or has been increased, decreased, suspended, terminated, resumed, or changed in type. The law (AS 23.30.155(c)) presently states that an employer who is tardy with reports "shall pay" a civil penalty of $100 for the first day plus $10 for each day thereafter, up to a maximum of $1,000.

Would be amended to make the penalty provision less restrictive and to give the employer recourse to petition the Board: "If the employer fails to notify the board and the employee within the 28 days ..., unless the board finds that the failure was due to conditions over which the employer had no control, the board may require that the employer [SHALL] pay a civil penalty ...." (Underlined material added, bracketed material deleted.)

Sec. 1 establishes the intent of the Legislature that "the Workers' Compensation Board review the civil penalties imposed under AS 23.30.155(c) since July 11, 1981, to determine if, under AS 23.30.155(c) as amended by this Act, those penalties should not be imposed, and to determine if any refund of the penalties is due."

Employers and insurers have complained about fines assessed by the Workers' Compensation Division under circumstances where the report was filed on time, but due to minor irregularities or errors in how it was filled out was not processed immediately, then later counted as late by the WC Division.

Introduced January 14 and referred to Labor & Commerce and Finance.

Fish Records (release of confidential)

HOUSE BILL NO. 7, by Rep. Herrmann. Allows the Department of Fish and Game to release confidential records of fish landings and annual statistical reports of buyers and processors to

Hein ✓

Have Hein retype as indicated & get to me ASAP

AMENDMENT

Offered in the HOUSE

By Hanley

TO: SSHB 5

Page 2, line 8:

After "renovation" delete:

"conducted in environments that contain asbestos"

Insert: "that will cause asbestos fibers to become airborne"

Page 3, line 18:

After "hazards" insert "in a public school"

Page 3, line 26:

After "hazard" insert "in a public school"

Delete "this" and insert in its place "the"

Page 4, line 6:

After "hazard" insert "in a public school"

Delete "this" and insert in its place "the"

Page 4, line 28:

Before "schools" insert "public"

Delete ", including reimbursement of" and insert in its place "and reimburse"

Page 5, line 1:

2/1/85

done in CS

~~Delete "already"~~

January 1, 1985 add

OK After "~~undertaken~~" ~~insert "in calendar year 1985~~ with other than federal or state funds"

A M E N D M E N T

Offered in the HOUSE By Gruenberg

TO: SSHB 5

Page 5, after line 28 insert a new section to read:

"Sec. 18.28.060. REPAYMENT OF GRANT FUNDS. A school district or regional educational attendance area that receives a state grant for the abatement of asbestos health hazards in schools shall repay the grant from any money the district or REAA recovers from asbestos manufacturers or other parties in a claim for damages arising from the use of asbestos in a school. Repayment shall be made after deducting legal fees and other costs associated with the claim for damages."

Page 6 - Delete Section 3

Alaska State Legislature
e Niilo Koponen
21, Democrat

S.R. 10059
Fairbanks, Alaska 997
479-6782

Pouch V
Juneau, Alaska 99811
465-4992

MEMORANDUM

TO: Rep. Gruenberg
FROM: Rep. Koponen
RE: Amendments to HB5 and HB57
DATE: 25 January, 1985

I would propose the following amendments to HB5:

1. DELETE page 1, lines 9-26.

2. Page 2, line 10, after "from schools in the state" ADD "and from the University of Alaska system".

3. Page 3, line 10, after "health hazards of asbestos" ADD a new section to read:

"(11) assist the University of Alaska system in its efforts to abate asbestos health hazards within the University of Alaska system;"

Renumber existing (11) to (12).

4. Page 4, line 29, after "school districts" DELETE "and"; after "regional educational attendance areas" ADD ", and the University of Alaska".

I would propose the following amendments to HB57:

1. Page 1, line 13: change $26,000,000 to $24,000,000

2. Page 2, line 16, after "regional educational attendance areas" add a new section to read:

"* Sec. 4. The sum of $2,000,000 is appropriated from the general fund to the University of Alaska for an asbestos survey and abatement program within the University of Alaska system."

Renumber subsequent sections accordingly.

fund

Alaska State Legislature
House of Representatives
COMMITTEE ON HEALTH, EDUCATION
AND SOCIAL SERVICES

OFFICIAL BUSINESS

POUCH V
JUNEAU, AK 99811
465-3759

MEMORANDUM

TO: HOUSE HESS COMMITTEE MEMBERS

FROM: NANCY BENNETT, COMMITTEE STAFF

DATE: JANUARY 28, 1985

RE: AMENDMENTS TO SSHB 5 FROM REP. ALICE HANLEY

1. Add "public schools" to the title of the bill.

2. Page 2, line 4, amend to read "...all work in public schools..."

3. Page 2, line 5, add "repair" to subsection (1).

4. Page 3, line 18, add "public school facilities" following asbestos health hazards.

5. Page 3, line 21, after labor organizations, add "public and private vocational training programs".

6. Page 4, lines 28-29 and page 5, line 1, delete all language after "schools in the state" and substitute a period for the comma.

7. Separate effective date for certification program, 30 to 60 days after the bill.

8. Page 3, line 24, add a new subsection under the certification program duties of the Department of Labor to read:
   (4) assist those whose certification program proposals have not been found acceptable in meeting the certification guidelines.

Hein
2/1/85

Original sponsors: Gruenberg, Goll,
Davis, et al

IN THE HOUSE

BY THE HEALTH, EDUCATION AND SOCIAL SERVICES COMMITTEE

CS FOR SPONSOR SUBSTITUTE FOR HOUSE BILL NO. 5 (HESS)

IN THE LEGISLATURE OF THE STATE OF ALASKA

FOURTEENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act establishing a program for the abatement of asbestos health hazards in public schools and the University of Alaska; and providing for an effective date."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. AS 14.03.030 is amended to read:

Sec. 14.03.030. SCHOOL TERMS. A [THE] school term begins and ends on the dates fixed by the governing body of a [THE] school district. A school [HOWEVER, THE] term shall include not less than 180 days in session, except that, with [SUBJECT TO] the approval of the commissioner,

(1) a day used for in-service training of teachers may be substituted for a day in session, up to a maximum of 10 days; [AND]

(2) an "emergency closure day" may be substituted for a day in session because of conditions posing a threat to the health or safety of students; and

(3) a school board may adopt a school term of not less than 150 days for a school if the commissioner finds that

(A) the shorter term is necessary for abating asbestos health hazards in the school; and

(B) the school board has submitted an acceptable plan under which students will receive the approximate educational equivalent of a 180-day term.

* Sec. 2. AS 18 is amended by adding a new chapter to read:

CHAPTER 28. ASBESTOS HEALTH HAZARD ABATEMENT PROGRAM.

Sec. 18.28.010. PROGRAM ESTABLISHED. The asbestos health hazard abatement program is established in the Department of Labor to coordinate efforts of state departments and agencies to eliminate asbestos health hazards in schools in the state. The program applies to all work in public schools and the University of Alaska involving

(1) demolition, removal, encapsulation, salvage, repair, transportation, disposal, storage, and containment of asbestos products;

(2) construction, alteration, repair, maintenance, or renovation that will cause asbestos fibers to become airborne.

Sec. 18.28.020. DUTIES OF THE DEPARTMENT OF LABOR. In order to eliminate asbestos health hazards from public schools and from the University of Alaska the Department of Labor shall

(1) in a school district or regional educational attendance area that has not complied with Environmental Protection Agency asbestos regulations (40 C.F.R. Part 763), inspect school buildings to determine the presence of asbestos, take samples as needed, answer inquiries on the subject, ensure quality control of asbestos sampling, or enter into contracts for these purposes;

(2) distribute, retrieve, and store training materials concerning inspection and sampling for asbestos;

(3) establish guidelines for abating the asbestos health hazard, for inspecting and collecting samples of suspected asbestos, and for analyzing the samples;

(4) evaluate analysis results and distribute the results to affected schools;

(5) coordinate efforts by state departments and agencies and by school officials to identify and eliminate asbestos health

hazards;

(6) cooperate with the Department of Education to administer state money appropriated for the asbestos health hazard abatement program;

(7) review and approve all asbestos health hazard abatement programs relating to respirator use and employee training, including training materials;

(8) oversee an employee certification program;

(9) establish guidelines and procedures to prevent damage to asbestos products in daily operations;

(10) whenever the department is informed of scheduled work to abate a health hazard that is asbestos related, inform the contractors and others concerned of the health hazards of asbestos;

(11) assist the University of Alaska in its efforts to abate asbestos health hazards; and

(12) adopt regulations necessary to implement the provisions of this chapter.

Sec. 18.28.030. CERTIFICATION PROGRAMS. (a) The Department of Labor shall

(1) establish guidelines for employee training certification programs, including respiratory and competency tests to be completed successfully, to ensure that a person who is employed to abate asbestos health hazards in a public school or the University of Alaska is trained to do the work safely and is informed about the danger of working with asbestos;

(2) review certification programs proposed by contractors, labor organizations, public and private vocational training programs, and others for persons who will be employed to abate asbestos health hazards in a public school or the University of Alaska;

(3) approve proposed certification programs that meet the department's guidelines under this subsection;

(4) assist in meeting the certification guidelines those whose certification program proposals have been found unacceptable.

(b) Before a contractor may undertake to abate an asbestos-related health hazard in a public school or the University of Alaska, the contractor shall

(1) propose to the Department of Labor a plan for the certification of its employees as adequately trained to handle asbestos in a safe and knowledgeable way;

(2) receive approval from the department of that plan; and

(3) certify that each person who will work on the abatement of an asbestos health hazard in this state is adequately trained to handle asbestos in a safe and knowledgeable way.

(c) A person may not be employed to abate an asbestos health hazard in a public school or the University of Alaska urless that person has been certified in a program approved by the Department of Labor under (a) of this section.

(d) A contractor who violates (b) or (c) of this section is subject to a civil penalty not to exceed $1,000, as determined by the commissioner of labor.

(e) A contractor who violates (b) of this section is guilty of a class A misdemeanor.

(f) A contractor who violates (c) of this section is guilty of a class B misdemeanor.

Sec. 18.28.040. DUTIES OF THE DEPARTMENT OF EDUCATION. To assist in implementing the asbestos health hazard program, the Department of Education shall

(1) cooperate with the Department of Labor, school

districts, and regional educational attendance areas to ensure inspection of schools in the state for asbestos health hazards and to ensure that identified asbestos health hazards are abated;

(2) maintain records, files, and reports on asbestos health hazards in city and borough schools and regional educational attendance area schools;

(3) administer state money appropriated to finance renovation contracts under AS 18.28.050(5);

(4) distribute available money as necessary to abate asbestos health hazards in public schools and reimburse school districts and regional educational attendance areas for asbestos hazard abatement work undertaken on or after January 1, 1985, with other than federal or state funds;

(5) inform the Department of Labor when renovation contracts are awarded under AS 18.28.050(5), to enable the Department of Labor to advise contractors and others concerned of asbestos health hazards that may be encountered in the renovation project.

Sec. 18.28.050. DUTIES OF SCHOOL OFFICIALS. To assist in implementing the asbestos health hazard abatement program, each city or borough school district and each regional educational attendance area shall

(1) maintain records of all inspections, including sample dates, location, condition, and analysis of materials;

(2) notify school personnel of the location of asbestos materials and ways to reduce exposure;

(3) notify the parents of students about the results of asbestos inspections in their children's schools;

(4) either

(A) contract for the inspection of its school

buildings in compliance with Environmental Protection Agency Asbestos Regulations (40 C.F.R. Part 763) and in accordance with guidelines established by the Department of Labor; or

(B) notify the Department of Labor that the school district or regional educational attendance area has not entered and does not intend to enter into a contract for an inspection for asbestos health hazards; and

(5) contract for renovating school buildings to abate asbestos health hazards, and supervise and monitor the renovation contracts, applying the standards in AS 18.60.075 to protect the health of the persons who renovate the school buildings.

Sec. 18.28.060. REPAYMENT OF GRANT FUNDS. A school district or regional educational attendance area that receives a state grant for the abatement of asbestos health hazards in schools shall repay the grant from any money the district or the Regional Educational Attendance Area recovers from asbestos manufacturers or other parties in a claim for damages arising from the use of asbestos in a school. Repayment shall be made after deducting legal fees and other costs associated with the claim for damages.

Sec. 18.28.090. DEFINITIONS. In this chapter

(1) "asbestos" means chrysotile, amosite, crocidolite, fibrous tremolite, fibrous anthophyllite, and fibrous actinolite;

(2) "asbestos health hazard" means the presence of asbestos material that could result in the dispersal of asbestos fibers into a school building or public facility;

(3) "asbestos product" means a product that produces airborne asbestos.

* Sec. 3. This Act does not apply to construction work underway on October 1, 1985.

* Sec. 4. This Act takes effect October 1, 1985.

Introduced: 1/16/85
Referred: Health,Education & Social Services,Labor & Commerce and Finance

IN THE HOUSE

BY GRUENBERG,GOLL,DAVIS, KOPONEN AND NAVARRE

SPONSOR SUBSTITUTE FOR HOUSE BILL NO. 5

IN THE LEGISLATURE OF THE STATE OF ALASKA

FOURTEENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act establishing an asbestos health hazard abatement program; and providing for an effective date."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. AS 14.03.030 is amended to read:

Sec. 14.03.030. SCHOOL TERMS. A [THE] school term begins and ends on the dates fixed by the governing body of a [THE] school district. A school [HOWEVER, THE] term shall include not less than 180 days in session, except that, with [SUBJECT TO] the approval of the commissioner,

(1) a day used for in-service training of teachers may be substituted for a day in session, up to a maximum of 10 days; [AND]

(2) an "emergency closure day" may be substituted for a day in session because of conditions posing a threat to the health or safety of students; and

(3) a school board may adopt a school term of not less than 150 days for a school if the commissioner finds that

(A) the shorter term is necessary for abating asbestos health hazards in the school; and

(B) the school board has submitted an acceptable plan under which students will receive the approximate educational equivalent of a 180-day term.

* Sec. 2. AS 18 is amended by adding a new chapter to read:

CHAPTER 28. ASBESTOS HEALTH HAZARD ABATEMENT PROGRAM.

Sec. 18.28.010. PROGRAM ESTABLISHED. The asbestos health hazard

COMMITTEE COPY

abatement program is established in the Department of Labor to coordinate efforts of state departments and agencies to eliminate asbestos health hazards in schools in the state. The program applies to all work involving

(1) demolition, removal, encapsulation, salvage, transportation, disposal, storage, and containment of asbestos products;

(2) construction, alteration, repair, maintenance, or renovation conducted in environments that contain asbestos.

Sec. 18.28.020. DUTIES OF THE DEPARTMENT OF LABOR. In order to eliminate asbestos health hazards from schools in the state, the Department of Labor shall

(1) in a school district or regional educational attendance area that has not complied with Environmental Protection Agency asbestos regulations (40 C.F.R. Part 763), inspect school buildings to determine the presence of asbestos, take samples as needed, answer inquiries on the subject, ensure quality control of asbestos sampling, or enter into contracts for these purposes;

(2) distribute, retrieve, and store training materials concerning inspection and sampling for asbestos;

(3) establish guidelines for abating the asbestos health hazard, for inspecting and collecting samples of suspected asbestos, and for analyzing the samples;

(4) evaluate analysis results and distribute the results to affected schools;

(5) coordinate efforts by state departments and agencies and by school officials to identify and eliminate asbestos health hazards;

(6) cooperate with the Department of Education to administer state money appropriated for the asbestos health hazard abatement

COMMITTEE COPY

program;

(7) review and approve all asbestos health hazard abatement programs relating to respirator use and employee training, including training materials;

(8) oversee an employee certification program;

(9) establish guidelines and procedures to prevent damage to asbestos products in daily operations;

(10) whenever the department is informed of scheduled work to abate a health hazard that is asbestos related, inform the contractors and others concerned of the health hazards of asbestos; and

(11) adopt regulations necessary to implement the provisions of this chapter.

Sec. 18.20.030. CERTIFICATION PROGRAMS. (a) The Department of Labor shall

(1) establish guidelines for employee training certification programs, including respiratory and competency tests to be completed successfully, to ensure that a person who is employed to abate asbestos health hazards in this state is trained to do the work safely and is informed about the danger of working with asbestos;

(2) review certification programs proposed by contractors, labor organizations, and others for persons who will be employed to abate asbestos health hazards in this state;

(3) approve proposed certification programs that meet the department's guidelines under this subsection.

(b) Before a contractor can undertake to abate an asbestos-related health hazard in this state, the contractor shall

(1) propose to the Department of Labor a plan for the certification of its employees as adequately trained to handle asbestos in a safe and knowledgeable way;

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(2) receive approval from the department of that plan; and

(3) certify that each person who will work on the abatement of an asbestos health hazard in this state is adequately trained to handle asbestos in a safe and knowledgeable way.

(c) A person may not be employed to abate an asbestos health hazard in this state unless that person has been certified in a program approved by the Department of Labor under (a) of this section.

(d) A contractor who violates (b) or (c) of this section is subject to a civil penalty not to exceed $1,000, as determined by the commissioner of labor.

(e) A contractor who violates (b) of this section is guilty of a class A misdemeanor.

(f) A contractor who violates (c) of this section is guilty of a class B misdemeanor.

Sec. 18.28.040. DUTIES OF THE DEPARTMENT OF EDUCATION. To assist in implementing the asbestos health hazard program, the Department of Education shall

(1) cooperate with the Department of Labor, school districts, and regional educational attendance areas to ensure inspection of schools in the state for asbestos health hazards and to ensure that identified asbestos health hazards are abated;

(2) maintain records, files, and reports on asbestos health hazards in city and borough schools and regional educational attendance area schools;

(3) administer state money appropriated to finance renovation contracts under AS 18.28.050(5);

(4) distribute available money as necessary to abate asbestos health hazards in schools in the state, including reimbursement of school districts and regional educational attendance areas for

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asbestos hazard abatement work already undertaken;

(5) inform the Department of Labor when renovation contracts are awarded under AS 18.28.050(5), to enable the Department of Labor to advise contractors and others concerned of asbestos health hazards that may be encountered in the renovation project.

Sec. 18.28.050. DUTIES OF SCHOOL OFFICIALS. To assist in implementing the asbestos health hazard abatement program, each city or borough school district and each regional educational attendance area shall

(1) maintain records of all inspections, including sample dates, location, condition, and analysis of materials;

(2) notify school personnel of the location of asbestos materials and ways to reduce exposure;

(3) notify the parents of students about the results of asbestos inspections in their children's schools;

(4) either

(A) contract for the inspection of its school buildings in compliance with Environmental Protection Agency Asbestos Regulations (40 C.F.R. Part 763) and in accordance with guidelines established by the Department of Labor; or

(B) notify the Department of Labor that the school district or regional educational attendance area has not entered and does not intend to enter into a contract for an inspection for asbestos health hazards; and

(5) contract for renovating school buildings to abate asbestos health hazards, and supervise and monitor the renovation contracts, applying the standards in AS 18.60.075 to protect the health of the persons who renovate the school buildings.

Sec. 18.28.090. DEFINITIONS. In this chapter

(1) "asbestos" means chrysotile, amosite, crocidolite, fibrous tremolite, fibrous anthophyllite, and fibrous actinolite;

(2) "asbestos health hazard" means the presence of asbestos material that could result in the dispersal of asbestos fibers into a school building or public facility;

(3) "asbestos product" means a product that produces airborne asbestos.

* Sec. 3. This Act takes effect immediately in accordance with AS 01.-10.070(c).

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STATE OF ALASKA 1985 LEGISLATIVE SESSION

FISCAL NOTE

Revision Date:

REQUEST

Bill/Resolution No.: CS SS HB5
Title: "An act establishing an asbestos health hazard abatement"
Sponsor: Gruenberg
Requestor: House HESS
Date of Request: 2-4-85

FISCAL DETAIL

Agency Affected: Labor
Program Category Affected: Public Protection
BRU, Program or Subprogram(s) Affected: Occupational Safety & Health

EXPENDITURES/REVENUES: (Thousands of Dollars)

	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90
OPERATING						
100 PERSONAL SERVICES		79.3	84.7			
200 TRAVEL		12.0	12.0			
300 CONTRACTUAL		171.9	24.8			
400 SUPPLIES		4.5	1.6			
500 EQUIPMENT		16.4	-0-			
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS						
800 MISCELLANEOUS						
TOTAL OPERATING	-0-	284.1	123.1	-0-	-0-	-0-
CAPITAL						
REVENUE						

FUNDING: (Thousands of Dollars)

GENERAL FUND		284.1	123.1			
FEDERAL FUNDS						
OTHER						
TOTAL	-0-	284.1	123.1	-0-	-0-	-0-

POSITIONS:

FULL-TIME	-0-	2	2	-0-	-0-	-0-
PART-TIME	-0-					
TEMPORARY						

ANALYSIS: Attach a separate page if necessary

Prepared By: Robert J. Bacolas Phone: 465-4870
Division: Labor Standards & Safety Date:

Approved by Commissioner: Jim Robison Date: 2/8/85
Agency: Department of Labor

Distribution (by Agency preparing fiscal note):
- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)

7/1/84

FISCAL NOTE

THE LEGISLATURE OF THE STATE OF ALASKA
FOURTEENTH LEGISLATURE
BILL/RESOLUTION NO: CS SS for HB 5
TITLE: "An Act relating to establishing asbestos health hazard abatement"
AGENCY AFFECTED: Department of Labor

There are approximately 550 school buildings in Alaska. Of these buildings we know that 140 buildings have been surveyed for asbestos. This is based on information from the U.S. Environmental Protection Agency (EPA), that they have made on-site inspections for compliance with their regulations in the Juneau, Anchorage, Fairbanks, Ketchikan, Sitka and Kodiak school districts. These school districts contain approximately 140 buildings. We are estimating that of the approximately 410 other school buildings, that a third have been properly surveyed or a school district will use a private consultant to survey their buildings. We estimate therefore, that the department will be required to make physical inspections of approximately 270 buildings that have either not been surveyed or have been improperly surveyed.

It is important that these school districts survey their buildings within two years to allow them time to budget and plan for the work necessary to abate the asbestos health hazards in their school districts.

It is assumed that the responsibility for training and certification outlined in AS 18.38.030 of CS SS HB 5 will mainly be with the employer and that the department will only be responsible for establishing training guidelines and certifying training programs.

A lead industrial hygienist, a clerk typist and monies to enter into a contract for surveying and abatement evaluation will be needed for the first year. To assure that the program is implemented without delay, we would need to hire the industrial hygienist and clerk on July 1, 1985. We estimate that it will take two months to set up the schedule for surveying schools and three months to develop the regulations and guidelines for the certification program. An industrial hygienist is required to perform this task as the work requires a person who has an educational background and experience in industrial health evaluation. Because of difficulties we anticipate in hiring a full-time position for only 10 months, we would enter into a contract by September with two other health specialists to perform the majority of the surveys. It is estimated that by the end of the first year, we would survey and evaluate potential health hazards in approximately 220 of the 270 school buildings yet to be surveyed. In the first year of operation the one time special costs would include:

- Sampling Pumps (3)	$6,000.00
- Training Films/Slides	$4,000.00
- Air Supplied Respirators (3)	$3,000.00
- Protective Clothing (3)	$3,000.00
- Contract for Two Health Specialists	$110,000.00
- Contract to Analyze the Bulk Asbestos Samples (5 per buildings)	$38,500.00

During the second year only the hygienist and clerk would be maintained to monitor the completion of the program.

1.	POSITION TITLE: Industrial Hygienist I			RANGE/STEP: 19A	BARG. UNIT: GGU	FORM 12 PAGE/LINE	COV.	APPROV.	DISAPP.
2.	TYPE OF POSITION: PFT	STAFF MONTHS: 12	RP NUMBER	PCN NUMBER	BRU PRIORITY	LOCATION: Anch.	ELECTION DISTRICT	LEG.		

3. CONTINUATION LEVEL | ADDITION

4.	TYPE OF EXPENDITURE		AMOUNT
	1	2	3
	PERSONAL SERVICES		
5.	Salary	40,032	
6.	Benefits	6,669	
7.	Supplemental Benefits	2,454	
8.	Fixed Benefits	2,732	
9.	TOTAL PERSONAL SERVICES 01		51,887
10.	Travel 02		12,000
11.	Contractual 03		10,404
12.	Commodities 04		1,500
13.	Equipment 05		4,700
14.	Other		
15.	TOTAL COST		80,491

	RECEIPT CODE	FUNDING SOURCE	
16.		Federal Receipts 1002	
17.		G.F. Match 1003	
18.		General Funds 1004	80,491
19.		I-A Receipts 1005	
20.		Program Receipts 1028	
21.		Other	

FOR B&R USE ONLY
4A KEY NUMBER __ __ - __ __ - __ __ - __ __ - __ __

JUSTIFICATION

As lead position of the Asbestos Health Hazard Abatement Program, this position will set up the scheduling system for surveying approximately 270 buildings and develop guidelines for the certification program. This position will survey approximately 50 buildings the 1st year and 50 buildings the 2nd year. In the second year this position would be maintained to monitor and evaluate the certification program; provide information and training to contractors, their workers, and other interested parties of the potential health hazards of asbestos.

Contractual costs include rent $3,600, indirect costs $4,800 and other normal costs of $2,000.

Commodities include protective clothing $1,000 and other costs $500.

Equipment costs include sampling pumps $2,000, air respirator $1,000, and other normal costs of $1,700.

15 REQUEST FOR NEW POSITION

AGENCY: Labor
PROGRAM: Public Protection
BRU: Occupational Safety & Health
COMPONENT: Occupational Safety & Health

Revised Date

FY 86

LEG:F:31

1.	POSITION TITLE: Clerk Typist III			RANGE/STEP: 8B	BARG. UNIT: GGU	FORM 12 PAGE/LINE	COV.	APPROV.	DISAPP.
2.	TYPE OF POSITION: PFT	STAFF MONTHS: 12	RP NUMBER	PCN NUMBER	BRU PRIORITY	LOCATION: Anch	ELECTION DISTRICT	LEG.		
3.	CONTINUATION LEVEL	ADDITION							

	TYPE OF EXPENDITURE		AMOUNT
	1	2	3
	PERSONAL SERVICES		
5.	Salary	20,136	
6.	Benefits	3,355	
7.	Supplemental Benefits	1,234	
8.	Fixed Benefits	2,732	
9.	TOTAL PERSONAL SERVICES 01		27,457
10.	Travel 02		0
11.	Contractual 03		13,016
12.	Commodities 04		1,000
13.	Equipment 05		1,700
14.	Other		
15.	TOTAL COST		43,173

	RECEIPT CODE	FUNDING SOURCE	
16.		Federal Receipts 1002	
17.		G.F. Match 1003	
18.		General Funds 1004	43,173
19.		I-A Receipts 1005	
20.		Program Receipts 1028	
21.		Other	

FOR BSM USE ONLY
4A KEY NUMBER __ __ - __ __ - __ __ - __ __ - __ __

JUSTIFICATION

This position will keep track of the asbestos samples taken by the industrial hygienists and will assure that these samples are mailed to and returned from the contract laboratory. The clerk typist will take, type, and process the reports and correspondence about the asbestos program to the school districts, contractors, and Department of Education personnel who are required to be informed of the program. This position will also provide the clerical support necessary for the monitoring and evaluation of employer and employee training certification programs.

Contractual costs include rent of $3,600, indirect of $2,400, and other normal expenses, including word processing of $7,000.

Normal commodities of $1,000 and equipment of $1,700 are also included.

13 REQUEST FOR NEW POSITION

AGENCY: Labor
PROGRAM: Public Protection
BRU: Occupational Safety & Health
COMPONENT: Occupational Safety & Health

Revised Date

FY 86

LEG:F:34

Bill No. Sponsor Substitute for House Bill 5

Date January 22, 1985

Title "An Act establishing an asbestos health hazard abatement program."

Contact: Richard Arab
465-4856
Dr. Annette Thorn
465-2700

Sponsor Substitute for House Bill 5 is designed to abate asbestos health hazards in Alaska's schools so that school children and workers will not be endangered.

There is no longer any doubt that exposure to asbestos presents a serious and substantial threat to health; and the Department's understanding is that the results of recent surveys indicate that many school buildings in Alaska do contain asbestos materials.

Under the provisions of Sponsor Substitute for House Bill 5, the Department of Labor would inspect school buildings to identify asbestos health hazards; make recommendations as to the need for removal or encapsulation of asbestos; certify employee training programs to assure that workers removing or encapsulating asbestos know how to do it safely.

In connection with the certification program, the Department of Labor would establish minimum requirements for asbestos abatement employee training programs, and review and approve specific training plans proposed by contractors, labor organizations, or others training persons who will be employed to abate asbestos health hazards. Contractors involved in asbestos health hazard abatement would then certify that each employee who will work on the project has been trained in accordance with the plan approved by the Department. Likewise, Sponsor Substitute for House Bill 5 prohibits a person from working on the abatement of asbestos health hazards unless the person has been certified in a program approved by the Department.

The certification program is essential, not only to prevent harmful exposure to workers who are required to work with materials containing asbestos, but to also assure that harmful exposures do not occur to school children as a result of removal or encapsulation work.

Inasmuch as the guidelines for the certification program would need to be established by regulation, the Department would not be able to implement the certification provisions immediately as provided in this bill. We, therefore, would suggest that the provisions in Sec. 18.28.030 take effect 90 days after the bill becomes law.

The Department also notes the sponsor substitute amendment to Sec. 18.28.020(1), which narrows the Department of Labor's inspection responsibilities to schools which have not complied with the Environmental Protection Agency's regulations. We agree that inspection effort should not be duplicated. However, it might be well to verify that competent surveys have been conducted. Our understanding is that the EPA regulations did not require that the surveys be conducted by a qualified person or firm.

The Department supports Sponsor Substitute for House Bill 5, provided adequate funding will be provided to carry out its provisions. The Department's fiscal note is attached.

Approved: Jim Robison

Jim Robison, Commissioner

POSITION PAPER/Department of Labor

FISCAL NOTE

THE LEGISLATURE OF THE STATE OF ALASKA
FOURTEENTH LEGISLATURE
BILL/RESOLUTION NO: SS for HB 5
TITLE: "An Act relating to establishing asbestos health hazard abatement"
AGENCY AFFECTED: Department of Labor

There are approximately 550 school buildings in Alaska. Of these buildings we know that 140 buildings have been surveyed for asbestos. This is based on information from the U.S. Environmental Protection Agency (EPA), that they have made on-site inspections for compliance with their regulations in the Juneau, Anchorage, Fairbanks, Ketchikan, Sitka and Kodiak school districts. These school districts contain approximately 140 buildings. We are estimating that of the approximately 410 other school buildings, that a third have been properly surveyed or a school district will use a private consultant to survey their buildings. We estimate therefore, that the department will be required to make physical inspections of approximately 270 buildings that have either not been surveyed or have been improperly surveyed.

It is important that these school districts survey their buildings within two years to allow them time to budget and plan for the work necessary to abate the asbestos health hazards in their school districts.

It is assumed that the responsibility for training and certification outlined in AS 18.38.030 of SS HB 5 will mainly be with the employer and that the department will only be responsible for establishing training guidelines and certifying training programs.

A lead industrial hygienist, a clerk typist and monies to enter into a contract for surveying and abatement evaluation will be needed for the first year. To assure that the program is implemented without delay, we would need to hire the industrial hygienist and clerk on July 1, 1985. We estimate that it will take two months to set up the schedule for surveying schools and three months to develop the regulations and guidelines for the certification program. An industrial hygienist is required to perform this task as the work requires a person who has an educational background and experience in industrial health evaluation. Because of difficulties we anticipate in hiring a full-time position for only 10 months, we would enter into a contract by September with two other health specialists to perform the majority of the surveys. It is estimated that by the end of the first year, we would survey and evaluate potential health hazards in approximately 220 of the 270 school buildings yet to be surveyed. In the first year of operation the one time special costs would include:

- Sampling Pumps (3)	$6,000.00
- Training Films/Slides	$4,000.00
- Air Supplied Respirators (3)	$3,000.00
- Protective Clothing (3)	$3,000.00
- Contract for Two Health Specialists	$110,000.00
- Contract to Analyze the Bulk Asbestos Samples (5 per buildings)	$38,500.00

During the second year only the hygienist and clerk would be maintained to monitor the completion of the program.

SECTIONAL ANALYSIS - SSHB 5 "AN ACT ESTABLISHING AN ASBESTOS HEALTH HAZARD ABATEMENT PROGRAM; EFD." by Gruenberg, Goll, Davis, Koponen and Navarre

Section 1 Allows the Commissioner of the Department of Education to designate a shorter school term (of at least 150 days) in a particular school for the purpose of abating an asbestos health hazard.

Section 2 Establishes the asbestos health hazard abatement program in the Department of Labor for the purposes of inspecting schools which have not complied with EPA regulations; coordinating state agencies; establishing guidelines for safe working conditions where asbestos is involved; oversight of employee certification programs and adoption of regulations.

CERTIFICATION PROGRAMS. The Department of Labor shall establish guidelines for employee training programs, review and approve those programs meeting the standards. Any contractor undertaking an asbestos related project must have an approved program and certify that each employee is trained. Violations of these requirements would make a contractor liable for civil penalties and guilty of a misdemeanor.

DEPARTMENT OF EDUCATION. Duties of the department includes cooperation with the Department of Labor and school districts; keeping records on asbestos abatement projects, administration and distribution of grants to schools from available funds.

SCHOOL OFFICIALS. Duties of school officials include compliance with EPA regulations for asbestos inspection through contracts or cooperation with the Department of Labor, notification of school personnel and parents of the results, maintaining records and contracting for renovations as needed.

Section 3 Immediate effective date.

NOTE: HB 57 is the companion appropriation bill which would provide $300.0 to the Department of Labor to cover the cost of asbestos inspections and sampling (or contracts for those purposes), and $26 million to the Department of Education for grants to schools for asbestos abatement projects.

RESOLUTION: 84-10

ASBESTOS ABATEMENT IN ALASKA SCHOOLS

The Alaska Public Health Association,

Believing that friable asbestos, similar to that which was discovered in schools in the Anchorage School District, exists in numerous other schools in school districts throughout the State; and

Knowing that an Asbestos Technical Panel, convened in Anchorage by the Anchorage School Board, reviewed thoroughly health hazards associated with asbestos in Anchorage schools; and, as a result, recommended that friable asbestos be removed from Anchorage schools as an unacceptable health hazard[1]; and

Believing that many Alaskan school children in school districts other than Anchorage may be exposed to health hazards from asbestos that are preventable; therefore

Urges passage of Senate Bills 373 and 374; and

Urges the Governor to form a special task force with representatives of Department of Health and Social Services, Department of Labor, Department of Education, Department of Transportation & Public Facilities, Department of Environmental Conservation, parents of school children, and teachers to implement an asbestos abatement program in all Alaskan schools in accordance with recognized standards for asbestos abatement[2]; and

Urges implementation of an asbestos abatement program which will include the following tasks:

1. Implement and insure completion of a comprehensive survey to identify and categorize asbestos in all Alaskan schools.
2. Evaluate health hazards associated with any asbestos (friable asbestos and asbestos in other forms) discovered in the survey and make recommendations for appropriate medical surveillance of students, teachers and workers exposed to asbestos.
3. Insure notification of teachers, parents, and students of the presence of friable asbestos identified in Alaskan schools in accordance with guidelines established by the EPA.
4. Recommend a plan for removal of friable asbestos, where necessary, and develop appropriate bid specifications and guidelines so that school districts can be assured that asbestos will be removed according to established standards which protect workers, students, parents and teachers during the removal process as well as insure that asbestos is removed totally and is adequately disposed of in approved sites.
5. Increase awareness of the health hazards associated with asbestos and protect against future problems by making sure that asbestos containing materials are not used in new construction.

---

1. Asbestos Technical Advisory Panel Recommendations, ASD Memorandum #534(82-83), Anchorage School District, Anchorage, Alaska, May 23, 1983.
2. Asbestos-Containing Materials in School Buildings: A Guidance Document, Part 1 and 2. U.S. EPA, Office of Toxic Substances, Washington, D.C., March 1979.

STATE OF ALASKA

BILL SHEFFIELD, GOVERNOR

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

OFFICE OF THE COMMISSIONER

POUCH Z
JUNEAU, ALASKA 99811
PHONE: (907) 465-3900

RECEIVED

MAY 30 1984

Josephson,

May 29, 1984

The Honorable Joe Josephson
Alaska State Senate
Pouch V
Juneau, AK 99811

Dear Senator Josephson:

This is in response to your request for information concerning asbestos in public facilities and the Alaska Railroad. What we have learned about the risks associated with the use of asbestos is certainly disturbing.

Facilities

Prior to the known health hazards associated with asbestos (such as lung and intestinal cancer), many State public facilities were constructed utilizing asbestos for floor and ceiling tile, exterior siding, pipe and ceiling insulation, and other products which contained varying amounts of asbestos.

As you know, extensive remodeling efforts are underway at the Anchorage International Airport. As part of this effort, the ceiling above the main ticket lobby is being replaced following the removal of asbestos fireproofing material above the existing ceiling. Overall construction costs will total $1.8 million; $850,000 of that amount is being spent solely for asbestos removal.

An Inventory and Condition Survey of other State facilities will be necessary in order to identify the extent of any additional asbestos problems, and establish priorities for its removal prior to the Department of Transportation and Public Facilities being able to specifically address either the timeframe or the cost involved. We have estimated, however, that the survey, along with necessary laboratory testing, could cost in excess of $5 million, and could take numerous years to complete. Currently we do not have funding to cover this, so I am initiating an in-house survey to try to determine the scope of the problem.

ALASKA RAILROAD

In 1982, it became apparent that the Alaska Railroad had an extensive amount of asbestos located around the railroad work areas. Asbestos had been traditionally used for pipe and boiler insulation, wall coverings, and ceiling and electrical insulation. It also became apparent that the substance would need to be removed from the perimeter of the work areas. It was determined that removal would require the most up-to-date methods in order to comply with Alaska Occupational Health and Environmental Control Standards, and ensure the health and safety of all employees during the removal period. Management and employees of the Alaska Railroad were notified of the hazard, and plans to remove the asbestos were prioritized and initiated. Safety classes were held in which 24 railroad engineering and mechanical personnel were trained in the proper techniques for personal protection and asbestos removal. The Alaska Railroad Manager of Safety was assisted in these classes by Environmental Protection Agency officials and an environmental engineer certified in asbestos identification and removal.

When the actual removal process began, a certified asbestos identification expert was retained for independent monitoring during the procedure. To date, the Railroad's diesel repair shop, the largest building in the yard in Anchorage, has been cleaned up. Asbestos removal costs for this building totaled about $115,000; $50,000 went into monitoring the air to ensure that no asbestos particles were present outside of the area during cleanup. Last year, after the Railroad's safety office had drawn up some rough plans for a decontamination area, a unit was built out of a troop transport rail car. It now contains an area where workers can change from the special suits worn in asbestos areas, and shower following their shift. This entire operation was inspected by at least two experts in asbestos removal, announcing that this was a model program, and that all necessary safeguards were in place to ensure employee protection. The total cost of the "decontamination car" was $75,000.

Last year, the Department of Transportation and Public Facilities conducted its own Inventory and Condition Survey of the Alaska Railroad Facilities. Departmental facilities planning staff and a team of consultants, the architectural firm of Selberg Associates, Inc., performed a general inspection of all railroad facilities, and obtained samples from areas where asbestos was suspect. These field inspections revealed a number of health and safety code deficiencies, among them, the use of asbestos. The DOT&PF estimates that future asbestos removal costs from the Alaska Railroad in Anchorage alone will total $500,000. Replacement of removed insulation materials from Fairbanks, Healy, Whittier, Seward and Portage will add to the total.

The Department of Transportation and Public Facilities remains committed to working cooperatively with the Departments of Labor and Environmental Conservation to ensure that future asbestos removal in public facilities, and the Alaska Railroad, is initiated in the safest, most timely, and cost-effective methods possible.

If we may be of further assistance, please contact this office.

Sincerely,

R. J. Knapp
Commissioner

SF/ajh

[redacted]
Business Manager/Secretary Treasurer

Joe J. Thomas
President

ALASKA STATE DISTRICT COUNCIL OF LABORERS

Laborers International Union of North America, AFL-CIO

P. O. Box 899 • 2501 Commercial Drive
Anchorage, Alaska 99510 • 907/276-1640
Telex 26-540

January 28, 1985

HESS Committee--SS HB-5

Co-Chairman--Max Gruenberg
Niilo Koponen

Committee Members--Katie Hurley, Alyce Hanley, David Thompson, Robin Taylor
Fritz Pettyjohn

TESTIMONY--Don Rouleau
Business Agent
Alaska State District Council of Laborers
369 South Franklin Street, Suite 204
Juneau, Alaska 99801
Telephone: 586-3707

During testimony on SS HB-5, Friday, January 25, 1985, HESS Committee Hearing the question was raised of whether the Laborers' Training School would be willing to train non-union workers in the removal of asbestos. It is unfortunate that some perceive this as a union vs non-union issue and fail to see what it really is, an issue of safety of their workers, their families and the safety of the people who frequent the buildings where asbestos removal has or is taking place.

Safety training for the workers is a responsibility, albeit a cost item, of all contractors. Responsibile contractors have a safety program for their work force and to incorporate an asbestos removal course into their existing program should be a priority and necessity if they are concerned about the health and welfare of their workers, families and those who frequent those buildings which involve asbestos abatement or removal.

Through the Alaska Laborers' Construction Industry Training Fund the participating Employers are signatory to a Trust Agreement establishing this fund between the Union and the Alaska Chapter, Associated General Contractors (AGC). It is a cost item for the union members and the participating contractors. When asbestos removal was found to be an extremely hazardous material the asbestos removal training course was implemented within the Training School.

Federal law mandates that the funds be directed only to the participating members.

It is my understanding that Les Lauinger of the Alaska Laborers' Training School will submit testimony regarding the availibility of the guidelines, used in the Laborers' Asbestos Removal course, to all interested parties who wish to set up their own training program.

BILL SHEFFIELD, GOVERNOR

DEPARTMENT OF LAW

OFFICE OF THE ATTORNEY GENERAL

POUCH K – STATE CAPITOL
JUNEAU, ALASKA 99811
PHONE: (907) 465-3600

January 25, 1985

Honorable Max F. Gruenberg, Jr.
Co-Chair
House Committee on Health, Education
and Social Services
Alaska State Legislature
Pouch V
Juneau, AK 99811

Dear Representative Gruenberg:

I am responding to your letter of January 23, 1985, inquiring whether inclusion of the proposed provisions of section 1 of SSHB 5 is necessary, in light of certain advice provided by this office to the Commissioner of Education last summer. A copy of that Memorandum of Advice is attached for your information.

While probably not necessary to deal with the most egregious asbestos situations, I suspect there still could be a variety of situations arising which, although not qualifying as a "emergency" under the general provisions of AS 14.03.030(2), would nonetheless fall within the scope of the proposed language in section 1 of SSHB 5. Consequently, I believe it would be advisable to include that language in the bill, both to assure that these lower-level asbestos problems are encompassed within the "emergency closure" provisions and to clarify the Commissioner of Education's authority in this regard.

Sincerely,

NORMAN C. GORSUCH
ATTORNEY GENERAL

By:
Ronald W. Lorensen
Deputy Attorney General

RWL:vrb

cc: Honorable Harold Raynolds
Commissioner
Department of Education

MEMORANDUM State of Alaska

TO: The Honorable Harold Reynolds
Commissioner
Department of Education

DATE: August 29, 1984

FILE NO: 366-017-85

TELEPHONE NO: 465-3600

FROM: Norman C. Gorsuch
Attorney General

By: Ronald W. Lorensen
Deputy Attorney General
Department of Law

SUBJECT: Emergency school closures under AS 14.03.030(2)

This confirms our conversation on Thursday, August 23, 1984.

Upon further review and analysis, I believe some clarification of my May 28, 1984, */ letter to Senator Joe Josephson regarding the scope of the "emergency school closure" provision of AS 14.03.030(2) is in order. In that letter I indicated in fairly absolute terms that planned activities such as an asbestos abatement program could never qualify as adequate grounds for an "emergency school closure."

The May 28 letter does not adequately acknowledge the discretion which AS 14.03.030(2) vests in you, as Commissioner of Education, to determine what constitutes an "emergency" justifying deviation from the normal 180-day school term. Under the law, "emergency closure days" may only be substituted for days in session with your approval. Since the legislature did not define "emergency" under AS 14.03.030(2), it is left to you to apply the appropriate standard and conditions for granting an "emergency school closure" based on the general policy and purposes underlying the school laws. See, e.g., Kenai Peninsula Fishermen's Co-op Association v. State, 628 P.2d 897, 907 (Alaska 1981).

As I indicated in my May 28 letter, pre-planned construction or maintenance activities would not normally be considered to constitute a situation covered by AS 14.03.030(2). However, that general conclusion should not be taken as implying that you may never approve a closure for a pre-planned activity when, in the exercise of your discretion in reviewing a specific case, you conclude that an emergency situation exists.

RWL:vrb

cc: Honorable Joe Josephson
Alaska State Senator

*/ Redated for printing July 1, 1984: 1984 Inf. Op. Att'y Gen. (July 1; 366-017-85).

SSHB 5 QUESTIONS

1. Since the scope of asbestos abatement certification includes school district personnel, how much will it cost the Department of Education to train their personnel in the fifty five school districts?

2. Where will this training take place? At the respective school? Or at a central Location? What are the travel costs?

3. What are the training guidelines?

4. Will the training take one day? seven days? thirty days?

5. Who will teach the instructor/trainers?
How many are needed for the state?
How long will this course be?
How many times a year will this course be conducted?

6. What will be the review period time frame for Department of Labor to certify an:
owner program?
employee program?
employee organization program?

7. What is the cost of training an employee?
What is the cost of training an owner?
What is the cost of training an instructor/trainer?

8. If asbestos abatement work cannot commence unless an individual is certified, what happens in an emergency (i.e., boiler malfunction in a school's mechanical room on a cold day) and there is not a certified maintenance person?

9. What are the guideline requirements?

10. Who will certify the transporters of asbestos debris?

11. Who will certify the landfill operator?

12. Do all of the states landfills have an asbestos disposal policy?

13. Do all landfills accept asbestos?

14. What storage certification guidelines are proposed?
New products?
Old products?
What level is considered certifiable?

15. Department of Labor, in its Position Paper, suggests that the Enviromental Protection Agency surveys were not conducted by a qualified person. Will they re-survey all of the previous Enviromental Protection Avency surveys? What will be the cost?

16. There is a considerable amount of duplication of the current Enviromental Protection Agency School Asbestos Removal Requirements and the SSHB 5's Department of Labor requirements? What is the purpose of this duplication? What is Enviromental Protection Agency's position on the duplicity?

1. The bill requires the training and certification of employees. It also requires the employers have a certified training program for their employees but, who is going to train the employers on how to train their employees?

2. Who is going to teach these courses for the employees and employers?

3. Who in the State is certified to train employees and employers?

4. Who is responsible for identifying abestos in schools?
   A. BIA Schools -
   B. Local Schools
   C. Private Schools

5. The bill mentions city and borough schools and regional educational attendance area schools; Does this mean that there is no abestos at the Community Colleges, University of Alaska, Career Centers Vocational Educational facilities, private schools and Universities?

6. Who is responsible for identifying abestos in state, local and private buildings?

7. If the owner (state or local government) of a building is unable to identify that abestos exist or does not know it is there; upon the start up of the job the contractor discovers abestos, will the job have to be stopped while the employer and employees are trained and certified?

8. Who is responsible to assure that abestos is properly disposed of?

9. Are all of the land fill sites familar with disposal regulations? Are all land fills accepting abestos?

10. What is the purpose of the Certification program?

11. What are the certification requirements? If response is we do not have any at this time: Follow-up:
   How long will it take the Department of Labor to develop the certification program and regulations?
   Who will develop the program and regulations and what is their experience in developing such programs and regulations?
   Will the Department have to contract out to a firm to develop the program? And how long will this take?

12. If there is an abatement project going on and this bill passes with an immediate effective date: Will the Department stop the job until it can develop regulations and certification program and employees and employers are trained and certified?

13. Page 3, line 16 requires respirator test: What kind of test is being anticipated? If the use of a machine: What is the cost of the machine and who will pay for it?

14. What kind of training program is going to be required for land fill employees and employers.

15. What kind of training program is going to be required for the transportation industry employers and employees?

16. At what level of abestos exposure will require the traning and certification? Number of fibers in the air? What if the material is entact and not releasing fibers into the air, such as replacing vinyl asbestos floor tile.

17. Alot of times abestos insulation around pipes in boiler rooms at schools is removed by the city maintenance crew, are these people going to have to be trained and certified for a one time project. What about state maintenance crews removing abestos from state buildings.

18. How are the people in the bush communities going to become trained? Travel to Anchorage? Travel to Fairbanks?

19. What is the cost for cities, contractors, employee groups to implement the program?

20. Does the Department of Labor have sufficient personnel to monitor for compliance the various abatement projects in urban and bush communities? How much is thier travel budget to go to bush communities?

21. What happens in an emergency situation. The pipes at a school, which are insulated with abestos, freeze; the city maintenance crew or in a small community that has only one or two construction firms, none of which are certified; will the school district have to wait for these people to become certified? - take a training course, establish a training program and become certified by the Department of Labor - How long will this take?

22. How long, from date of submission of a certification program to approval by the Department of Labor?

23.In the fiscal note, FY 86 has two hygienist and one Clerk typist III. One of the hygienist will survey approximately 40 buildings and evaluate the certification program, the other hygieniest will survey 30 buildings and assist in evaluating the employer certification program and the typist will provide support for the evaluation of employer and employee training certification program. With the hygienist out surveying the schools; is this really enough personnel to do a proper job? Or will the Clerk typist be the person really approving the various employer and employee training certification programs?

24. In the fiscal note, FY 87 has one hygienist and one clerk typist III. Does the Department anticipate that all of the abestos abatement projects will be completed by that time? Or that just a few will be going on?

25. In the fiscal note, FY 88, FY 89, FY 90 list no funding for this program. Is the Department assuming that all abestos, in all public buildings, will have been taken care of? Or that all contractors have a certified program in place? What about newly discovered abestos, what about a contractor wanting to branch out and get into the business of abestos abatment? There is no funds for those years does this mean that we will have an exclusive club of abestos abatement contractors that were certified during FY 86 and FY 87?

26. During the hearing January 22, 1985 there was no testimony from the Department of Education. What is their position on the certification program?

27. At the present time the Department of Transportation has out for bid the Mt. Edgecumbe School project. A portion of the job is asbestos abatement. This project is an Indian Preference project subject to Section 7(b) of the Indian Self-Determination Act (Public Law 93-639). What effect will the certification program have on this project? There are certain time constraints imposed by the BIA for completion of the project. Will the certification program cause any problems for this project? Is there the potential that the State could loose upto $22 million if this project is delayed?

ASBESTOS TIME-LINE INFO FROM D.E.C.

DRAFT

1. EPA published rules 27 May, 1982 telling school districts (local education agencies) it is their responsibility to inspect, sample and have analyzed for asbestos, their school buildings; requiring that results be posted etc. by 27 May, 1983 (28 June, 1983?) Under TSCA this activity was required <u>once</u>.

2. EPA provided a 2-volume guidance document dated March 1979, to all schools in 1979 and again with the regulations in June 1982 to all school districts and private schools.

   a) These documents are available in the DEC library, and are mailed on request by EPA (100 more copies on order)

3. EPA provided two films/videos on and . These are available in the Juneau and Anchorage State Libraries. The EPA film can be copied (at least 25 copies have been mailed from Juneau and from Anchorage.)

4. EPA Region X has a staff of 3 and 1 asbestos co-ordinator, the Alaska Operations Office is also used as a resource for providing information etc.

   a) Jim Tozier, Department of Education is working with EPA on this
   b) ADEC does provide information - 2 weeks/year/office <u>no</u> technical knowledge via school sanitation or hazardous waste staff
   c) ADEC issued "Asbestos in Alaska" information sheet April 1983

5. EPA regulations do not require report of findings be submitted, only kept on file and posted if asbestos is present. No reinspection/sampling is required.

   a) EPA prepared inventory forms for use by the school and the district, and mailed them in August 1982 along with a reminder of the availablity of the guidance documents -- sent to districts <u>and</u> private schools.

   b) A number of school districts have "voluntarily" notified EPA of the results of their sampling program.

6. In September of 1982, EPA held workshops in Juneau, Anchorage and Fairbanks for school district representatives on the regulations.

7. In early June 1983, via Department of Education, EPA reminded school districts of the impending "deadline" and requested copies of the inspection/testing reports. (see 5b)

8. EPA plans to inspect (sample ?) representative schools in Juneau/Fairbanks/Anchorage (probably) for compliance.

9. Removal/Encapsulation/Elimination is not required nor was it funded via EPA -- US Department of Education did issue rules related to a grant/loan program -- 34 CFR 230 in 1981.

DRAFT

Points to be made

1. a) DEC has limited staffing the 1-2 weeks/year/office is about all we can tolerate in the information available mode.

   b) No staff is, or can afford to be, trained to provide technical advice about -

      sampling
      health risks -- 1/2 year
      control

   c) No staff is available to do -

      training
      sampling -- 1/2 year

      Q/A
      analyse -- 1/2 year

      regulate
      establish guidelines -- 1/2 year

2. a) EPA's program and regulations under TSCA can not be delegated to the state, so the part related to schools would result in a double program.

   b) Perhaps Department of Labor and Department of Transportation/Public Facilities could regulate state/local buildings by reference to EPA's rules.

   c) Seems inappropriate for DEC to get involved in what is really an OSHA "world."

3. a) It is important to determine how the $17.0mm will be spent.

   b) It is necessary to evaluate results of testing, recommended "elimination" technique(s) set up and follow priority-setting standards, approve cost-effective projects, before awarding monies. Thus statutes should set up a regulatory scheme; if DEC writes regulations for C&RA to follow in evaluating project, prioritizing it and awarding funds etc., it puts us in an awkward position.

DRAFT

Recommendations:

a) Let EPA finish (and enforce) their inspection sampling of schools.

b) Have Department of Education require and obtain results required by EPA.

c) Instruct Department of Education to award (a single?) contract to evaluate and recommend appropriate "elimination" projects for each school (district) in which asbestos is found.

d) Establish regulations for applying/awarding grants.

e) Instruct DOT/PF (for state buildings) D of L (for local government buildings) to enforce EPA's regulations (inspect/sample) and prepare recommendations for correction.

f) Have Department of Education contract for programs to use (on Learn Alaska) to

   1. instruct school principals and local governments in their responsibilities
   2. give teachers/students facts about asbestos and health hazards

g) Have one agency responsible for evaluating all projects, awarding grants. Individual contract managers should be:

   1. School district supervisors
   2. DOT/PF
   3. Municipal offical

   i) Department of Labor would be most appropriate since the affected buildings are all "work places"
   ii) DOT/PF might be appropriate since they are experienced in construction projects
   iii) DEC might be appropriate since we already have a system for awarding grants to health-related projects (VSW & water/sewer)

h) Provide personnel to operate the program

   One - technical/health person
   One - construction techniques person
   One - grant auditor
   One - public information/field investigator

i) Make grant money "2-year." The program can not be started up and all these funds responsibly awarded in 12 months.

j) Institute a continuous monitoring program for facilities which do not elect to remove asbestos -- posting warnings on "solid asbestos" so future maintenance/renovation does not create health hazards.

Sent to all school districts and private schools

Note: under TAP, in 1979 all schools were sent copies of ...

Document 1 & 2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 10 1982

THE ADMINISTRATOR

Dear School Administrator:

On May 27, 1982, the Environmental Protection Agency (EPA) published a rule in the Federal Register (47 FR 23360-23389) requiring all public and private elementary and secondary schools in the United States to identify friable asbestos-containing materials, maintain records, and notify employees of the location of the friable materials which contain asbestos. When friable asbestos-containing materials are found, schools must provide the employees with instructions on reducing exposure to asbestos, and notify the school's parent-teacher association.

Since 1979, EPA has operated a Technical Assistance Program (TAP) to help schools identify and correct potential hazards due to asbestos in schools. However, many schools did not respond to EPA's effort under the TAP. EPA is now requiring all schools to identify friable asbestos-containing materials and notify employees and parent-teacher organizations of their presence. These actions must be completed by June 28, 1983.

To assist schools in complying with the rule, we are enclosing a copy of the rule along with copies of "Asbestos-Containing Materials in School Buildings: A Guidance Document, Parts 1 and 2." Should you need a copy of any forms for this rule or other general information, please contact the Industry Assistance Office (TS-799), Office of Toxic Substances, Environmental Protection Agency, Rm. E-511, 401 M Streets, S.W., Washington, D.C. 20460. Phone: Toll free, 800-424-9065. In Washington, D.C., call 544-1404. Outside the Continental U.S., call Operator-202-554-1404. If you need technical assistance, please contact the appropriate Regional Asbestos Coordinator listed in the rule on page 23361.

RECEIVED
AUG 1 - 1982
COMPLIANCE BRANCH
EPA - REGION IX

Sincerely,

Douglas J. Bannerman
Acting Director,
Industry Assistance Office

Date

ROUTING AND TRANSMITTAL SLIP

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. ~~Jane Saunders~~		
2. Andy Christensen		
3.		
4.		
5.		

Action	File	Note and Return
Approval	For Clearance	Per Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

~~Attached~~ are schools in Alaska which were sent the schools Rule package

Also, attached is an address change.

RECEIVED
SEP 13 1982

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)	Room No.—Bldg.
Dave Mayer EPA	
	Phone No

5041-102

OPTIONAL FORM 41 (Rev. 7-76)
Prescribed by GSA
FPMR (41 CFR) 101-11.206

Dave Mayer, EPA, WASH. D.C.
Acting Team leader for Asbestos

SUPERINTENDENT
ADAK REGION SCHOOLS
FPO SEATTLE AK 96791

SUPERINTENDENT
BRISTOL BAY BOROUGH SCH D
NAKNEK AK 99633

SUPERINTENDENT
ALASKA GATEWAY SCH DIST
TOK AK 99760

SUPERINTENDENT
CRAIG CITY SCH DIST
CRAIG AK 99921

SUPERINTENDENT
DELTA GREELY SCH DIST
DELTA JUNCT AK 99737

SUPERINTENDENT
GATEWAY BOROUGH SCH DIST
KETCHIKAN AK 99901

SUPERINTENDENT
ANCHORAGE SCH DIST
ANCHORAGE AK 99502

SUPERINTENDENT
HAINES BOROUGH SCH DIST
HAINES AK 99827

SUPERINTENDENT
HOONAH CITY SCH DIST
HOONAH AK 99829

SUPERINTENDENT
KENAI PENINSULA BOROUGH S
SOLDOTNA AK 99669

SUPERINTENDENT
KING COVE CITY SCH DIST
KING COVE AK 99612

SUPERINTENDENT
LAKE AND PENINSULA SCH DI
NAKNEK AK 99633

SUPERINTENDENT
LOWER KUSKOKWIM SCH DIST
BETHEL AK 99559

SUPERINTENDENT
IDITAROD AREA SCH DIST
MCGRATH AK 99627

SUPERINTENDENT
ANNETTE ISLAND SCH DIST
METLAKATLA AK 99926

SUPERINTENDENT
NORTH STAR BOROUGH SCH DI
FAIRBANKS AK 99701

SUPERINTENDENT
NORTH SLOPE BOROUGH SCH D
BARROW AK 99723

SUPERINTENDENT
PETERSBURG CITY SCH DIST
PETERSBURG AK 99833

SUPERINTENDENT
PRIBILOF ISLAND SCH DIST
ST PAUL AK 99660

SUPERINTENDENT
ALEUTIAN REGION SCH DIST
ANCHORAGE AK 99503

SUPERINTENDENT
BERING STRAIT SCH DIST
NOME AK 99762

SUPERINTENDENT
CORDOVA CITY SCH DIST
CORDOVA AK 99574

SUPERINTENDENT
COPPER RIVER REAA SCH DIS
GLENNALLEN AK 99588

SUPERINTENDENT
DILLINGHAM CITY SCH DIST
DILLINGHAM AK 99576

SUPERINTENDENT
GALENA CITY SCH DIST
GALENA AK 99741

SUPERINTENDENT
JUNEAU BOROUGH SCHOOLS
DOUGLAS AK 99824

SUPERINTENDENT
SITKA BOROUGH SCH DIST
SITKA AK 99835

SUPERINTENDENT
HYDABURG CITY SCH DIST
HYDABURG AK 99922

SUPERINTENDENT
KAKE CITY SCH DIST
KAKE AK 99830

SUPERINTENDENT
KLAWOCK CITY SCH DIST
KLAWOCK AK 99925

SUPERINTENDENT
KODIAK ISLAND BOROUGH S
KODIAK AK 99615

SUPERINTENDENT
LOWER YUKON SCH DIST
MT VILLAGE AK 99632

SUPERINTENDENT
MATANUSKA-SUSITNA BOR S
PALMER AK 99645

SUPERINTENDENT
NENANA CITY SCH DIST
NENANA AK 99760

SUPERINTENDENT
NOME CITY SCH DIST
NOME AK 9976

SUPERINTENDENT
NORTHWEST ARCTIC SCH DIST
KOTZEBUE AK 99752

SUPERINTENDENT
PELICAN CITY SCH DIST
PELICAN AK 9983

SUPERINTENDENT
SAINT MARYS CITY SCH DIST
ST MARYS AK 99658

SUPERINTENDENT
SOUTHWEST REGION SCH DIST
DILLINGHAM AK 99576

SUPERINTENDENT
RAIL BELT SCHOOL DISTRICT
CLEAR AK 99704

SUPERINTENDENT
WRANGELL CITY SCH DIST
WRANGELL AK 99929

SUPERINTENDENT
SAND POINT SCHOOLS
SAND POINT AK 99661

SUPERINTENDENT
UNALASKA CITY SCH DIST
UNALASKA AK 99685

SUPERINTENDENT
YUKON FLATS SCH DIST
FORT YUKON AK 99740

SUPERINTENDENT
YAKUTAT CITY SCH DIST
YAKUTAT AK 99689

SUPERINTENDENT
SKAGWAY CITY SCH DIST
SKAGWAY AK 99840

SUPERINTENDENT
CHATHAM REGION SCHOOLS
ANGOON AK 99820

SUPERINTENDENT
VALDEZ CITY SCH DIST
VALDEZ AK 99686

SUPERINTENDENT
SOUTHEAST ISLAND SC
KETCHIKAN AK
99901

SUPERINTENDENT
KUSPUK SCHOOL DIST
ANIAK AK
99557

SUPERINTENDENT
CHUGACH SCH DIST
WHITTIER AK
99693

Private schools for requests

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Office copy

DATE 2 August, 1982

SUBJECT Identification and Notification requirements for Friable Asbestos-Containing Materials in Schools

FROM A. B. Christensen, Asbestos Technical Advisor, Region X

A. B. Christensen

TO

Each public school district has been mailed a separate package containing copies of "Asbestos-Containing Materials in School Buildings: A Guidance Document", Parts I & II (the orange colored booklets) and the new Regulation dated Thursday May 27, 1982, "Friable Asbestos-Containing Materials in Schools: Identification and Notification" (which requires inspection of all public and private schools for the presence of friable asbestos-containing material).

The responsibility for compiling and maintaining records in each school district (Local Education Agency) is placed on the individual districts. This mailing is designed to assist you to fulfill the requirements. You may find much of the work was already accomplished under the "Voluntary Asbestos Survey Program".

To assure each district and school have in their file the required information, we have made up some "check-off" lists for your use. One blank copy for the district and blank copies for the individual schools in the district are attached. For those districts and schools that are not complicated by the presence of any friable materials it wil be a simple matter to fill in the blanks which apply. Those districts and schools which have friable materials are, obviously, required to complete inspections and analysis and to comply with the additional requirements of the rule as outlined on the "check-off" list and spelled out in the regulation. Please retain a copy of the "check-off" list with your file.

The check lists are made out to try to cover every situation so please bear with the seeming duplication on the second page of each list.

Should you require copies of any of the following reference materials:

(1) Guidance Documents, Parts I & II,
(2) Mathematical formula referred to in Part I, Chapter 7, page 14 (The Algorithm),
(3) Polarized Light Microscopy (PLM) laboratory listing,
(4) Any other pertinent information, please call or write direct to:

Environmental Protection Agency
School Asbestos Program M/S 524
1200 Sixth Avenue
Seattle, WN 98101 / ~~(206) 442-1255~~ 586-7619

3200 Hospital Dr
Suite 101
Juneau, AK 99801

Your assistance to complete the identification of friable asbestos-containing materials in your school district is appreciated.

Recordkeeping required by Chapter 1 of Title 40, Code of Federal Regulations, Part 763 - ASBESTOS Subpart F - Friable Asbestos-Containing Materials in Schools; Identification and Notification

Cover Sheet

LOCAL EDUCATION AGENCY
INSPECTION FOR FRIABLE ASBESTOS-CONTAINING MATERIALS

Cover Sheet

Name and Address of the Agency (School District)

Local Education Agencies shall inspect each school building which they lease, own, or otherwise use as a school building, to locate all friable material. Inspection shall consist of looking for and touching all suspect material, including surfaces behind suspended ceilings or other non-permanent structures which may be entered during normal building maintenance or remairs.

Listing of All Schools Under Agency Authority	Inspected for Friable Materials		Contains Friable Materials	
	Yes	No	Yes	No
1.				
2.				
3.				
4.				
5.				
6.				

(Attach additional listing to include all schools in agency)

Record of Friable Materials in schools which were sampled and analyzed

School	Sampled Yes or No / Analyzed Yes or No	Analysis Results	Total Area Analyzed (Friable Material)
1.			
2.			
3.			
4.			
5.			
6.			

(Attach additional listing to include all schools in Agency which contain Friable Asbestos-Containing Materials)

For each school which contains friable asbestos-containing materials, the total number of school employees who regularly work in that school

Administrative	Faculty	Custodial

Continued Next Page

Warnings and Notifications

(a) Local Education Agencies shall post in the primary administrative and custodial offices and in the faculty common rooms of each school under their authority a completed copy of the Notice to School Employees unless no friable asbestos-containing material is present in the school. The Notice shall remain posted indefinitely in any school which has friable asbestos-containing material.

Date Posted _____ Copies Attached - Yes_____ No_____

(b) Local Education Agencies shall provide to all persons employed in school buildings under their authority which contain friable asbestos-containing materials a written Notice of the location, by room or building area, of all friable asbestos-containing materials in the school

Date Notice Provided _____ Copies Attached - Yes_____ No_____

(c) "A Guide for Reducing Asbestos Exposure", shall be provided to all custodial or maintenance employees.

Date Guide Provided _____

(d) Local Education Agencies shall provide notice of the results of inspections and analysis in each school in which friable asbestos materials are found to the appropriate parent-teacher association of that school. If there is no parent-teacher association for the school, the Local Education Agency shall notify directly the parents of the pupils.

Date Notice Provided to: PTA_____ Parents _____

(e) Each Local Education Agency shall complete and retain in the administrative office of the Local Education Agency the form "Inspections for Friable Asbestos-Containing Materials".

Copy Completed - Yes_____ No_____

CERTIFICATION:

I hereby certify that this Agency has complied with the EPA Regulation 40 CFR, 763.100 through 763.117, "Asbestos-Containing Materials in Schools; Identification and Notification", and that the information on this form is, to the best of my knowledge, true and complete.

Signature	Typed or Printed Name
Typed or Printed Title	Date

Please send copies of this form completed to:

1) State Department of Education, Pouch F, Juneau, AK 99811, ATTEN: Facilities
2) EPA M/S ~~524~~ EPA-900
   1200 ~~6th~~ Ave. 3200 Hospital DR.
   Seattle, WN 98101 Suite 101
   Juneau, AK 99801

Recordkeeping required by Chapter 1 of Title 40, Code of Federal Regulations, Part 763-ASBESTOS Subpart F - Friable Asbestos-Containing Materials in Schools; Identification and Notification

Cover Sheet

INDIVIDUAL SCHOOL INSPECTION FOR FRIABLE ASBESTOS-CONTAINING MATERIALS

Cover Sheet

Name and Address of the School

Local Education Agencies shall inspect each school building which they lease, own, or otherwise use as a school building, to locate all friable material. Inspection shall consist of looking for and touching all suspect material, including surfaces behind suspended ceilings or other non-permanent structures which may be entered during normal building maintenance or repairs.

Listing of All Buildings Used by School	Inspected For Friable Materials	Friable Materials Present/ Not Present
1.		
2.		
3.		
4.		
5.		
6.		

(Attach additional listing to include all buildings - (§763.103 (h))

FOR EACH SCHOOL BUILDING WHICH CONTAINS FRIABLE MATERIALS, THE FOLLOWING INFORMATION MUST BE MAINTAINED IN THAT SCHOOL'S ASBESTOS FILE:

1. A blueprint, diagram, or written description of the building which identifies clearly the location(s) and approximate area(s) in square feet of each sampling area of such material(s), the locations at which samples were taken, and the identification number of each sample, and which shows clearly whether each sampling area of friable material contains asbestos, including an estimate of its percent asbestos content as determined by calculating the average of the percent asbestos content of all samples taken in the area.

2. A copy of all laboratory reports and all correspondence with laboratories concerning the analysis of samples taken.

For each school, copies of the "Guide for Reducing Asbestos Exposure", and one copy of "Asbestos-Containing Materials in School Buildings: A Guidance Document, Parts 1 & 2.

Continued Next Page

Warnings and Notifications

(a) Local Education Agencies shall post in the primary administrative and custodial offices and in the faculty common rooms of each school under their authority a completed copy of the Notice to School Employees unless no friable asbestos-containing material is present in the school. The Notice shall remain posted indefinitely in any school which has friable asbestos-containing material.

Date Posted _____ Copies Attached - Yes _____ No _____

(b) Local Education Agencies shall provide to all persons employed in school buildings under their authority which contain friable asbestos-containing materials a written Notice of the location, by room or building area, of all friable asbestos-containing materials in the school.

Date Notice Provided _____ Copies Attached - Yes _____ No _____

(c) "A Guide for Reducing Asbestos Exposure", shall be provided to all custodial or maintenance employees.

Date "Guide" Provided _____

(d) Local Education Agencies shall provide notice of the results of inspections and analysis in each school in which friable asbestos-containing materials are found to the appropriate parent-teacher association of that school. If there is no parent-teacher association for the school, the Local Education Agency shall notify directly the parents of the pupils.

Date Notice Provided To: PTA _____ Parents _____

CERTIFICATION:

I hereby certify that this school has complied with the EPA Regulation 40 CFR 763.100 through 763.117, "Asbestos-Containing Materials in Schools; Identification and Notification", and that the information on this form is, to the best of my knowledge, true and complete.

Signature	Typed or Printed Name
Typed or Printed Title	Date

[illegible] friable-asbestos results of any Alaska school that complies with the present regulation.

2) List of those schools represented at your presentation in [illegible] and Fairbanks.

Thank you for your time and effort.

September 17, 1982

Sincerely,

Chris Christensen, Asbestos Technical Advisor
EPA/Region X
1200 Sixth Avenue
Seattle, Washington 98101

Dear Chris[illegible]en
A. Smith

The EPA-ADO, Juneau would like to express their appreciation for your presentation on the May 27, 1982 Regulation on Friable Asbestos-Containing Materials in Schools conducted in Juneau (9/13), Anchorage (9/14), and Fairbanks (9/15) for all Alaska school district representatives. I think this explanation, and clarification of the relatively new rule will help to promote Alaska schools to comply with the regulation.

As we discussed, you are planning to distribute a letter explaining the new friable-asbestos regulation to each Alaska school district and private school. Hopefully, this will clarify the regulation for those school representatives who were unable to attend your presentation and encourage each school to comply with the regulation in a timely manner. If we can be of any assistance to you in notifying Alaska schools of their responsibility in identifying friable-asbestos materials in their schools, please contact us.

In order to complete our records concerning this project would you please send us a copy of the following material:

1) The 1982 cover letter that accompanied the new regulation and Guidance Document distributed to all school districts and private schools.

2) The follow-up letter (yellow) and attachments you will be distributing to school districts and private schools.

3) Copy of the friable-asbestos results of all Alaska schools that complied with the volunteer program.

4) Copy of the friable-asbestos results of any Alaska school that complies with the present regulation.

5) List of those schools represented at your presentation in Anchorage and Fairbanks.

Thank you for your time and effort.

Sincerely,

Kathy Pavera
Environmental Scientist

cc: J. Halterman
A. Smith

ATTENDANCE TO CHRISTENSEN'S presentation in Anchorage 9/14/82

Tom Bixcau Risk Manager Anchorage School Dist

Bob Thornton MAINT DEPT. ANCHORAGE School DIST.

BOB ELLISON MAINT + OPERATIONS DIR. KODIAK SCHOOL DIST

DAN R. SHERK PLANT MANAGER NORTH Slope Borough Sch DIST.

LUDWIC C. OSOWICKI DEPUTY SUPERINTENDENT KENAI PENINSULA BORO.

JAMES WM. ELLIOTT DOE (SEA) ANCHORAGE

PATRICK A. DAY DIR. FACILITIES VALDEZ CITY SCHOOLS VALDEZ

JAMES C. HUNCICKER DIR operation & MAINTENANCE MAT SU School DIST.

JAN D. AFFINITO, Ass't CONTRACT ADMINISTRATOR, MATANUSKA-SUSITNA BOROUGH

STEVE ZERKEE AK DEPT. OF ENV. CONS. AK

437 E ST., SUITE 200

ANCH., AK 99501

PLEASE SEND 10 COPIES OF MATERIAL LISTED ON 2 AUG. 82 MEMORANDUM. THANK YOU.

Need copy of model specifications for development of asbestos removal contracts.

ATTN: JAN AFFINITO

MATANUSKA-SUSITNA BOROUGH
P.O. Box B
PALMER, AK
99645

Please send set of specs to Rural PCM Lab
Tom Bibeau Risk Manager
Anchorage School Dist.
Bench 6-614
Anchorage, AK 99503

Attendance to Christensen's presentation in Fairbanks 2/15/82.

List

+ * Donna Higdon — S.D. Warehouse, 1300 Minnie St, FBKS. (P.O Box 1250, FBKS. AK 99707)

+ * Michael D. Pinon — FAIRBANK NSBSD
Dir. Maint + Ops.

+ Nancy R Napolilli
Dept. of Environmental Conservation
Pouch 1601
Fairbanks, AK 99707

+ Bid B. IRWIN
ALASKA GATEWAY SCHOOL DISTRICT
PO BOX 226 TOK ALASKA 99780

+ Ray L. Huntley
Delta/Greely School Dist
PO Box 527 Delta Jct, AK 99737

+ JIM ELLIOTT
DOE 650 W. INTNL AIRPT RD
ANCH 99502

+ HARRY PURDY
Alaska Rural Rural District

* James Howard
Maint Foreman
FBKS No-Star Borough School Dist.
PO Box 1250 - 99201

ADEC NEWS

PRESS RELEASE FROM THE PUBLIC INFORMATION OFFICE
ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
JUNEAU, ALASKA 99811 (907) 465-2606

Bill Sheffield, Governor Richard A. Nevé, Commissioner
Joe Ferguson, Information Officer

FOR IMMEDIATE RELEASE April 20, 1983

ASBESTOS IN ALASKA

by Jana Baumann, Information Officer
Department of Environmental Conservation

JUNEAU--Twenty years ago the word "asbestos" meant progress, indestructibility; a nearly perfect component for building materials to insulate and to fireproof.

Today the mention of asbestos may bring a grim response and thoughts of cancer and lung diseases. What was once thought of as a miracle material is now known to be extremely harmful, especially when it is dispersed into the air and inhaled.

What is asbestos?

Asbestos is a naturally occurring mineral that can be separated into fibers. It is very lightweight and nearly industructible. Before the early 1970s, asbestos was widely used as a component in thermal, electrical, and acoustical insulation, fireproofing, ceiling tiles, and decoration. These applications were most cost effective in large buildings like schools, factories and office buildings.

What are the harmful effects of asbestos?

The danger to human health from asbestos occurs when minute fibers are breathed and become lodged in the lungs. Asbestos containing materials are often friable which means the fibers can be readily separated from the material in which it is

-MORE-

used and become airborne. Fireproofing or insulation which is damaged and crumbling can release invisible asbestos fibers into the air.

Cancers of the chest and lungs and other organs have been positively associated with asbestos exposure. There is no known "safe" exposure. Even brief contact could result in irreversible damage that may not be detected until many years after exposure.

When the health effects of asbestos exposure were documented, many corrective programs were initiated for workers who handle it and for the public who may be unknowingly exposed at their school or workplace. In Alaska, several state and federal agencies regulate asbestos exposure, handling and disposal. Following is a brief summary of agency responsibilities.

Schools and Public Buildings

The U.S. Environmental Protection Agency regulates inspection of schools for identifying asbestos containing materials. The superintendent of each school district in Alaska has been instructed to inspect all school buildings in the district for friable asbestos by June 23, 1983. Each type of friable material located in the school buildings must be tested for asbestos content. Samples must be tested using Polarized Light Microscopy.

School districts are required to keep a record of all the inspections and results from each school building. If asbestos containing material is found in a school, additional information on the location and quantity of this material must be kept on file at the administrative office of the school and at the school district office. The school district must notify employees and the parent-teacher association about the presence of asbestos containing materials.

-MORE-

Instruction is available on how to inspect public buildings and schools which may contain friable asbestos. Booklets and video tapes may be borrowed from the Alaska Operations Office of the U.S. Environmental Protection Agency in Juneau or from the Alaska State Library.

Asbestos emissions to the air inside the work place

The Alaska Department of Labor, Division of Occupational Safety and Health, regulates exposure of workers to airborne asbestos fibers inside the work place. The regulations also govern asbestos exposure during demolition and renovation work.

The regulations set standards for exposure levels of asbestos fibers in the air, and specify work practices such as ventilation and clothing and engineering controls for most workers in the state. Exposure criteria for federal employees and workers on offshore oil rigs or seafood processors are regulated by the U.S. Department of Labor, Occupational Safety and Health.

Questions regarding asbestos exposure or work practices in the work place should be directed to Alaska Department of Labor, Division of Occupation Safety and Health. Sampling of our materials in the work place is also done by this agency.

Asbestos emissions to the outside air

The U.S. EPA has established standards to limit emissions of asbestos to the outside air. These rules govern manufacturing plants which produce cement, fireproofing materials, insulation, and other materials which include asbestos as a component. The rules also govern materials used in roadway surfacing and emissions from asbestos milling operations. These regulations also limit release of asbestos to the air during renovation and demolition activity and fabricating operations that utilize commercial asbestos.

-MORE-

ADD 3-3-3-3

Asbestos Disposal

The U.S. EPA has regulations which regulate handling and disposal of asbestos. Materials containing friable asbestos must be specially contained and wetted. Landfills or disposal sites must meet certain specifications in order to accept the material. Operators of the disposal site must cover it and post warning signs.

Following is a list of agencies which regulate some aspect of asbestos in Alaska, the situations for which they are responsible, and the person to contact.

-MORE-

ADD 4-4-4-4

Responsible Agency	Asbestos Situation
U.S. Environmental Protection Agency Alaska Operatoins Office 3200 Hospital Drive, Suite 101 Juneau, Alaska 99801 Phone: 586-7519 Contact: Kathy Pazera or Steve Torok	Emission to the outside air Disposal of materials containing friable asbestos Rules for landfill or disposal site handling Exposure in public buildings and schools
U.S. Department of Labor Occupational Safety and Health Administration Federal Building and U.S. Courthouse 701 C Street Box 29 Anchorage, Alaska 99513 Phone: 271-5125 Contact: Leonardo Limitiaco	Federal employees Offshore oil rig or floating seafood processor employees
Alaska Department of Labor Division of Occupational Health and Safety 3301 Eagle Street, Suite 303 Pouch 7-022 Anchorage, Alaska 99510 Phone: 264-2597 Contact: Stan Godsoe	Asbestos in the air at the work place Work practices for handling asbestos

PRIVATE LABORATORIES WHO TEST SAMPLES FOR FRIABLE ASBESTOS

NHS Incorporated
Environmental Health Sciences Lab
805 Goethals Avenue
Richland, Washington 99352
Phone: (509) 376-6980

Chemical & Geological Labs of Alaska
5633 B Street
Anchorage, Alaska 99502
Phone: (509) 562-2343

Microlab Northwest
7609 140th Place, N.E.
Redmond, Washington 98502
Phone: (206) 885-9419

# # #

ADD 3-3-3-3

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The U.S. EPA has regulations which regulate handling and disposal of asbestos. Materials containing friable asbestos must be specially contained and wetted. Landfills or disposal sites must meet certain specifications in order to accept the material. Operators of the disposal site must cover it and post warning signs.

Following is a list of agencies which regulate some aspect of asbestos in Alaska, the situations for which they are responsible, and the person to contact.

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ALASKA CHAPTER
ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.

POSITION STATEMENT

ON LEGISLATION ESTABLISHING

AN ASBESTOS HEALTH HAZARD ABATEMENT PROGRAM (HB 5)

January 18, 1985



POSITION PAPER ON HB 5

The Alaska Chapter, Associated General Contractors of America, Inc. (A.G.C.) represents more than 900 companies, including most of the general contracting companies engaged in Alaska's commercial construction.

The A.G.C. agrees with the intention of this bill - the abatement of asbestos health hazards. Many A.G.C. contractors are or have been involved in this very important safety effort. There is, however, a section of the bill that unnecessarily duplicates existing safety regulations and should, therefore, be deleted.

Specifically, we draw your attention to Section 18.28.030, Certification Programs. In this section, the Department of Labor is given authority to certify contractors and employees who intend to conduct asbestos abatement.

What the bill essentially requires is a State license to do asbestos work. But is there a need for such a license? We think not.

There are literally thousands of potentially hazardous substances that are handled safely in todays workplace. Asbestos should not be treated any differently than these substances.

Another serious concern that needs to be addressed is that of liability. Asbestos work is plagued with lawsuits. Through the proposed Department of Labor certification program, the State may become party to these suits by certifying that contractors, employees and labor organi-

tions are competent to undertake this work, the State may have

liability if an employer or employee is certified improperly. We suggest an opinion from the attorney general's office be obtained prior to passage of this bill from committee.

Finally, in examining the fiscal requirements of this proposed licensing program, it appears that millions of dollars would be needed, rather than the proposed $300,000. It is virtually impossible to competently administer the proposals contained in HB 5 for $300,000. We suggest that an inadequately administered program is worse than no program at all. A realistic fiscal note must be developed so that lawmakers may assess the true costs of proposed legislation.

We believe once the true cost of this program is known, the question will arise: What does a certification program provide that is not already enforceable under the existing DOSH safety code regulations? The answer is "nothing." Sufficient asbestos health standards already exist, including requirements for employer training and proper respirator usage. (See attached).

In conclusion, we request this committee to thoroughly determine the fiscal costs of the proposed legislation, including potential State liability and to balance that cost against the benefits received. A.G.C. contends that for the certification program, the dollar cost will be high and there is no benefit because sufficient asbestos health standards presently exist.

We strongly urge deletion of the licensing section of SSHB 5.

04.0102 Asbestos. (a) Definitions, for the purpose of 04.0102.

(1) "Asbestos" includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

(2) "Asbestos fibers" means asbestos fibers longer than five micrometers.

(b) Permissible exposure to airborne concentrations of asbestos fibers.

(1) Standard effective July 7, 1972. The 8-hour time weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed five fibers, longer than five micrometers, per cubic centimeter of air, as determined by the method prescribed in 04.0102(e).

(2) Standard effective July 1, 1976. The 8-hour time weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed two fibers, longer than five micrometers, per cubic centimeter of air, as determined by the method prescribed in 04.0102(e).

(3) Ceiling concentration. No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 10 fibers, longer than five micrometers, per cubic centimeter of air, as determined by the method prescribed in 04.0102(e).

(c) Methods of compliance.

(1) Engineering methods.

(A) Engineering controls. Engineering controls, such as, but not limited to, isolation, enclosure, exhaust ventilation, and dust collection, shall be used to meet the exposure limits prescribed in 04.0102(b).

(B) Local exhaust ventilation

(i) Local exhaust ventilation and dust collection systems shall be designed, constructed, installed, and maintained in accordance with the American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2-1971, which is incorporated by reference herein.

(ii) See 1910.6 of the Federal Occupational Safety and Health Act concerning the availability of ANSI Z9.2-1971, and the maintenance of a historic file in connection therewith. The address of the American National Standards Institute is given in 04.0109.

(C) Particular tools. All hand-operated and power-operated tools which may produce or release asbestos fibers in excess of the exposure limits prescribed in 04.0102(b), such as, but not limited to, saws, scorers, abrasive wheels, and drills, shall be provided with local exhaust ventilation systems in accordance with 04.0102(c)(1)(B).

(2) Work practices.

(A) Wet methods. Insofar as practicable, asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers in excess of the exposure limits prescribed in 04.0102, unless the usefulness of the product would be diminished thereby.

(B) Particular products and operations. No asbestos cement, mortar, coating, grout, plaster, or similar material containing asbestos shall be removed from bags, cartons, or other containers in which they are shipped, without being either wetted, or enclosed, or ventilated so as to prevent effectively the release of airborne asbestos fibers in excess of the limits prescribed in 04.0102.

(C) Spraying, demolition, or removal. Employees engaged in the spraying of asbestos, the removal, or demolition of pipes, structures, or equipment covered or insulated with asbestos, and in the removal or demolition of asbestos insulation or coverings shall be provided with respiratory equipment in accordance with 04.0102(d)(2)(C) and with special clothing in accordance with 04.0102(d)(3).

(d) Personal protective equipment.

(1) Compliance with the exposure limits prescribed by 04.0102(b) may not be achieved by the use of respirators or shift rotation of employees except:

(A) During the time period necessary to install the engineering controls and to institute the work practices required by 04.0102(c);

(B) In work situations in which the methods prescribed in 04.0102(c) are either technically not feasible or feasible to an extent insufficient to reduce the airborne concentrations of asbestos fibers below the limits prescribed by 04.0102(b); or

(C) In emergencies.

(D) Where both respirators and personnel rotation are allowed by 04.0102(d)(1)(A), (B) or (C), and both are practicable, personnel rotation shall be preferred and used.

(2) Where a respirator is permitted by 04.0102(d)(1), it shall be selected from among those approved by the Bureau of Mines, Department of the Interior, or the National Institute for Occupational Safety and Health, Department of Health, Education, and Welfare, under the provisions of 30 CFR Part 11 (37 F.R. 8244, Mar. 25, 1972), and shall be used in accordance with 04.0102(d)(2)(A), (B), (C) and (D).

(A) Air purifying respirators. A reusable or single use air purifying respirator, or a respirator described in 04.0102(d)(2)(B) or (C), shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in 04.0102(b), when the ceiling or the 8-hour time weighted average airborne concentrations of asbestos fibers are reasonably expected to exceed no more than 10 times those limits.

(B) Powered air purifying respirators. A full facepiece powered air purifying respirator, or a powered air purifying respirator, or a respirator described in 04.0102(d)(2)(C), shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in 04.0102(b), when the ceiling or the 8-hour time weighted average concentrations of asbestos fibers are reasonably expected to exceed 10 times, but not 100 times, those limits.

(C) Type "C" supplied-air respirators, continuous flow or pressure- demand class. A type "C" continuous flow or pressure-demand, supplied-air respirator shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in 04.0102(b), when the ceiling or the 8-hour time weighted average airborne concentrations of asbestos fibers are reasonably expected to exceed 100 times those limits.

(D) Establishment of a respirator program.

(i) The employer shall establish a respirator program in accordance with the requirements of the American National Standards Practices for Respiratory Protection, ANSI Z88.2–1969, which is incorporated by reference herein.

(ii) See 1910.6 of the Federal Occupational Safety and Health Act concerning the availability of ANSI Z88.2–1969 and the maintenance of a historic file in connection therewith. The address of the American National Standards Institute is given in 04.0109.

(iii) No employee shall be assigned to tasks requiring the use of respirators if, based upon his most recent examination, the examining physician determines that the employee will be unable to function normally wearing a respirator, or that the safety or health of the employee or other employees will be impaired by his use of a respirator. Such employee shall be reassigned to another job or given the opportunity to transfer to a different position whose duties he is able to perform with the same employer, in the same geographical area and with the same seniority, status, and rate of pay he had just prior to such transfer, if such a different position is available.

(3) Special clothing. The employer shall provide, and require the use of, special clothing, such as coveralls or similar whole body clothing, head coverings, gloves, and foot coverings for any employee exposed to airborne concentrations of asbestos fibers, which exceed the ceiling level prescribed in 04.0102(b).

(4) Change rooms.

(A) At any fixed place of employment exposed to airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in 04.0102(b), the employer shall provide change rooms for employees working regularly at the place.

(B) Clothes lockers. The employer shall provide two separate lockers or containers for each employee, so separated or isolated as to prevent contamination of the employee's street clothes from his work clothes.

(C) Laundering.

(i) Laundering of asbestos contaminated clothing shall be done so as to prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in 04.0102(b).

(ii) Any employer who gives asbestos-contaminated clothing to another person for laundering shall inform such person of the requirement in 04.0102(d)(4)(C)(i) to effectively prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in 04.0102(b).

(iii) Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and labeled in accordance with 04.0102(g).

(e) Method of measurement. All determinations of airborne concentrations of asbestos fibers shall be made by the membrane filter method at 400–450 X (magnification) (4 millimeter objective) with phase contrast illumination.

(f) Monitoring.

(1) Initial determinations. Within six months of the publication of 04.0102 every employer shall cause every place of employment where asbestos fibers are released to be monitored in such a way as to determine whether every employee's exposure to asbestos fibers is below the limits prescribed in 04.0102(b). If the limits are exceeded, the employer shall immediately undertake a compliance program in accordance with 04.0102(c).

(2) Personal monitoring.

(A) Samples shall be collected from within the breathing zone of the employees, on membrane filters of 0.8 micrometer porosity mounted in an open- face filter holder. Samples shall be taken for the determination of the 8-hour time weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(B) Sampling frequency and patterns. After the initial determinations required by 04.0102(f)(1), samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of employees. In no case shall the sampling be done at intervals greater than six months for employees whose exposures to asbestos may reasonably be foreseen to exceed the limits prescribed by 04.0102(b).

(3) Environmental monitoring.

(A) Samples shall be collected from areas of a work environment which are representative of the airborne concentration of asbestos fibers which may reach the breathing zone of employees. Samples shall be collected on a membrane filter of 0.8 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time- weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(B) Sampling frequency and patterns. After the initial determinations required by 04.0102(f)(1), samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of the employees. In no case shall sampling be at intervals greater than six months for employees whose exposures to asbestos may reasonably be foreseen to exceed the exposure limits prescribed in 04.0102(b).

(4) Employee observation of monitoring. Affected employees, or their representatives, shall be given a reasonable opportunity to observe any monitoring required by 04.0102 and shall have access to the records thereof.

(g) Caution signs and labels.

(1) Caution signs.

(A) Posting. Caution signs shall be provided and displayed at each location where airborne concentrations of asbestos fibers may be in excess of the exposure limits prescribed in 04.0102(b). Signs shall be posted at such a distance from such a location so that an employee may read the signs and take necessary protective steps before entering the area marked by the signs. Signs shall be posted at all approaches to areas containing excessive concentrations of airborne asbestos fibers.

(B) Sign specifications. The warning signs required by 04.0102(g)(1)(A) shall conform to the requirements of 20 inches by 14 inches vertical format signs specified in 02.0105 and to 04.0102(g)(1)(B). The signs shall display the following legend in the lower panel, with letter sizes and styles of a visibility at least equal to that specified in 04.0102(g)(1)(B).

Legend	Notation
Asbestos	1 in. Sans Serif, Gothic or Block
Dust hazard	½ in. Sans Serif, Gothic or Block
Avoid breathing dust	¼ in. Gothic
Wear assigned protective equipment	¼ in. Gothic
Do not remain in area unless your work requires it.	¼ in. Gothic
Breathing asbestos dust may be hazardous to your health	14 point Gothic

Spacing between lines shall be at least equal to the height of the upper of any two lines.

(2) Caution labels.

(A) Labeling. Caution labels shall be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers, except that no label is required where asbestos fibers have been modified by a bonding agent, coating, binder, or other material so that during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in 04.0102(b) will be released.

(B) Label specifications. The caution labels required by 04.0102(g)(2)(A) shall be printed in letters of sufficient size and contrast as to be readily visible and legible. The label shall state:

CAUTION

Contains Asbestos Fibers
Avoid Creating Dust
Breathing Asbestos Dust May Cause
Serious Bodily Harm

(h) Housekeeping.

(1) Cleaning. All external surfaces in any place of employment shall be maintained free of accumulations of asbestos fibers if, with their dispersion, there would be an excessive concentration.

(2) Waste disposal. Asbestos waste, scrap, debris, bags, containers, equipment, and asbestos-contaminated clothing, consigned for disposal, which may produce in any reasonably foreseeable use, handling, storage, processing, disposal, or transportation, airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in 04.0102(b), shall be collected and disposed of in sealed impermeable bags, or other closed, impermeable containers.

(i) Recordkeeping.

(1) Exposure records. Every employer shall maintain records of any personal or environmental monitoring required by 04.0102. Records shall be maintained for a period of at least 20 years and shall be made available upon request to the Assistant Secretary of Labor for Occupational Safety and Health, the Director of the National Institute for Occupational Safety and Health, and to authorized representatives of either.

(2) Employee access. Every employee and former employee shall have reasonable access to any record required to be maintained by 04.0102(i)(1) which indicates the employee's own exposure to asbestos fibers.

(3) Employee notification. Any employee found to have been exposed at any time to airborne concentrations of asbestos fibers in excess of the limits prescribed in 04.0102(b) shall be notified in writing of the exposure as soon as practicable but not later than five days of the finding. The employee shall also be timely notified of the corrective action being taken.

(j) Medical examinations.

(1) General. The employer shall provide or make available at his cost, medical examinations relative to exposure to asbestos required by 04.0102(j).

(2) Preplacement. The employer shall provide or make available to each of his employees, within 30 calendar days following his first employment in an occupation exposed to airborne concentrations of asbestos fibers, a comprehensive medical examination, which shall include, as a minimum, a chest roentgenogram (posterior–anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at one second ($FEV_{1.0}$).

(3) Annual examinations. On or before January 31, 1973, and at least annually thereafter, every employer shall provide, or make available, comprehensive medical examinations to each of his employees engaged in occupations exposed to airborne concentrations of asbestos fibers. Such annual examination shall include, as a minimum, a chest roentgenogram (posterior–anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at one second ($FEV_{1.0}$).

(4) Termination of employment. The employer shall provide, or make available, within 30 calendar days before or after the termination of employment of any employee engaged in an occupation exposed to airborne concentrations of asbestos fibers, a comprehensive medical examination which shall include, as a minimum, a chest roentgenogram (posterior–anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at one second ($FEV_{1.0}$).

(5) Recent examinations. No medical examination is required of any employee, if adequate records show that the employee has been examined in accordance with 04.0102(j) within the past one-year period.

(6) Medical records.

(A) Maintenance. Employers of employees examined pursuant to 04.0102(j) shall cause to be maintained complete and accurate records of all such medical examinations. Records shall be retained by employers for at least 20 years.

(B) Access. The contents of the records of the medical examinations required by 04.0102(j) shall be made available, for inspection and copying, to the Assistant Secretary of Labor for Occupational Safety and Health, the Director of NIOSH, to authorized physicians and medical consultants of either of them, and, upon the request of an employee or former employee, to his physician. Any physician who conducts a medical examination required by 04.0102(j) shall furnish to the employer of the examined employee all the information specifically required by 04.0102(j) and any other medical information related to occupational exposure to asbestos fibers.

04.0103 Ventilation. (a) Abrasive blasting.

(1) Definitions applicable to 04.0103.

(A) Abrasive. A solid substance used in an abrasive blasting operation.

(B) Abrasive-blasting respirator. A continuous flow air-line respirator constructed so that it will cover the wearer's head, neck, and shoulders to protect him from rebounding abrasive.

(C) Blast cleaning barrel. A complete enclosure which rotates on an axis, or which has an internal moving treed to tumble the parts, in order to expose various surfaces of the parts of the action of an automatic blast spray.

(D) Blast cleaning room. A complete enclosure in which blasting operations are performed and where the operator works inside of the room to operate the blasting nozzle and direct the flow of the abrasive material.

(E) Blasting cabinet. An enclosure where the operator stands outside and operates the blasting nozzle through an opening or openings in the enclosure.

(F) Clean air. Air of such purity that it will not cause harm or discomfort to an individual if it is inhaled for extended periods of time.

(G) Dust collector. A device or combination of devices for separating dust from the air handled by an exhaust ventilation system.

(H) Exhaust ventilation system. A system for removing contaminated air from a space, comprising two or more of the following elements: (a) enclosure or hood, (b) duct work, (c) dust collecting equipment, (d) exhauster, and (e) discharge stack.

(I) Particulate-filter respirator. An air purifying respirator, commonly referred to as a dust or a fume respirator, which removes most of the dust or fume from the air passing through the device.

(J) Respirable dust. Airborne dust in sizes capable of passing through the upper respiratory system to reach the lower lung passages.

(K) Rotary blast cleaning table. An enclosure where the pieces to be cleaned are positioned on a rotating table and are passed automatically through a series of blast sprays.

(L) Abrasive blasting. The forcible application of an abrasive to a surface by pneumatic pressure, hydraulic pressure, or centrifugal force.

(2) Dust hazards from abrasive blasting.

(A) Abrasives and the surface coatings on the materials blasted are shattered and pulverized during blasting operations and the dust formed will contain particles of respirable size. The composition and toxicity of the dust from these sources shall be considered in making an evaluation of the potential health hazards.

(B) The concentration of respirable dust or fume in the breathing zone of the abrasive-blasting operator or any other worker shall be kept below the levels specified in 04.0101.

SUBCHAPTER 1 - GENERAL SAFETY CODE

ARTICLE 4 - PERSONAL PROTECTIVE EQUIPMENT

01.0401 General requirements. (a) Application. Protective equipment, including personal protective equipment for eyes, face, head, and extremetles, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

(b) Employee-owned equipment. Where employees provide their own protective equipment, the employer shall be responsible to assure its adequacy, including proper maintenance, and sanitation of such equipment.

(1) Other personal safety equipment or clothing, such as rubber gloves, rubber boots, leggings, aprons, hand pads, safety belts, life lines, buoyant vests, shall be furnished to the employees who are exposed to hazards where such device may be expected to prevent injury.

(c) Design. All personal protective equipment shall be of safe design and construction for the work to be performed.

(d) Sterilization. Goggles, rubber gloves, respirators and other protectors shall not be interchanged among employees unless they have been sterilized.

01.0402 Eye and face protection. (a) General.

(1) Protective eye and face equipment shall be required where there is a reasonable probability of injury that can be prevented by such equipment. In such cases, employers shall make conveniently available a type of protector suitable for the work to be performed, and employees shall use such protectors. No unprotected person shall knowingly be subjected to a hazardous enviornmental condition. Suitable eye protectors shall be provided where machines or operations present the hazard of flying objects, glare, liquids, injurious radiation, or a combination of these hazards.

(A) An employer must provide all employees working with acids, protective clothing, as well as any other equipment needed for safety purposes.

(B) Goggles, hard hats, masks, shields, or other prescribed face, eye and head protection shall be worn by employees who are engaged in welding, grinding, torch cutting, snagging or chipping, handling molten metals, caustics, or who are exposed to harmful rays, dust or flying materials of any kind.

(2) Protectors shall meet the following minimum requirements.

(A) They shall provide adequate protection against the particular hazards for which they are designed.

(B) They shall be reasonably comfortable when worn under the designated conditions.

(C) They shall fit snugly and shall not unduly interfere with the movements of the wearer.

(D) They shall be durable.

(E) They shall be capable of being disinfected.

(F) They shall be easily cleanable.

(G) Protectors shall be kept clean and in good repair.

(3) Persons whose vision requires the use of corrective lenses in spectacles, and who are required by this standard to wear eye protection, shall wear goggles of one of the following types:

(A) Spectacles whose protective lenses provide optical correction.

(B) Goggles that can be worn over corrective spectacles without disturbing the adjustment of the spectacles.

(C) Goggles that incorporate corrective lenses mounted behind the protective lenses.

(4) Every protector shall be distinctly marked to facilitate identification only of the manufacturer.

(5) When limitations or precautions are indicated by the manufacturer, they shall be transmitted to the user and care taken to see that such limitations and precautions are strictly observed.

(6) Design, construction, testing, and use of devices for eye and face protection shall be in accordance with American National Standard for Occupational and Educational Eye and Face Protection, Z87.1-1968.

01.0403 Respiratory protection. (a) Permissible practice.

(1) In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective

shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to the following requirements.

(2) Respirators shall be provided by the employer when such equipment is necessary to protect the health of the employees. The employer shall provide the respirators which are applicable and suitable for the purpose intended. The employer shall be responsible for the establishment and maintenance of a respiratory protective program which shall include the requirements outlined in 01.0403(b).

(3) The employee shall use the provided respiratory protection in accordance with instructions and training received.

(b) Requirements for a minimal acceptable program.

(1) Written standard operating procedures governing the selection and use of respirators shall be established.

(2) Respirators shall be selected on the basis of hazards to which the worker is exposed.

(3) The user shall be instructed and trained in the proper use of respirators and their limitations.

(4) Where practicable, the respirators should be assigned to individual workers for their exclusive use.

(5) Respirators shall be regularly cleaned and disinfected. Those issued for the exclusive use of one worker should be cleaned after each day's use, or more often if necessary. Those used by more than one worker shall be thoroughly cleaned and disinfected after each use.

(6) Respirators shall be stored in a convenient clean, and sanitary location.

(7) Respirators used routinely shall be inspected during cleaning. Worn or deteriorated parts shall be replaced. Respirators for emergency use, such as self-contained devices shall be thoroughly inspected at least once a month and after each use.

(8) Appropriate surveillance of work area conditions and degree of employee exposure or stress shall be maintained.

(9) There shall be regular inspection and evaluation to determine the continued effectiveness of the program.

(10) Persons should not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. The local physician shall determine what health and physical conditions are pertinent. The respirator user's medical status should be reviewed periodically (for instance, annually.)

(11) Approved or accepted respirators shall be used when they are available. The respirators furnished shall provide adequate respiratory protection against the particular hazard for which it is designed in accordance with standards established by competent authorities. The U.S. Department of Interior Bureau of Mines, and the U.S. Department of Agriculture are recognized as such authorities. Although respirators listed by the U.S. Department of Agriculture continue to be acceptable for protection against specified pesticides, the U.S. Department of the Interior, Bureau of Mines, is the agency now responsible for testing and approving pesticide respirators.

(c) Selection of respirators. Proper selection of respirators shall be made according to the guidance of American National Standard Practices for Respiratory Protection Z88.1-1969.

(d) Air quality.

(1) Compressed air, compressed oxygen, liquid air, and liquid oxygen used for respiration shall be of high purity. Oxygen shall meet the requirements of the United State Pharmacopoeia for medical or breathing oxygen. Breathing air shall meet at least the requirements of the specification for Grade D breathing air as described in Compressed Gas Association, Commodity Specification G-7.1-1966. Compressed oxygen shall not be used in supplied-air respirators or in open circuit self-contained breathing apparatus that have previously used compressed air. Oxygen must never be used with air line respirators.

(2) Breathing air may be supplied to respirators from cylinders or air compressors.

(A) Cylinders shall be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR Part 178.)

(B) The compressor for supplying air shall be equipped with necessary safety and standby devices. A breathing air-type compressor shall be used. Compressors shall be constructed and situated so as to avoid entry of contaminated air into the system and suitable in-line purifying sorbent beds and filters installed to further assure breathing air quality. A receiver of sufficient capacity to enable the respirator wearer to escape from a contaminated atmosphere in event of compressor failure, and alarms to indicate compressor failure and overheating shall be in-

stalled in the system. If an oil-lubricated compressor is used, it shall have a high-temperature or carbon monoxide alarm, or both. If only a high-temperature alarm is used, the air from the compressor shall be frequently tested for carbon monoxide to insure that it meets the specifications in 01.0403(d)(1).

(3) Air line couplings shall be incompatible with outlets for other gas systems to prevent inadvertent servicing of air line respirators with non-respirable gases or oxygen.

(4) Breathing gas containers shall be marked in accordance with American National Standard Method of Marking Portable Compressed Gas Containers to Identify the Material Contained, Z48.1-1954; Federal Specification BB-A-1034a, June 21, 1968, Air, Compressed for Breathing Purposes; or Interim Federal Specification GG-B-00675b, April 27, 1965, Breathing Apparatus, Self-Contained.

(e) Use of respirators.

(1) Standard procedures shall be developed for respirator use. These should include all information and guidance necessary for their proper selection, use and care. Possible emergency and routine uses of respirators should be anticipated and planned for.

(2) The correct respirator shall be specified for each job. The respirator type is usually specified in the work procedures by a qualified individual supervising the respiratory protective program. The individual issuing them shall be adequately instructed to insure that the correct respirator is issued. Each respirator permanently assigned to an individual should be durably marked to indicate to whom it was assigned. This mark shall not affect the respirator performance in any way. The date of issuance should be recorded.

(3) Written procedures shall be prepared covering safe use of respirators in dangerous atmospheres that might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available respirators.

(A) In areas where the wearer, with failure of the respirator, could be overcome by a toxic or oxygen-deficient atmosphere, at least one additional man shall be present. Communications (visual, voice, or signal line) shall be maintained between both or all individuals present. Planning shall be such that one individual will be unaffected by any likely incident and have the proper rescue equipment to be able to assist the other(s) in case of emergency.

(B) When self-contained breathing apparatus or hose masks with blowers are used in atmospheres immediately dangerous to life or health, standby men must be present with suitable rescue equipment.

(C) Persons using air line respirators in atmospheres immediately hazardous to life or health shall be equipped with safety harnesses and safety lines for lifting or removing persons from hazardous atmospheres or other and equivalent provisions for the rescue of persons from hazardous atmospheres shall be used. A standby man or men with suitable self-contained breathing apparatus shall be at the nearest fresh air base for emergency rescue.

(4) Respiratory protection is no better than the respirator in use, even though it is worn conscientiously. Frequent random inspections shall be conducted by a qualified individual to assure that respirators are properly selected, used, cleaned and maintained.

(5) For safe use of any respirator, it is essential that the user be properly instructed in its selection, use and maintenance. Both supervisors and workers shall be so instructed by competent persons. Training shall provide the men an opportunity to handle the respirator, have it fitted properly, test its facepiece-to-face seal, wear it in normal air for a long familiarity period, and, finally, to wear it in a test atmosphere.

(A) Every respirator wearer shall receive fitting instructions including demonstrations and practice in how the respirator should be worn, how to adjust it, and how to determine if it fits properly. Respirators shall not be worn when conditions prevent a mask to skin face seal. To assure proper protection, the facepiece fit shall be checked by the wearer each time he puts on the respirator. This may be done by following the manufacturer's facepiece fitting instructions. Conditions which could prevent a mask to skin face seal may be a growth of beard, sideburns, a skull cap that projects under the facepiece, or temple pieces on glasses. Also the absence of one or both dentures can affect the fit of a facepiece. The worker's diligence in observing these factors shall be evaluated by periodic check.

(B) Providing respiratory protection for individuals wearing corrective glasses is a serious problem. A proper seal cannot be established if the temple bars of eye glasses extend through the sealing edge of the full facepiece. As a temporary measure, glasses with short temple bars or without temple bars may be taped to the wearer's head. Wearing of contact lenses in contaminated atmosphere with a respirator shall not be allowed. Systems have been developed for mounting corrective lenses inside full facepieces. When a workman must wear corrective lenses as part of the facepiece, the facepiece and lenses shall be fitted by qualified individuals to provide good vision, comfort, and a gas-tight seal.

(C) If corrective spectacles or goggles are required, they shall be worn so as not to affect the fit of the facepiece. Proper selection of equipment will minimize or avoid this problem.

(f) Maintenance and care of respirators.

(1) A program for maintenance and care of respirators shall be adjusted to the type of plant, working conditions, and hazards involved, and shall include the following basic services:

(A) Inspection for defects (including a leak check.)

(B) Cleaning and disinfecting.

(C) Repair, and

(D) Storage

Equipment shall be properly maintained to retain its original effectiveness.

(2) Inspection of respirators.

(A) All respirators shall be inspected routinely before and after each use. A respirator that is not routinely used but is kept ready for emergency use shall be inspected after each use and at least monthly to assure that it is in satisfactory working condition.

(B) Self-contained breathing apparatus shall be inspected monthly. Air and oxygen cylinders shall be fully charged according to the manufacturer's instruction. It shall be determined that the regulator and warning devices function properly.

(C) Respirator inspection shall include a check of the tightness of connections and the condition of the facepiece, headbands, valves, connecting tube, and canisters. Rubber or

elastomer parts shall be inspected for pliability and signs of deterioration. Stretching and manipulating rubber or elastomer parts with a massaging action will keep them pliable and flexible and prevent them from taking a set during storage.

(D) A record shall be kept of inspection dates and findings for respirators maintained for emergency use.

(3) Routinely used respirators shall be collected, cleaned, and disinfected as frequently as necessary to insure that proper protection is provided for the wearer. Each worker should be briefed on the cleaning procedure and be assured that he will always receive a clean and disinfected respirator. Such assurances are of greatest significance when respirators are not individually assigned to workers. Respirators maintained for emergency use shall be cleaned and disinfected after each use.

(4) Replacement or repairs shall be done only by experienced persons with parts designed for the respirator. No attempt shall be made to replace components or to make adjustment or repairs beyond the manufacturer's recommendations. Reducing or admission valves or regulators shall be returned to the manufacturer or to a trained technician for adjustment or repair.

(5) Storage of respirators.

(A) After inspection, cleaning, and necessary repair, respirators shall be stored to protect against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals. Respirators placed at stations and work areas for emergency use should be quickly accessible at all times and should be stored in compartments built for the purpose. The compartments should be clearly marked. Routinely used respirators, such as dust respirators, may

be placed in plastic bags. Respirators should not be stored in such places as lockers or tool boxes unless they are in carrying cases or cartons.

(B) Respirators should be packed or stored so that the facepiece and exhalation valve will rest in a normal position and function will not be impaired by the elastomer setting in an abnormal position.

(C) Instructions for proper storage of emergency respirators, such as gas masks and self-contained breathing apparatus, are found in "use and care" instructions usually mounted inside the carrying case lid.

(g) Identification of gas mask canisters.

(1) The primary means of identifying a gas mask canister shall be by means of properly worded labels. The secondary means of identifying a gas mask canister shall be by a color code.

(2) All who issue or use gas masks falling within the scope of 01.0403 shall see that all gas mask canisters purchased or used by them are properly labeled and colored in accordance with these requirements before they are placed in service and that the labels and colors are properly maintained at all times thereafter until the canisters have completely served their purpose.

(3) On each canister shall appear in bold letters the following:

(A) Canister for _____
or Type N Gas Mask Canister.

SUBCHAPTER 1 - GENERAL SAFETY CODE

Article 1 - General Safety and Health Considerations

01.0101 Purpose and Scope. (a) This subchapter sets forth the occupational safety and health standards adopted by the Commissioner of Labor for the purpose of providing the Alaskan work force with a healthful and safe place to work.

01.0102 Employer Requirements. (a) The employer shall furnish to each of his employees, employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees. This shall be implemented by the employer by complying with these regulations.

(b) The employer shall initate and maintain accident prevention programs for the prevention of occupational illness and disease.

(c) Employers shall display a poster, furnished by the Alaska Department of Labor, in places where notices to employees are generally posted. The poster will outline appropriate provisions of AS 18.60.010 to AS 18.60.105.

01.0103 Employee Requirements. (a) Each employee shall comply with all regulations contained in this chapter which are applicable to his own actions while on the job.

(b) Employees shall conscientiously use all safety devices, procedures, and personal protective equipment required by these regulations.

01.0104 Reporting of Injuries. Occupational injuries shall be reported in accordance with AS 18.60.058.

01.0105 Accident-Prevention Program. (a) Program organization.

(1) Every employer shall start and maintain an accident prevention program. The program shall provide that personnel knowledgeable in the field of occupational safety and health shall make daily inspections of on the job equipment and activities. The employer shall insure that immediate action be taken to eliminate all hazards.

(2) Each employer shall adopt a code of safe practices and procedures which applies to his operation and which embraces the applicable provisions of these regulations. It shall be the obligation of the employer to have the safe practices code posted in a conspicuous location at each job site office.

(3) Each employer shall insure that the supervisory personnel shoulder their share of the responsibility for accidents. It is suggested that a written report be submitted by each supervisor associated with an accident. These reports should suggest a feasible means of avoiding future accidents of a similar nature.

(b) Recommendations.

(1) Each employer should display an interest in safety matters by:

(A) The display of safety posters and warning signs. A sign indicating how many consecutive accident free days have passed is often worthwhile.

(B) Considering the advisability of posting a list of all foremen who have kept their crews accident free for a certain period of time.

(C) Considering the advisability of establishing various forms of safety competition, including suitable rewards or recognition to individuals and crews with good records.

(c) General safety requirements.

(1) Anyone known to be under the influence of intoxicating liquor, narcotics or drugs shall not be allowed on the job while in that condition. Further, horseplay, scuffling, and other acts which tend to have an adverse influence on the safety or well-being of the employees shall be prohibited.

(2) No one shall knowingly be permitted or required to work while his ability and alertness is impaired by fatigue, illness, or other causes that might unnecessarily expose him or others to injury.

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APRIL 20, 1984

AGENDA:

11:30 to 12:00 - Registration
12:00 to 12:30 - Lunch
12:30 PROGRAM

I. Asbestos in the Workplace
   a. Source
   b. Uses
II. Standards
III. Health Hazards
IV. Locations
V. Survey
VI. Identification
VII. Abatement Procedures and Removal Techniques
   a. Types
   b. Design
   c. Procedures
VIII. Monitoring
   a. Why
   b. How
   c. Standards
IX. Personal Protective Equipment
   a. Clothing
   b. Respirators
      1. Types
      2. Demonstration
X. Employee Training
XI. Legal Liability
XII. Insurance
XIII. EPA Demolition and Renovation Regulations
XIV. Waste Disposal Procedures and Permits
XV. Contractor Prequalification Requirements
XVI. Pending Legislation
XVII. Questions and Answers

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ASBESTOS
SAFETY AND HEALTH WORK PRACTICES GUIDE



A Safety Service of the:

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Anchorage, Alaska
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In conjunction with:

OSH
Alaska Department of Labor
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respirator use, allowed under this section, is on a sliding scale according to exposure levels. Respirator use is allowed as follows, provided that they have NIOSH and MSHA approval:

1. Any respirator must be an approved type. Approval currently is a combined MSHA/NIOSH designation, which means that respiratory equipment is jointly approved by the Mine Safety and Health Administration and the National Institute of Occupational Safety and Health. In the future, it is possible that respirators will be approved only by NIOSH. All approved respirators carry an approval number. Respirators are approved only for specific types of hazard and within certain contamination limits. Make sure that respirators you are using are designed and approved for the hazard encountered and the concentration at which it is encountered.

2. Re-usable or single-use air purifying respirators for use in atmospheres with exposure up to 10 times that limit of 2 fibers per cubic centimeter (cc) of air for an 8-hour exposure or 10 times the limit of 10 fibers per cc for a short exposure.

3. Powered air purifying respirators for up to 100 times the limit.

4. Type C supplied air or pressure demand type respirators where the exposure exceeds 100 times the limit.

Disposable clothing is suggested for employees working in asbestos atmospheres(See Appendix C). In addition, monitoring of exposure levels on both an initial and continuing basis must be performed. Caution signs are required in work areas and all debris must be bagged and labeled before disposal in accordance with the provisions of 04.0102. Medical monitoring is another important part of the program. Every employee exposed to asbestos in concentrations greater than 0.1 fiber per cubic centimeter (f/cc) must have a medical examination made available to him within 30 days of his first exposure and annually thereafter. If an employee terminates his employment, or is terminated, a medical exam must be available to him within 30 days of the termination. All medical records must be retained by employer for 20 years.

APPLICATION OF STANDARDS

The OSH code as written is extremely hard to comply with in the construction industry. They were written for static industrial applications. The entire 04.0102 asbestos standard is part of the 01.0101 verticalized standard and must be adhered to. The effects of asbestos do not show until as late as 20 years after the initial exposure. The legal and moral ramifications of not providing proper protection for employees are enormous. Liability suits in the millions of dollars have already been awarded to exposed employees and their associated costs far overshadow OSH penalties. We are then faced with a two-fold problem in construction operations. First and foremost is whether or not employees are adequately protected and secondarily, are we in compliance with OSH standards? Since the existence of asbestos cannot be determined in the field, and many construction operations which come in contact with asbestos are of short duration we have a difficult time gaining 100% compliance with OSH regulations. This policy can only be a guide to initial employee protection and seeks a method of safeguarding the employee and OSH compliance.

This document is intended to aid in short term, small or low exposure routine situations. It is not intended for use on abatement projects where the scope of the project is solely to remove asbestos from a structure. Because of the many other factors involved in abatement work like EPA regulations, protection of the owners future interest, etc., monitoring should always be conducted for abatement projects.

ASBESTOS POLICY AND SAFE WORKING PRATICES

For the purpose of simplification, we are dividing this sub-section into three areas we have been able to identify where the construction process comes into contact with asbestos.

Notify him that because he had taken these actions you will consider his rights waived unless he informs you within 5 days that he will take a physical. This notice should also be certified mail or personal service with certification. If you use our data base concept you will almost always have a provide medical monitoring since it is extremely unlikely that exposures would fall under the 0.1 fiber limit. If you do not use the data base you will have to air monitor to determine whether or not medical surveillance is required.

EMPLOYEE TRAINING

An important part of any asbestos program must be employee hazard awareness. Employees likely to be exposed must be told about what produces asbestos dust, such as cutting. While all of us are aware of the health hazard, many of us fail to realize that it is so abundant in repair, remodeling, and emergency work. We must instruct our employees in safe working practices, covering thoroughly the following topics:

1) The health hazard.

2) The areas of work most likely to have exposure problems.

3) The importance and proper use of respiratory protection.

4) The importance of treating all suspect material as asbestos until proven otherwise.

5) The importance of having all suspect material tested.

6) The importance of having air tests made.

7) A thorough understanding of OSH regulations.

8) A thorough knowledge of techniques for limiting airborne concentrations.

9) A thorough understanding of personal protective equipment.

DATA BASE CONCEPT

One way to handle the problem of air monitoring is to use a data base concept. The OSH standard is loosely worded about actual monitoring requirements and hard to apply to construction operations.

We feel that the monitoring requirements can be technically met if each company does air monitoring for a range of examples of exposures it deals with. This data could then be applied to different projects with similar circumstances and materials. Each company can in effect establish a data base of probable concentrations for each type of exposure and rpotect their employees accordingly.

Many contractor air samples indicate properly handled asbestos will be below two fibers, the current OSH respirator requirement level. In spite of this we feel that respirators are absolutely required for any work with asbestos containing materials. While the current OSH level is 2 fibers per cubic centimeter, we have reason to believe it will soon be lowered. It is only prudent to provide respiratory protection for all exposures including those assumed to be reasonably low. While it is possible to make an informed decision that air monitoring is not required, we do not feel that the same can be said for the use of respirators. It is a keystone of the data base concept that employee protection be supplied and used for the so called low level exposures (those below current OSH respiratory requirement limits).

When an asbestos exposure situation is encountered you have two choices: monito or use the data base concept. If you use data basing, review your file for similar situations. Make an informed decision based on past exposure experience. Be su to allow an adequate safety factor when deciding on a respirator type. If your expected exposure is near the top of the allowable limits for the respirators you have selected, go to the next type up the protective ladder.

04.0102—ASBESTOS

(a) Definitions.

For the purpose of this section.

(1) "Asbestos" includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

(2) "Asbestos fibers" means asbestos fibers longer than 5 micrometers.

(b) Permissible exposure to airborne concentrations of asbestos fibers.

(1) Standard effective July 7, 1972. The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed five fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(2) Standard effective July 1, 1976. The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed two fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(3) Ceiling concentration. No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 10 fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(c) Methods of compliance.

(1) Engineering methods.

(i) Engineering controls. Engineering controls, such as, but not limited to, isolation, enclosure, exhaust ventilation, and dust collection, shall be used to meet the exposure limits prescribed in paragraph (b) of this section.

(ii) Local exhaust ventilation.

(a) Local exhaust ventilation and dust collection systems shall be designed, constructed, installed, and maintained in accordance with the American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2–1971, which is incorporated by reference herein.

(b) See § 1910.8 concerning the availability of ANSI Z9.2–1971, and the maintenance of a historic file in connection therewith. The address of the American National Standards Institute is given in § 1910.100.

(iii) Particular tools. All hand-operated and power-operated tools which may produce or release asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section, such as, but not limited to, saws, scorers, abrasive wheels, and drills, shall be provided with local exhaust ventilation systems in accordance with subdivision (ii) of this subparagraph.

(2) Work practices.

(i) Wet methods. Insofar as practicable, asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers in excess of the exposure limits prescribed in paragraph (b) of this section, unless the usefulness of the product would be diminished thereby.

(ii) Particular products and operations. No asbestos cement, mortar, coating, grout, plaster, or similar material containing asbestos shall be removed from bags, cartons, or other containers in which they are shipped, without being either wetted, or enclosed, or ventilated so as to prevent effectively the release of airborne asbestos fibers in excess of the limits prescribed in paragraph (b) of this section.

(iii) Spraying, demolition, or removal. Employees engaged in the spraying of asbestos, the removal, or demolition of pipes, structures, or equipment covered or insulated with asbestos, and in the removal or demolition of asbestos insulation or coverings shall be provided with respiratory equipment in accordance with paragraph (d)(2)(iii) of this section and with special clothing in accordance with paragraph (d)(3) of this section.

(d) Personal protective equipment.

(1) Compliance with the exposure limits prescribed by paragraph (b) of this section may not be achieved by the use of respirators or shift rotation of employees, except:

(i) During the time period necessary to install the engineering controls and to institute the work practices required by paragraph (c) of this section;

(x) Laundering:

(a) Laundering of asbestos contaminated clothing shall be done so as to prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section.

(b) Any employer who gives asbestos-contaminated clothing to another person for laundering shall inform such person of the requirement in (a) of this subdivision to effectively prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section.

(c) Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and labeled in accordance with paragraph (g) of this section.

(e) Method of measurement.

All determinations of airborne concentrations of asbestos fibers shall be made by the membrane filter method at 400–450 × (magnification) (4 millimeter objective) with phase contrast illumination.

(f) Monitoring.

(1) Initial determinations. Within 6 months of the publication of this section, every employer shall cause every place of employment where asbestos fibers are released to be monitored in such a way as to determine whether every employee's exposure to asbestos fibers is below the limits prescribed in paragraph (b) of this section. If the limits are exceeded, the employer shall immediately undertake a compliance program in accordance with paragraph (c) of this section.

(2) Personal monitoring.

(i) Samples shall be collected from within the breathing zone of the employees, on membrane filters of 0.8 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(ii) Sampling frequency and patterns. After the initial determinations required by subparagraph (1) of this paragraph, samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of employees. In no case shall the sampling be done at intervals greater than 6 months for employees whose exposure to asbestos may reasonably be foreseen to exceed the limits prescribed by paragraph (b) of this section.

(3) Environmental monitoring.

(i) Samples shall be collected from areas of a work environment which are representative of the airborne concentrations of asbestos fibers which may reach the breathing zone of employees. Samples shall be collected on a membrane filter of 0.8 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(ii) Sampling frequency and patterns. After the initial determinations required by subparagraph (1) of this paragraph, samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of the employees. In no case shall sampling be at intervals greater than 6 months for employees whose exposures to asbestos may reasonably be foreseen to exceed the exposure limits prescribed in paragraph (b) of this section.

(4) Employee observation of monitoring. Affected employees, or their representatives, shall be given a reasonable opportunity to observe any monitoring required by this paragraph and shall have access to the records thereof.

(g) Caution signs and labels.

(1) Caution signs.

(i) Posting. Caution signs shall be provided and displayed at each location where airborne concentrations of asbestos fibers may be in excess of the exposure limits prescribed in paragraph (b) of this section. Signs shall be posted at such a distance from such a location so that an employee may read the signs and take necessary protective steps before entering the area marked by the signs. Signs shall be posted at all approaches to areas containing excessive concentrations of airborne asbestos fibers.

(ii) Sign specifications. The warning signs required by subdivision (i) of this subparagraph shall conform to the requirements of 20" x 14" vertical format signs

(d) Annual examinations. On or before January , 1973, and at least annually thereafter, ery employer shall provide, or make avail-)le, comprehensive medical examinations each of his employees engaged in occupa-)ns exposed to airborne concentrations of beatos fibers. Such annual examination ıall include, as a minimum, a chest roent-)nogram (posterior-anterior 14 x 17 ches), a history to elicit symptomatology respiratory disease, and pulmonary func-)n tests to include forced vital capacity VC) and forced expiratory volume at 1 sec-)d ($FEV_{1.0}$).

(e) Termination of employment. The employer ıall provide, or make available, within 30 ılendar days before or after the termina-on of employment of any employee ıgaged in an occupation exposed to air-)rne concentrations of asbestos fibers, a mprehensive medical examination which ıall include, as a minimum, a chest roent-)nogram (posterior-anterior 14 x 17 ches), a history to elicit symptomatology respiratory disease, and pulmonary func-)n tests to include forced vital capacity VC) and forced expiratory volume at 1 sec-)d ($FEV_{1.0}$).

(f) Recent examinations. No medical examina-on is required of any employee, if adequate ecords show that the employee has been xamined in accordance with this para-raph within the past 1-year period.

(g) Medical records.

(i) Maintenance. Employers of employees examined pursuant to this paragraph shall cause to be maintained complete and accurate records of all such medical examinations. Records shall be retained by employers for at least 20 years.

(ii) Access. The contents of the records of the medical examinations required by this paragraph shall be made available, for inspection and copying, to the Assistant Secretary of Labor for Occupational Safety and Health, the Director of NIOSH, to authorized physicians and medical consultants of either of them, and, upon the request of an employee or former employee, to his physician. Any physician who conducts a medical examination required by this paragraph shall furnish to the employer of the examined employee all the information specifically required by this paragraph, and any other medical information related to occupational exposure to asbestos fibers.

THE NEW OSH STANDARD

On Friday November 4, 1983 OSHA issued an Emergency Temporary Standard (ETS) on asbestos. These emergency requirements will remain in effect for six months under the rules governing the issuance of Emergency Temporary Standards. This means that it will be in effect until May 4, 1984.

During this time period we expect OSHA to go through the formal rule making process in order to cause a permanent change in the existing standard. We would be very much surprised if this formalization process resulted in a final standard with provisions much different than those outlined in the ETS.

The complete text of the Emergency Temporary Standard is printed after this explanation.

The ETS does not effect the data base concept since we are providing employee protection from zero exposures on up. It does, however, reduce the margin of error and place an even greater emphasis on careful work procedures.

It requires additional employee training and lowers the permissable exposure level (PEL) to .5 fibers from the current 2 fibers per cc of air. This is a 75% reduction in the amount of asbestos that an employee can be exposed to without respiratory protection. The .1 fiber action level for medical surveillance remains unchanged.

In addition the approval level for each type of respirator is reduced to a multiple of the new lower PEL.

Single use respirators have a maximum concentration approval of 5 fibers per cc (10 times .5) rather than 20 fibers (10 times 2) for as long as the ETS is in effect. Our data base indicates that about 5% of all construction exposures could exceed the 5 fiber limit on single use respirators.

Full face piece purifying and powered air purifiers are approved up to 50 fibers per cc (100 times .5) rather than up to 200 fibers (100 times 2). Any concentration over 50 fibers requires the use of airline respirators.

CONTRACTORS GUIDE TO RESPIRATOR USE
AND
WRITTEN RESPIRATOR PROGRAMS



A Safety Service of the:

Alaska Chapter Associated General Contractors
3201 Spenard Road
P.O. Box 4-2500(99509)
Anchorage, Alaska
(907)561-5354

With co-operation and
technical assistance from:

OSH
Alaska Department of Labor
3301 Eagle Street
Pouch 7-022,(99510)
Anchorage, Alaska
(907)264-2599

Innovative Safety for an Innovative Industry

I-RESPIRATOR TYPES

A respirator is a device designed to ensure the wearer of a breathable non-contaminated supply of air. There are two basic types of respirators, those that purify the existing atmosphere by filtering contaminants out and those that provide clean air from an outside source. There are several types of respirators within each of the above categories. A basic respirator program starts with a thorough understanding of the respirators available and the uses and limitations of each.

Air-Purifying Respirators remove the contaminants from air before breathing by filtering out contaminants, such as dust, fumes and mists. The simplest form of respirator in this category is commonly known as a single use or disposable respirator. These units are low cost and offer protection for certain types of low level exposures. They are generally used for dusts and fiber removal. As with all types of respirators, each manufacturer's product is approved for only certain types of contaminants and specific exposure levels.

The next most complicated type of air-purifying respirators is also designed for dusts and mists and features removable purifying elements. It is reusable as long as the elements are changed and it is properly maintained and cleaned. It is generally approved for higher concentrations than the single-use respirator. It can be purchased in quarter-mask, half-mask and full-face piece styles. Each style offers, successively, more protection with the full-face piece offering some protection for the eyes as well.

Closely related to the above respirator style are chemical cartridge and cannister respirators for gases and fumes. These respirators feature replaceable filter units and come in quarter, half and full-face styles. The filters remove harmful gases and vapors by way of a chemical reaction that absorbs or renders them harmless. Each filter element is effective only against a specific hazard or class of hazards. Filter cartridges are color coded according to a universal scheme, enabling the user to positively identify the proper cartridge for the hazard present.

The last type of respirator, in the air-purifying class, is known as a powered air purifying unit. This is a high efficiency mechanical unit. Powered air purifies come in half-mask and full-face mask or hood styles. A fan forces contaminated air through a filter and pure air into the face piece. Depending on the approved cartridges used, they can be effective for particles and gases or vapors.

It is important to note that none of the air-purifying respirators can be used in oxygen deficient atmospheres, since they do not supply air. They are also only effective against the particular contaminant and the concentration they are approved for.

The second major category of respirators are termed air supply units. As the name implies, they provide their own source of air from an outside supply. They can be used in high concentrations of most any type of hazardous substance.

The values, we have been discussing, represent a term in Industrial Hygiene known as a TLV or threshold limit value. When we say carbon monoxide is regulated by OSHA at concentrations of 50 PPM, we mean that it has a TLV of that amount. A TLV is the concentration value below which workers, exposed for extended periods of eight hour days, are assumed to suffer no ill effects. Concentrations above the TLV are considered dangerous and require contractor action either in the form of engineering or administrative controls. TLV's are also referred to as PEL's (Permissable Exposure Limits) when talking in terms of OSHA compliance.

Another commonly used term in Industrial Hygiene is TWA or Time Weighted Averages. PEL's are usually expressed in terms of Time-Weighted Averages. A time-Weighted Average is simply an average of the various exposures occuring during a normal work day. Using a TWA and carbon monoxide as an example an exposure of 4 hours at 75 PPM and 4 hours at 25 PPM yields a time-weighted average of 50 PPM or no excessive employee exposures. Occasionally, hazardous substances, which are regulated on the basis of Time-Weighted Averages, have upper exposure limits (UEL) which cannot be exceeded without proper employee protection.

IV TESTING EQUIPMENT AND METHODS

Effective health protection requires that monitoring of concentration levels be done. No effective program can exist without an accurate idea of the contaminant levels present in the work environment. Since respirators are only approved and effective for specific concentrations, the hazard concentration must be established even to make an accurate selection. The types and methods of air monitoring are varied, ranging from simple units for spot checks to sophisticated continuous monitors. Equipment suppliers can help you choose the exact type of monitoring equipment for your needs and the hazards you are encountering. Most of the time, they will train your employees in the use and maintenance of the equipment. It is important to know exactly the kind and extent of service the manufacturer will provide before purchasing any monitoring equipment. It is also possible to have monitoring handled by an outside consultant.

V ENGINEERING vs ADMINISTRATIVE CONTROL

The cornerstone of any Construction Program, involving Industrial Hygiene, Respirator Protection and Hazardous Substance Control, is an understanding of the relationship between Engineering and Administrative Controls. OSHA law requires that Engineering Control be applied first, wherever possible, to hazardous-substance situations. Engineering controls are methods of reducing the amount of contaminants in the work environment by controlling and modifying the source of the contaminant. They include such things as isolation, enclosure, ventilation and dust collection. Perhaps the most feasible administrative control for construction operations is substitution. Wherever possible, non-hazardous and non-toxic substances should be substituted for harmful ones. This truly limits the hazard at the source. The Construction Health Specialist is always alert for ways and places to substitute.

For example, the problem caused by asbestos has been virtually eliminated in new construction, through the use of new materials. The application of engineering controls can also be effectively achieved in many cases by changes in the work processes. The use of engineering controls require imaginative and innovative thought.

These basic elements must be covered in detail in your respiratory protection program. The writing of a program for your company is a major undertaking. Each company encounters different hazards in their day to day operation. Before beginning preparation of a written program:

1. Identify the hazards found in your activities. This can best be done by obtaining data sheets on all materials used. Someone must be responsible for obtaining this basis information.

2. Take every available option to eliminate the use of known hazardous substances.

3. Determine the exposure levels of hazardous substances that are in use. This can only be done through accurate monitoring.

4. Investigate the types of respiratory equipment, specifically designed and approved for the hazard encountered. Before buying any respiratory equipment, find out what services the seller supplies with his equipment. Will he help train and fit? Does he have specific and detailed use instructions?

5. Because construction operations are diverse, complex, and widespread, you must establish an internal notice of use of hazardous substances system. Make someone (job superintendent) responsible for notifying safety personnel of intended usage.

6. Set up a specific training and fitting program for respirator use. No one can tell for certain in construction, when and where in the construction process, hazardous substances will be encountered. Because of the high turnover, periodic general training of employees may not be sufficient. A training program, done immediately before respirator use, appears to be the only effective way to combat infrequent use of regulated hazardous substances.

7. Make one individual responsible for administering your program, keeping your records, and inspecting your equipment. Provide him with all the training possible.

8. Plan for every contingency. Be thoroughly prepared and avoid future trouble.

9. Establish a working relationship with a doctor or clinic familiar with industrial medicine and respirator use.

Having done the required "homework" you can now begin to draft your company's respiratory use program

VIII SAMPLE RESPIRATORY PROGRAM

A.

It is the intended purpose of _____ company to provide a safe and healthful workplace environment for all employees. To further this purpose we have established this respirator use program. The requirements of this program are binding on all employees.

4. Whenever possible, respirators will be assigned to individual workers for their exclusive use. Workers will be responsible for maintenance and sanitation of respirators assigned to them. Periodic and frequent spot checks will be made by supervisory personnel to insure compliance. Respirators, for the exclusive use of an individual, will be cleaned at least once a day at the end of the shift. Respirators, used by more than one worker, shall be cleaned and disinfected after each use. Respirators will be stored in a clean, sanitary place on the jobsite reserved solely for that purpose. No respirators may be removed from any jobsite except on written authorization from the Safety Director. If respirators are individually assigned, they shall bear the name of the person to whom they are assigned.

5. Areas, where respirators are in use, shall be closely monitored to insure compliance and safe conditions. Unauthorized and untrained personnel will be prohibited from entering these areas. Crew sizes for work, requiring respiratory protection, will be kept to the smallest practical size and the makeup, for short-duration operations, will not be changed unless absolutely necessary.

6. This program will be under constant review to determine that it meets its stated goal of providing maximum employee protection. Suggestions for improvement of this program should be submitted to _____ at _____ and are openly encouraged. Questions should also be referred to _____.

7. _____ Company has made arrangements with _____ (Doctor or Clinic) to handle medical requirements for respirator use. Employees will be required to furnish medical information in order to be sure that respirator use will not, in itself, be detrimental to their health.

This policy will be amended, from time to time, to improve it's performance. The proper use of respirators requires the active participation of all employees. The _____ Company is making a commitment to a healthful work environment for the good of us all.

_____

President (etc.)

USING THE MODEL PROGRAM

OSHA regulations were designed for General Industry which is more static in nature. The work process and materials used change very seldom and with longer planning times in general industry. Construction is different altogether. The products we use are specified by owners and architects, and we have no control over them. Each construction project is unique and uses different materials. We do not have the luxury of knowing exactly what chemical hazards we may encounter down the road. This changeable nature makes respiratory protection programs hard to formulate. We cannot begin the selection process until we are able to identify the hazardous components of each project.

MEMORANDUM State of Alaska

TO: Dick Stokes, SERO
Bob Flint, SCRO
Pete McGee, NRO

DATE: October 12, 1983

FILE NO:

TELEPHONE NO:

FROM: Stanley W. Hungerford, Chief
Air and Solid Waste Management
SWH for

SUBJECT: Waste Asbestos Disposal Responsibilities

There seems to be some confusion concerning our role and responsibility in asbestos disposal. Specifically, what laws address asbestos, what permits are required, and who issues them. Dick Williams and Dave Estes have compiled a list of the pertinent laws and policies on asbestos acttivities. Please circulate copies to your staff for their reference.

I. ASBESTOS IS NOT A HAZARDOUS WASTE UNDER RCRA.

RCRA covers ignitable, corrosive, reactive, EP toxic, and listed wastes. It does not recognize long-term health effects as a separate criteria.

II. ASBESTOS IS A HAZARDOUS AIR POLLUTANT UNDER NESHAPS.

Federally, asbestos is an air pollutant addressed by 40 CFR 61. These regulations address air emissions from activities that involve asbestos, and specify operating procedures that should prevent hazardous emissions.

ADEC has not taken on that part of NESHAPS, and any situation encountered should be referred to EPA, Alaska Operations Office, Juneau.

III. NO FEDERAL PERMITS APPLY TO ASBESTOS DISPOSAL AT ALASKAN LANDFILLS.

IV. ASBESTOS IS A HAZARDOUS WASTE UNDER OUR SOLID WASTE REGULATIONS, 18 AAC 60.

18 AAC 60.910.(11)...' "hazardous waste" means a solid waste or combination of solid wastes, which because of its quantity, concentration, or physical, chemical or biological characteristics may cause or significantly contribute to

(a) an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or

(b) a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.'

Diseases caused by breathing asbestos dust, such as lung cancer and asbestosis, definitely increase mortality.

V. ASBESTOS DISPOSAL REQUIRES AN ADEC WASTE DISPOSAL PERMIT.

Asbestos is a solid waste and, therefore, requires a Waste Disposal Permit under AS 46.03.100 and 18 AAC 60.200.(a).

Asbestos is also "hazardous" and requires "specific approval" from the department according to 18 AAC 60.087.(a).

"Specific Approval" should be given via conditions in a new permit or an amendment of an existing permit.

Approvals should be granted for an overall operation, not for each bag, barrel or truckload.

V. ASBESTOS DISPOSAL PROCEDURES.

All the solid waste disposal standards in 18 AAC 60 apply to asbestos disposal. In addition, the following requirments must also be met:

a. Waste asbestos must be thoroughly wetted and placed in a water-tight container before burial. Containers may be barrels, drums, or double -four mil or thicker- plastic bags.
or Single Six mil

b. All containers shall have a warning label attached that states:

CAUTION

CONTAINS ASBESTOS

AVOID OPENING OR BREAKING CONTAINER

BREATHING ASBESTOS IS HAZARDOUS
TO YOUR HEALTH

c. Apply 2 FEET of cover soil to the wastes at the end of each operating day, or if cover is not applied

1. install fencing or provide other approved access controls, and
2. post signs at site entrances and at 100 foot intervals along the site boundary that state in one inch or taller lettering:

ASBESTOS WASTE DISPOSAL SITE

DO NOT CREATE DUST

BREATHING ASBESTOS IS
HAZARDOUS TO YOUR HEALTH

VI. ASBESTOS REMOVAL AND HANDLING PROCEDURES ARE OSHA AND EPA CONCERNS.

ADEC should refer the public to these agencies when appropriate. We are not authorized or trained to interpret and enforce their regulations. Also, we lack the staff and funding needed to take on any more programs.

Conclusion:

Asbestos is a "hazardous solid waste" under Alaskan Law. We regulate its disposal with the Solid Waste Management Regulations, 18 AAC 60, and the Waste Disposal Permit program. All disposal must be approved in writing, i.e., by permit condition. Disposal activities must comply with departmental standards and procedures. Signs and fences are NOT required if the waste is covered on the day of deposition. All removal, handling, and air pollution control activities are EPA concerns and must be referred to them.

Please call Dick or Dave if you have any questions or corrections.

cc : Keith Kelton

RTW:SH:sz

Federal Regulations Affecting Asbestos

U.S. Dept. of Labor
OSHA

- Code of Fed. Regulations (CFR)
  Title 29 Part 1910
- Work practices & worker protection
- Industrial exposure

EPA
Toxic Substances Control Act (TSCA)
Asbestos IN Schools Rule

- CFR Title 40 Part 763
- Identifying friable asbestos containing material
- Employee & parent notification
- Record Keeping

EPA
Clean Air Act (CAA) Section 112
National Emission Standards for Hazardous Air Pollutants (NESHAPS)
(asbestos, beryllium, mercury, vinyl chloride)

- CFR Title 40 Part 61 Subpart A
  Subpart B replaced by Subpart M
  on 4/5/84 Fed Reg. Vol. 49 No. 67
- Standards for mills, roadways manufacturing, demolition/renovation.

Demolition / Renovation of Friable Asbestos Material

CFR Title 40 Part 61 Subpart M Sections 61.140; 61.141, 61.145 - 61.147, 61.152, 61.154 and 61.156

Definitions - CFR 40 Part 61 Section 61.141

Friable asbestos material - any material containing more than 1 percent asbestos by weight that hand pressure can crumble, pulverize or reduce to powder when dry

Renovation - altering in any way one or more facility components. Operations in which load-supporting structural members are wrecked or taken out are excluded

Demolition - wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations.

Visible emissions - emissions containing particulate asbestos material that are visually detectable without the aid of instruments. Excludes condensed uncombined water vapor.

Facility Component - pipe, duct, boiler, tank, reactor, turbine, furnace

Demolition / Renovation of Friable Asbestos

- Applicability Categories Section 61.145

61.145(a) Demolition ≥ 260 lin. feet (pipes) or ≥ 160 sq. ft other fac. comp.

Notification Req. Section 61.146

Written notification to EPA required.
Postmark/Deliver 10 days prior to demolit.

(1) Name/add. of owner/op. of ren./dem. firm
(2) Bldg. description (size, age, prior use)
(3) Amount of asb. in facility

(4) Fac. location for dem./renov.
(5) Start date / Completion date
(6) Descrip. of dem./renov. and methods
(7) Procedures followed in dem./renov. to comply with Subpart M
(8) Name & location of waste disp. site

Emission Control Proced. Section 61.147

(a) Remove asb. before wrecking or dismantling that would break asb. mat. or preclude access. Exception - demolition if asb. on fac. component encased in concrete - wet whenever asb. is exposed while dem.

(b) Removal of facility component w/ asbestos in sections
- Wet the areas to be cut
- Do not drop - lower the units to ground

(c) Removing/stripping asb. from intact

Notification Req. Section 61.146

SEND NOTIFICATIONS TO:

EPA

Alaska Operations Office

3200 Hospital Dr.

Suite 101

Juneau, AK 99801

ATTN: KATHRYN [illegible]

Emission Control Proced. Section 61.147

(d) After removing facility component w/asb.

- Wet during stripping —OR—
- Use local exhaust vent. & collection (NO V.E. or designed & oper. 61.154)

(e) All asbestos removed or wrapped

- Asb. must remain wet until contained for disposal
- Do not drop - lower material to ground
- Dust-tight chutes or containers if > 50 feet above ground · Exception: 61.147 (b)

(f) Temp. at wetting point < 32°F

- Comply w/(d) and (e) - no other wetting requirements

Demolition / Renovation of Friable Asbestos

- Applicability Categories Section 61.145

61.145(b) Demolition < 260 ln. feet (pipes) or < 160 sq. ft. other fac. comp.

Notification Req. Section 61.146

Written notification to EPA required
Postmark/deliver 20 days prior to demol/r

(1) Name/addl. of owner/op. of ren./dem. firm
(2) Bldg. description (size, age, prior use)
(3) Amount of asb. in facility
- Explain techniques of estimation
(4) Fac. location for dem./renov.
(5) Start date / Completion date

Emission Control Proced. Section 61.147

Not required by EPA regulations
But recommend follow 61.147 a-g

Demolition / Renovation of Friable Asbestos

Applicability Categories Section 61.145

61.145(c) Demolition - ORDERED BY State or local gov't., facility structurally unsound and in danger of imminent collapse.
≥ 260 lin.ft. (pipe) or ≥ 160 sq.ft. other fac. comp.

Notification Req. Section 61.146

Written notification to EPA required as early as possible prior to demolit. Recommend at least 10 days

1. Name/add. of owner/op. of ren./dem. firm
2. Bldg. description (size, age, prior use)
3. Amount of asb. in facility
4. Fac. location for dem./renov.
5. Start date / Completion date
6. Descrip. of dem./renov. and methods
7. Procedures followed in dem./renov. to comply with Subpart M
8. Name & location of waste disp. site

Emission Control Proced. Section 61.14

Notification Req. Section 61.146

(f) Name, title and authority of State/local gov. & rep. ordering demolition.

SEND NOTIFICATIONS TO:

EPA

Alaska Operations Office

3200 Hospital Dr.

Suite 101

Juneau, AK 99801

ATTN: KATHRYN PAZEDA

Emission Contm' Proced. Sectn 61.147

(d) After removing facility component w/ asb.
- Wet during stripping -OR-
- Use local exhaust vent. & collection (NO V.E. or designed & oper. 61.154)

(e) All asbestos removed or stripped
- Asb. must remain wet until contained for disposal
- Do not drop - lower material to ground
- Dust-tight chutes or containers if > 50 feet above ground - Exception: 61.147 (b)

(f) Temp. at wetting point < 32°F
- Comply w/ (d) and (e) - no other wetting requirements

Demolition / Renovation of Friable Asbestos

Applicability Categories Section 61.145

61.145(d) Renovation ≥ 260 lin.ft. (pipes) or ≥ 160 sq.ft. other fac. comp

Notification Req. Section 61.146

Written notification to EPA required.
as early as possible prior to renov
Recommend at least 10 days

(1) Name/add. of owner/op. of rem./dem. fac.
(2) Bldg. description (size, age, prior use)
(3) Amount of asb. in facility

(4) Fac. location for dem./renov.
(5) Start date / Completion date
(6) Descrip. of dem./renov. and methods
(7) Procedures followed in dem./renov. to comply with Subpart M
(8) Name & location of waste disp. site

Emission Control Proced. Section 61.147

(a) Remove asb. before wrecking or dismantling that would break friable asb. mat. or preclude access

(b) Removal of facility component w/ asbestos in sections
- Wet the areas to be cut
- Do not drop - lower the units to ground

(c) Removing/stripping asb. from intact facility component

Notification Req. Section 61.145

SEND NOTIFICATIONS TO:

EPA

ALASKA Operations Office

3200 Hospital Dr.

Suite 101

Juneau, AK 99801

Emission Control Proced. Section 61.147

Exception: unavoidable damage to equipment
- Request EPA to make determination
- If damage unavoidable, must use exhaust ventilation & collection sys. (No V.E. or designed & oper. 61.154)

(d) After removing facility component, wash.
- Wet during stripping —OR—
- Use local exhaust vent. & collection (No V.E. or designed & oper. 61.154)

(e) All asbestos removed or stripped
- Asb. must remain wet until contained for disposal
- Do not drop - lower material to ground
- Dust-tight chutes or containers if > 50 feet above ground - Exception: 61.147 (b)

(f) Temp. at wetting point < 32°F
- Comply w/ (d) and (e) - no other wetting requirements

Demolition / Renovation Projects
Standards for Waste Disposal of Friable Asbestos *

61.152

(a) Deposit all asbestos waste (friable & control equip) at waste disposal site operated by 61.158

(b) No visible emissions (collection, process, packaging, transport, deposit)

-OR-

1) Treat asb. waste with water (No V.E. or use Air cleaning 61.154)
- Seal wet asbestos in leak-tight containers (suggest 6 mil bag)
- Label containers (61.152(b)(1)iii OR 29CFR 1910.1001(g)(2)(vii))

-OR-

2) Process asbestos waste into non-friable forms (no V.E. or use Air cleaning 61.154)

-OR-

3) Submit alternative disposal to EPA for approval

* Demolition/Renovation projects < 260 lin.ft. or < 160 sq.ft. of friable asb are excluded from EPA waste disposal requirements but are not excluded from DofL or ADEC regulations.

Demolition / Renovation Projects
Active Waste Disposal
61.156

a) No V.E. from waste disposal site

b) Natural barrier or warning signs & fencing

c) Instead of a) and b) at least once every 24 hours newly deposited asbestos waste covered with a minimum of 6 inches of compacted non-asbestos-containing material.

Substance (Note 1)	ppm	mg/M³ (Note 2)
Coal tar pitch volatiles, [sic] phenanthrene, acridine, chrysene		0.1
Cobalt, metal fume & dust		0.1
Copper fume		1
Dusts and Mists		
Corundum Al_2O_3 (Note 4)		
Cotton dust, raw—See §1910.1043 and (Note 7)		1
Crag herbicide		15
Cresol (all isomers)-Skin	5	22
Crotonaldehyde	2	6
Cumene-Skin	50	245
Cyanide (as CN)-Skin		5
Cyanogen	10	
Cyclohexane	300	1,050
Cyclohexanol	50	200
Cyclohexanone	50	200
Cyclohexene	300	1,015
Cyclopentadiene	75	200
2,4-D		10
DDT-Skin		1
DDVP, see Dichlorvos		
Decaborane-Skin	0.05	0.3
Demeton-Skin		0.1
Diacetone alcohol (4-hydroxy-4-methyl-2-pentanone)	50	240
1,2-Diaminoethane, see Ethylenediamine		
Diazomethane	0.2	0.4
Diborane	0.1	0.1
C 1,2-Dibromoethane (ethylene dibromide)-Skin	25	190
Dibutyl phosphate	1	5
Dibutylphthalate		5
C Dichloroacetylene	0.1	0.4
C o-Dichlorobenzene	50	300
p-Dichlorobenzene	75	450
Dichlorodifluoromethane	1,000	4,930
1,3-Dichloro-5,5-dimethyl hydantoin		0.2
1,1-Dichloroethane	100	400
1,2-Dichloroethane	50	200
1,2-Dichloroethylene	200	790
C Dichloroethyl ether-Skin	15	90
Dichloromethane, see Methylene chloride		
Dichloromonofluoromethane	1,000	4,200
C 1,1-dichloro-1-nitroethane	10	60
1,2-Dichloropropane, see Propylene dichloride		
Dichlorotetrafluoroethane	1,000	70
Dichlorvos (DDVP)-Skin		1
Dieldrin-Skin		0.25
Diethylamine	25	75
Diethylamino ethanol-Skin	10	50
C Diethylene triamine-Skin	10	42
Diethylether, see Ethyl ether		
Difluorodibromomethane	100	850
C Diglycidyl ether (DGE)	0.5	2.8
Dihydroxybenzene, see Hydroquinone		
Diisobutyl ketone	50	290
Diisopropylamine-Skin	5	20
Dimethoxymethane, see Methylal		
Dimethyl acetamide-Skin	10	35
Dimethylamine	10	18
Dimethylaminobenzene, see Xylidene		
Dimethylaniline (N-dimethylaniline)-Skin	5	25
Dimethylbenzene, see Xylene		
Dimethyl 1,2-dibromo-2,2-dichloroethyl phosphate, (Dibrom)		3
Dimethylformamide-Skin	10	30
2,6-Dimethylheptanone, see Diisobutyl ketone		
1,1-Dimethylhydrazine-Skin	0.5	1
Dimethylphthalate		5
Dimethylsulfate-Skin	1	5
Dinitrobenzene (all isomers)-Skin		1
Dinitro-o-cresol-Skin		0.2
Dinitrotoluene-Skin		1.5
Dioxane (Diethylene dioxide-Skin	100	360
Diphenyl	0.2	1
Diphenylamine		10
Diphenylmethane diisocyanate see Methylene bisphenyl isocyanate MDI		
Dipropylene glycol methyl ether-Skin	100	600
Di-sec. octyl phthalate (Di-2-ethylhexylphthalate		5
Emery (Note 4)		
Endosulfan (Thiodan®)-Skin		0.1
Endrin-Skin		0.1
Epichlorhydrin-Skin	5	19
EPN-Skin		0.5
1,2-Epoxypropane, see Propylene oxide		
2,3-Epoxy-1-propanol, see Glycidol		
Ethane (Note 3)		
Ethanethiol, see Ethylmercaptan		
Ethanolamine	3	6
2-Ethoxyethanol-Skin	200	740
2-Ethoxyethylacetate (Cellosolve acetate)-Skin	100	540
Ethyl acetate	400	1,400
Ethyl acrylate-Skin	25	100
Ethyl alcohol (ethanol)	1,000	1,900
Ethylamine	10	18
Ethyl sec-amyl ketone (5-methyl-3-heptanone)	25	130
Ethyl benzene	100	435
Ethyl bromide	200	890
Ethyl butyl ketone (3-Heptanone)	50	230
Ethyl chloride	1,000	2,600
Ethyl ether	400	1,200
Ethyl formate	100	300
Ethyl mercaptan	0.5	1
Ethyl silicate	100	850
Ethylene (Note 3)		
Ethylene chlorohydrin-Skin	5	16
Ethylenediamine	10	25
Ethylene dibromide, see 1,2-Dibromoethane		
Ethylene dichloride, see 1,2-Dichloroethane		
C Ethylene glycol dinitrate and/or Nitroglycerine-Skin (Note 8)	0.2	
Ethylene glycol monomethyl ether acetate, see Methyl cellosolve acetate		
Ethylene imine-Skin	0.5	1
Ethylene oxide	50	90
Ethylidine chloride, see 1,1-Dichloroethane		
N-Ethylmorpholine-Skin	2	9
Ferbam		15
Ferrovanadium dust		1
Fibrous glass (Note 4)		
Fluoride (as F)		2.5
Fluorine	0.1	0.2
Fluorotrichloromethane	1,000	5,600
C Formaldehyde	5	6
Formic acid	5	9
Furfural-Skin	5	20
Furfuryl alcohol	50	200
Gasoline (Note 9)		
Glycerine mist (Note 4)		
Glycidol (2,3-Epoxy-1-propanol)	50	150
Glycol monoethyl ether, see 2-Ethoxyethanol		
Graphite, (Synthetic) (Note 4)		
Guthion, see Azinphosmethyl		
Gypsum (Note 4)		
Hafnium		0.5
Hellium (Note 3)		
Heptachlor-Skin		0.5
Heptane (n-heptane)	500	2,000
Hexachloroethane-Skin	1	10
Hexachlorophthalene-Skin		0.2

nent shall be cleaned and disinfected immediately after each use.

The following requirements from 29 CFR Part 1910 (General Industry) have been identified as applicable to construction (29 CFR 1926.103 *Respiratory protection*), in accordance with their respective scope and definitions.

§ 1910.94 Ventilation.

(a) *Abrasive blasting.*—(1) *Definitions applicable to this paragraph* • • •

(ii) *Abrasive-blasting respirator.* A continuous flow air-line respirator constructed so that it will cover the wearer's head, neck, and shoulders to protect him from rebounding abrasive.

• • • • •

(5) *Personal protective equipment.* (i) Only respiratory protective equipment approved by the Bureau of Mines, U.S. Department of the Interior (see 30 CFR Part 11) shall be used for protection of personnel against dusts produced during abrasive-blasting operations.

(ii) Abrasive-blasting respirators shall be worn by all abrasive-blasting operators; • • •

(8) When using silica sand in manual blasting operations where the nozzle and blast are not physically separated from the operator in an exhaust ventilated enclosure.

• • • • •

(8) *Scope.* This paragraph (a) applies to all operations where an abrasive is forcibly applied to a surface by pneumatic or hydraulic pressure, or by centrifugal force. It does not apply to steam blasting, or steam cleaning, or hydraulic cleaning methods where work is done without the aid of abrasives.

• • • • •

§ 1910.134 Respiratory protection.

(a) *Permissible practice.* (1) In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to the following requirements.

(2) Respirators shall be provided by the employer when such equipment is necessary to protect the health of the employee. The employer shall provide the respirators which are applicable and suitable for the purpose intended. The employer shall be responsible for the establishment and maintenance of a respiratory protective program which shall include the requirements outlined in paragraph (b) of this section.

(3) The employee shall use the provided respiratory protection in accordance with instructions and training received.

(b) *Requirements for a minimal acceptable program.* (1) Written standard operating procedures governing the selection and use of respirators shall be established.

(2) Respirators shall be selected on the basis of hazards to which the worker is exposed.

(3) The user shall be instructed and trained in the proper use of respirators and their limitations.

(4) Where practicable, the respirators should be assigned to individual workers for their exclusive use.

(5) Respirators shall be regularly cleaned and disinfected. Those issued for the exclusive use of one worker should be cleaned after each day's use, or more often if necessary. Those used by more than one worker shall be thoroughly cleaned and disinfected after each use.

(6) Respirators shall be stored in a convenient, clean, and sanitary location.

(7) Respirators used routinely shall be inspected during cleaning. Worn or deteriorated parts shall be replaced. Respirators for emergency use such as self-contained devices shall be thoroughly inspected at least once a month and after each use.

(8) Appropriate surveillance of work area conditions and degree of employee exposure or stress shall be maintained.

(9) There shall be regular inspection and evaluation to determine the continued effectiveness of the program.

(10) Persons should not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. The local physician shall determine what health and physical conditions are pertinent. The respirator user's medical status should be reviewed periodically (for instance, annually).

(11) Approved or accepted respirators shall be used when they are available. The respirator furnished shall provide adequate respiratory protection against the particular hazard for which it is designed in accordance with standards established by competent authorities. The U.S. Department of Interior, Bureau of Mines, and the U.S. Department of Agriculture are recognized as such authorities. Although respirators listed by the U.S. Department of Agriculture continue to be acceptable for protection against specified pesticides, the U.S. Department of the Interior, Bureau of Mines, is the agency now responsible for testing and approving pesticide respirators.

(c) *Selection of respirators.* Proper selection of respirators shall be made according to the guidance of American National Standard Practices for Respiratory Protection Z88.2-1969.

(d) *Air quality.* (1) Compressed air, compressed oxygen, liquid air, and liquid oxygen used for respiration shall be of high purity. Oxygen shall meet the requirements of the United States Pharmacopoeia for medical or breathing oxygen. Breathing air shall meet at least the requirements of the specification for Grade D breathing air as described in Compressed Gas Association Commodity Specification G-7.1-1966. Compressed oxygen shall not be used in supplied-air respirators or in open circuit self-contained breathing apparatus that have previously used compressed air. Oxygen must never be used with air line respirators.

(2) Breathing air may be supplied to respirators from cylinders or air compressors.

(i) Cylinders shall be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR Part 178).

(ii) The compressor for supplying air shall be equipped with necessary safety and standby devices. A breathing air-type compressor shall be used. Compressors shall be constructed and situated so as to avoid entry of contaminated air into the system and suitable in-line air purifying sorbent beds and filters installed to further assure breathing air quality. A receiver of sufficient capacity to enable the respirator wearer to escape from a contaminated atmosphere in event of compressor failure, and alarms to indicate compressor failure and overheating shall be installed in the system. If an oil-lubricated compressor is used, it shall have a

cleaning procedure and be assured that he will always receive a clean and disinfected respirator. Such assurances are of greatest significance when respirators are not individually assigned to workers. Respirators maintained for emergency use shall be cleaned and disinfected after each use.

(4) Replacement or repairs shall be done only by experienced persons with parts designed for the respirator. No attempt shall be made to replace components or to make adjustment or repairs beyond the manufacturer's recommendations. Reducing or admission valves or regulators shall be returned to the manufacturer or to a trained technician for adjustment or repair.

(5) (i) After inspection, cleaning, and necessary repair, respirators shall be stored to protect against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals. Respirators placed at stations and work areas for emergency use should be quickly accessible at all times and should be stored in compartments built for the purpose. The compartments should be clearly marked. Routinely used respirators, such as dust respirators, may be placed in plastic bags. Respirators should not be stored in such places as lockers or tool boxes unless they are in carrying cases or cartons.

(ii) Respirators should be packed or stored so that the facepiece and exhalation valve will rest in a normal position and function will not be impaired by the elastomer setting in an abnormal position.

(iii) Instructions for proper storage of emergency respirators, such as gas masks and self-contained breathing apparatus, are found in "use and care" instructions usually mounted inside the carrying case lid.

(g) *Identification of gas mask canisters.* (1) The primary means of identifying a gas mask canister shall be by means of properly worded labels. The secondary means of identifying a gas mask canister shall be by a color code.

(2) All who issue or use gas masks falling within the scope of this section shall see that all gas mask canisters purchased or used by them are properly labeled and colored in accordance with these requirements before they are placed in service and that the labels and colors are properly maintained at all times thereafter until the canisters have completely served their purpose.

(3) On each canister shall appear in bold letters the following:

(i)—

Canister for _____
(Name for atmospheric contaminant)

or

Type N Gas Mask Canister

(ii) In addition, essentially the following wording shall appear beneath the appropriate phrase on the canister label: "For respiratory protection in atmospheres containing not more than _____ percent by volume of _____."

(4) Canisters having a special high-efficiency filter for protection against radionuclides and other highly toxic particulates shall be labeled with a statement of the type and degree of protection afforded by the filter. The label shall be affixed to the neck end of, or to the gray stripe which is around and near the top of, the canister. The degree of protection shall be marked as the percent of penetration of the canister by a 0.3-micron-diameter dioctyl phthalate (DOP) smoke at a flow rate of 85 liters per minute.

(5) Each canister shall have a label warning that gas masks should be used only in atmospheres containing sufficient oxygen to support life (at least 16 percent by volume), since gas mask canisters are only designed to neutralize or remove contaminants from the air.

(6) Each gas mask canister shall be painted a distinctive color or combination of colors indicated in Table I-1. All colors used shall be such that they are clearly identifiable by the user and clearly distinguishable from one another. The color coating used shall offer a high degree of resistance to chipping, scaling, peeling, blistering, fading, and the effects of the ordinary atmospheres to which they may be exposed under normal conditions of storage and use. Appropriately colored pressure sensitive tape may be used for the stripes.

TABLE I-1

Atmospheric contaminants to be protected against	Colors assigned*
Acid gases	White.
Hydrocyanic acid gas	White with ½-inch green stripe completely around the canister near the bottom.
Chlorine gas	White with ½-inch yellow stripe completely around the canister near the bottom.
Organic vapors	Black.
Ammonia gas	Green.
Acid gases and ammonia gas	Green with ½-inch white stripe completely around the canister near the bottom.
Carbon monoxide	Blue.
Acid gases and organic vapors	Yellow.
Hydrocyanic acid gas and chloropicrin vapor	Yellow with ½-inch blue stripe completely around the canister near the bottom.
Acid gases, organic vapors, and ammonia gases	Brown.
Radioactive materials, excepting tritium and noble gases	Purple (Magenta).
Particulates (dusts, fumes, mists, fogs, or smokes) in combination with any of the above gases or vapors	Canister color for contaminant, as designated above, with ½-inch gray stripe completely around the canister near the top.
All of the above atmospheric contaminants	Red with ½-inch gray stripe completely around the canister near the top.

*Gray shall not be assigned as the main color for a canister designed to remove acids or vapors.

Note: Orange shall be used as a complete body, or stripe color to represent gases not included in this table. The user will need to refer to the canister label to determine the degree of protection the canister will afford.

MATERIAL SAFETY DATA SHEET

SUBSTANCE (Chemical Name)	NO.

PRODUCT NAME, NUMBER, SYNONYM	COMMON OR TRADE NAME

MANUFACTURER'S NAME AND ADDRESS	TELEPHONE NUMBER

HEALTH HAZARDS

HAZARD RATING ( ) DANGER ( ) WARNING ( ) CAUTION

TYPE OF HAZARD

SYMPTOMS OF EXPOSURE

EFFECTS OF EXPOSURE

EMERGENCY FIRST AID

FIRE, EXPLOSION, AND REACTIVITY DATA

EXTINGUISHING AGENTS AND FIRE FIGHTING METHODS

FLASH POINT		FLAMMABLE OR EXPLOSIVE LIMIT	
OPEN CUP °C	CLOSED CUP °C	LOWER %	UPPER %
IGNITION TEMPERATURE °C		AUTO-IGNITION TEMPERATURE	°C

PRODUCTS FORMED BY FIRE OR EXCESSIVE HEAT

CONDITIONS TO AVOID

STABILITY ( ) Stable ( ) Unstable -- Explain Conditions

INCOMPATIBLE MATERIALS AND REACTIONS

PRODUCTS OF DECOMPOSITION

HAZARDOUS POLYMERIZATION ( ) Will not occur ( ) May occur -- Explain Reaction and Products

PROTECTION EQUIPMENT

PERSONAL PROTECTION

VENTILATION

ADDITIONAL PROTECTIVE EQUIPMENT

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1317

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.

ADDRESS (Number, Street, City, State, and ZIP Code)

CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS

CHEMICAL FAMILY	FORMULA

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)		SPECIFIC GRAVITY (H_2O=1)	
VAPOR PRESSURE (mm Hg.)		PERCENT, VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ =1)	
SOLUBILITY IN WATER			

APPEARANCE AND ODOR

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	LEL	UEL

EXTINGUISHING MEDIA

SPECIAL FIRE FIGHTING PROCEDURES

UNUSUAL FIRE AND EXPLOSION HAZARDS

SAMPLE P.O. CLAUSES

It is a direct condition of the term of this order that the vendor shall supply the purchaser with the information required on the Material Data Sheet attached hereto. In addition the vendor shall supply any material related to the safe use of this material and hazards associated with its use including but not limited to installation procadures and personnel protective equipment requirements. All hazardous components shall be identified. Data requested shall be furnished with the material shipment and a copy sent to this office at

_____

_____

_____

No material will be accepted for delivery without the required information.

04.0101(e) TABLE 1-1

1910.1001	Asbestos.
1910.1002	Coal tar pitch volatiles; interpretation of term.
1910.1003	4-Nitrobiphenyl.
1910.1004	alpha-Naphthylamine.
1910.1005	4, 4'-Methylene bis(2-chloroaniline).
1910.1006	Methyl chloromethyl ether
1910.1007	3, 3'-Dichlorobenzine (and its salts)
1910.1008	bis-Chloromethyl ether.
1910.1009	beta-Naphthylamine.
1910.1010	Benzidine.
1910.1011	4-Aminodiphenyl.
1910.1012	Ethyleneimine.
1910.1013	beta-Propiolactone.
1910.1014	2-Acetylaminofluorene.
1910.1015	4-Dimethylaminoazobenzine.
1910.1016	N-Nitrosodimethylamine.
1910.1017	Vinyl Chloride.
1910.1018	Inorganic arsenic.
1910.1028	Benzene.
1910.1029	Coke Oven Emissions
1910.1043	Cotton dust.
1910.1044	1,2 - dibromo - 3 - chloropropane.
1910.1045	Acrylonitrile.
1910.1046	Exposure to cotton dust in cotton gins.

LAWS OF ALASKA

1983

Source: CSSB 79(Res)

Chapter No. 93

AN ACT

Relating to toxic and hazardous substances in the workplace; and providing for an effective date.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

THE ACT FOLLOWS ON PAGE 1, LINE 9

Approved by the Governor: July 25, 1983
Actual Effective Date: Sections 1, 3, and 4 take effect July 26, 1983; and Section 2 takes effect July 1, 1984

Chapter 93

AN ACT

Relating to toxic and hazardous substances in the workplace; and providing for an effective date.

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* Section 1. AS 18.60.030 is amended by adding new paragraphs to read:

(12) annually publish a list of toxic and hazardous substances;

(13) maintain a current set of OSHA form 20's or equivalent information for toxic and hazardous substances, and other information relevant to toxic and hazardous substances;

(14) assist employers, upon request, to identify and obtain information on toxic and hazardous substances and develop employee safety education programs.

* Sec. 2. AS 18.60 is amended by adding new sections to read:

Sec. 18.60.065. IMPORTATION OF TOXIC AND HAZARDOUS SUBSTANCES. Toxic and hazardous substances imported into the state shall be accompanied by a federal Occupational Safety and Health Administration (OSHA) form 20 or equivalent information. This requirement does not apply to a substance for which the in-state purchaser has already received the most current information.

Sec. 18.60.066. EMPLOYEE SAFETY EDUCATION PROGRAMS. (a) An employer shall conduct a safety education program for an employee before the employee performs a new work assignment that may result in the employee being exposed to a toxic or hazardous substance for which the employee has not received safety instruction as provided under (b

of this section.

(b) An employee safety instruction program shall inform the employee of

(A) the location, properties, and known or suspected acute and chronic health effects of the hazardous or toxic substances to which the employee is exposed in the workplace;

(B) the nature of the operations that could result in exposure to hazardous or toxic substances, as well as any necessary handling or hygienic practices or precautions; and

(C) the location, purpose, proper use, and limitations of personal protective equipment used in the workplace.

Sec. 18.60.067. INFORMATION PROVIDED ON EMPLOYEE'S REQUEST. (a) An employer shall make available to an employee on request a copy of the most recent OSHA form 20 or equivalent written information for a toxic or hazardous substance to which the employee may be exposed. If the employer does not have the copy or information requested, the employer shall request a copy from the department or the manufacturer of the substance within three state government working days after receiving the request.

(b) If the copy or information requested under (a) of this section is not made available to the employee within 15 calendar days after the request is received, the employer shall take measures to assure that employees are not exposed to the substance to which the copy or information pertains until the copy or information is made available to the employee who made the request. This subsection applies only to substances for which an OSHA form 20 or equivalent information is required under OSHA regulations. This subsection does not alter, deny, or abrogate any right an employee may have under law to refuse to work under hazardous circumstances.

Sec. 18.60.068. POSTING OF INFORMATION IN WORKPLACE. (a) The department shall print and make available to employers posters that contain notice of the provisions of this chapter relating to toxic and hazardous substances.

(b) An employer whose employees are or may be exposed in the workplace to a toxic or hazardous substance shall display the following information in a manner designed to notify the employees:

(1) a poster printed by the department under (a) of this section; and

(2) an OSHA form 20 or equivalent information for each toxic or hazardous substance to which an employee may be exposed in the workplace

(A) under normal conditions of work; or

(B) during a reasonably foreseeable emergency, including equipment failure and rupture of containers.

(c) Instead of posting the information required under (b)(2) of this section, an employer may post a list of the chemical name and product name of each toxic or hazardous substance to which an employee may be exposed in the workplace, together with an identification of a location, in or near the workplace and accessible to employees, where an employee may inspect the information listed under (b)(2) of this section.

* Sec. 3. AS 18.60.105 is amended by adding new paragraphs to read:

(6) "be exposed" means to ingest, inhale, or absorb through the skin or eyes a substance, or fumes or other potentially harmful aspect of a substance;

(7) "OSHA" means the federal Occupational Safety and Health Administration;

(8) "toxic or hazardous substance" includes

(A) a chemical listed in 29 CFR Part 1910, Subpart Z, Toxic and Hazardous Substances, "General Industry Standards", Occupational Safety and Health Administration;

(B) a chemical listed in "Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment", American Conference of Governmental Industrial Hygienists (Latest Edition);

(C) a substance for which an OSHA form 20 or equivalent information is required under OSHA regulations; and

(D) a substance determined by the department, in accordance with the Administrative Procedure Act (AS 44.62), to be a health hazard to an employee who is exposed to the substance, including a carcinogen, reproductive toxin, irritant, corrosive, sensitizer, hepatotoxin, nephrotoxin, neurotoxin, agent that acts on the hematopoietic system, agent that damages the lungs, a cutaneous hazard and an eye hazard;

(9) "toxic or hazardous substance" does not include

(A) substances that because of their physical state, volume, or concentration do not pose a health hazard upon exposure;

(B) substances that are goods, food, drugs, cosmetics, or tobacco products intended for personal consumption; or

(C) substances in transit;

(10) "transit" means conveyed in a sealed or unopened container by a mode of transportation.

* Sec. 4. AS 18.60.105 is amended by adding a new subsection to read:

(b) In AS 18.60.030(14), 18.60.065 - 18.60.068, and 18.60.105-(a)(9)

(1) "employee" means a person who works for an employer,

but not in a place used primarily as a personal residence;

(2) "employer" means a person, including the state and a political subdivision of the state, who has one or more employees working in a place not used primarily as a personal residence.

(3) "health hazard" means a substance capable of causing acute or chronic adverse effects to health;

(4) "workplace" means a place of employment other than a place used primarily as a personal residence.

* Sec. 5. Sections 1, 3, and 4 of this Act take effect immediately in accordance with AS 01.10.070(c).

* Sec. 6. Section 2 of this Act takes effect July 1, 1984.

84/15 April 13

: CORDOVA AREA STREET SWEEPER CONTRACT, CENTRAL REGION, STATE OF ALASKA
85-25-1-052

The project consists of establishing, on an as needed basis, a no guaranteed minimum usage contract for rental of a street sweeper w/operator to be used in the Cordova area. A Contractors License is required. A Business License is required prior to award.

E: May 3, 1984 at 2:00 PM
State of Alaska
Dept. of Trans. & Pub. Facil.
Central Region, Headquarters
4111 Aviation Ave. (Pouch 6173)
Anchorage, Alaska 99502

PLANS: State of Alaska
Dept. of Trans. & Pub. Facil.
Chief, Technical Services
Pouch 6900 (4111 Aviation Ave.)
Anchorage, Alaska 99502
NO CHARGE

C-25

: BARTLETT HIGH SCHOOL, ASBESTOS ABATEMENT, ANCHORAGE SCHOOL DISTRICT, ANCHORAGE, ALASKA

The work includes extensive removal and disposal of asbestos-containing material, demolition and reconstruction of ceilings, walls, and electrica_ and mechanical systems. Bidders will be prequalified. Because of the highly specialized nature of this construction work, only prequalified bidders will receive Bid Documents and be allowed to submit bids for this project. Prequalification requirements include Alaska contractor's and b_ iness licenses, previous asbestos abatement experience involving spray-applied asbestos acoustical and fireproofing material, excellent contract performance record and references.

TE: May 8, 1984 at :00 PM
Anchorage School District
Purchasing Department
4600 Debarr Avenue
(Pouch 6-614
Anchorage, Alaska 99502

PLANS: Will be distributed by April 6, 1984 to interested bidders who prequalify

A-26

T: FIVE SCHOOLS - DIMOND, EAST, WEST HIGH SCHOOLS, CLARK JR. HIGH SCHOOL, AND MT. SPURR ELEMENTARY SCHOOL, ASBESTOS ABATEMENT, ANCHORAGE SCHOOL DISTRICT, ANCHORAGE, ALASKA

The work includes extensive removal and disposal of asbestos-containing material, demolition and reconstruction of ceilings, walls, and electrical and mechanical systems. Bidders will be prequalified. Because of the highly specialized nature of this construction work, only prequalified bidders will receive Bid Documents and be allowed to submit bids for this project. Prequalification requirements include Alaska contractor's and business licenses, previous asbestos abatement experience involving spray-applied asbestos acoustical and fireproofing material, excellent contract performance record and references.

TE: May 8, 1984 at 2:00 PM
Anchorage School District
Purchasing Department
4600 DeBarr Avenue (Pouch 6-614)
Anchorage, Alaska 99502

PLANS: Will be distributed by April 6, 1984 to interested bidders who prequalify

A-15

Carpenter claims material in Fairbanks center unsafe

FNM 1/26/85

By SUSAN FISHER
Staff Writer

A local carpenter refusing to work the South Fairbanks Community ...ter because of asbestos materials ...s the city is inviting future ...ards, but city and state officials ...agree.

The new center, which was to be ...npleted this month, is about a ...nth behind schedule. It will be used ... a child care center and commun... meetings.

...t issue are thin wall boards con...ing asbestos and silica. The tiny ...ticles from either can be hazar...s if inhaled. Asbestos is a known ...cer-causing substance if exposure ...prolonged.

...ut the Fairbanks city engineer ... two state labor officials say there ... no hazards to workers installing ... boards providing precautions are ...n. Once in place, the materials ... pose no hazards to people using ... building, he said.

...he $1 million center at 24th and ...kert streets is being built with ...e and federal funds. On Feb. 11, ... Fairbanks City Council will hold a ...lic hearing on a bill giving a 20- ...r lease, for one dollar a year, to the ...rdenominational Ministry ...ance, which wants to operate the ...er.

...e Rev. Lennell Cleaver, who ...rs the alliance's building commit... said he personally made inquiries ...r hearing carpenter Ray Halder...'s concerns, and he is satisfied ...e will be no hazards.

"The amount of particles that ...ld escape is an amount that ...ldn't hurt anything," Cleaver ...cludes from his conversations ... various officials.

...t Ray Halderman, a member of ...Carpenters ...nion, says the city is ...ing future ri... in using the ce... asbestos boa... ...s in the center's kitchen and bathroom areas. Halderman says he's been raising his concerns to officials the past two months, and he refuses to work at the site.

"They're seeming to say it's not a problem, but I say it's dumb putting this material in," he says, when there are cheaper and less hazardous materials available.

"The main problem is the danger of it being cut after it's installed," Halderman says.

City Engineer John Phillips disagrees. "We haven't been able to find anybody other than Mr. Halderman" who sees a hazard, Phillips says.

The cement asbestos boards were recommended by architect Roger Cotting, and are specified in the city's contract with Toombs Construction Co.

Phillips has called a number of agencies, including the federal Environmental Protection Agency. The only hazards appear to be during cutting and installation.

"We still have an open mind about this, but no one has recommended that we not use this material," Phillips said Friday.

Meanwhile, two officials with the Alaska Department of Labor's OSHA sections say the contractor's plans for protecting workers go beyond employer requirements. They do not see hazards for building users once construction is finished and the area is thoroughly vacuumed.

Halderman, though, wonders what will happen if someone unwittingly damages, cuts or puts a hole in the boards without knowing of the asbestos fibers and silica particles.

Phillips replies: "The lease agreement for the building contains a clause there will be no additions, alterations, etc. without obtaining the city engineer's written approval in advance."

Mert Meeker, Toombs Construction project manager, says Glasweld, manufactured in Pennsylvania, is specified in the contract.

The boards, about one-eighth-inch thick, come in large sheets. Those are cut to size, and cuts are made for fixtures. Glasweld, contains 51 percent cement, 15 percent asbestos and 34 percent silica, said Meeker.

Among attractive qualities of this product are its resistance to fire, its durability, moisture resistance and easy maintenance. The boards are being installed over sheetrock at the new center.

Meeker expresses concern over the silica, and says the extra precautions, which Toombs will pay out of its own pocket, are as much due to the silica as the asbestos.

Workers will wear disposable coveralls and use respirators to avoid inhaling particles. The work areas will be covered with Visqueen with an air chamber leading to them. Special filters will be placed on the vacuum system, Meeker said.

Toombs Construction and the city engineering office are relying on the free advice of a state OSHA consultant, Pat Patterson, who has been at the job site and made his recommendations.

Bill Blythe, an OSHA industrial hygienist, said installing this type of asbestos product is far less hazardous than, say, removal of older asbestos products, which can flake. It is those older products that are the subject of expensive removals in schools throughout the nation and Alaska.

This board, Blythe said, is "very well bonded."

Once the building is complete, users should not be exposed to hazards. "If people working on it or cutting on it or scraping things off of it, you may generate asbestos fiber, but it's hard to imagine there would be any exposure. The hazard comes from fibers in the air. Just because it's in the building doesn't mean it's in the air," said Blythe.



POSSIBLE DANGER—Mert Meeker, project manager for Toombs Construction project on the South Fairbanks Community Center, points to the caution warning on a sheet of asbestos wallboard. He is in a room specially sealed off with plastic in order to cut the asbestos. *(Staff photo by Charles Mason)*

CARPENTER. . .

(Continued from page 1)

put in asbestos bill fill

. . . FACE TOXIC HAZARDS

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At least one New Jersey school district, however, is not affected by the crisis. In East Windsor, the NJEA support staff affiliate and the local parents group had successfully fought to have asbestos removed the previous year.

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"The school board claimed the asbestos wasn't dangerous," Sweeney adds. But the parents and the Association kept insisting on action. When they finally forced the board to test all asbestos-containing materials in the schools, friable asbestos was found.



Officers of the support and teachers Associations in front of one of the East Windsor, N.J., schools where they won asbestos removal. From left: Marilyn Nemeth, Bill Sweeney, Flo Riccio, and Bob Patten.

Removal began in the summer of 1983. Sweeney, who has been trained in asbestos removal, emphasizes that this process requires extreme caution.

"EPA guidelines must be strictly followed," he says. "Sloppy removal work actually increases the danger—not only for the workers, but for all employees and students in the school."

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STATE OF ALASKA

BILL SHEFFIELD, GOVERNOR

DEPARTMENT OF LABOR

Pouch 7-018
Anchorage, Alaska 99510

OFFICE OF THE COMMISSIONER

Alaska Safety Advisory Council

January 29, 1985

Alaska State Legislature
Joint HESS Committee
Max F. Gruenberg, Jr.
Sponsor, HB-5
Pouch V
Juneau, Alaska 99811

Members of the Committee:

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Chairman
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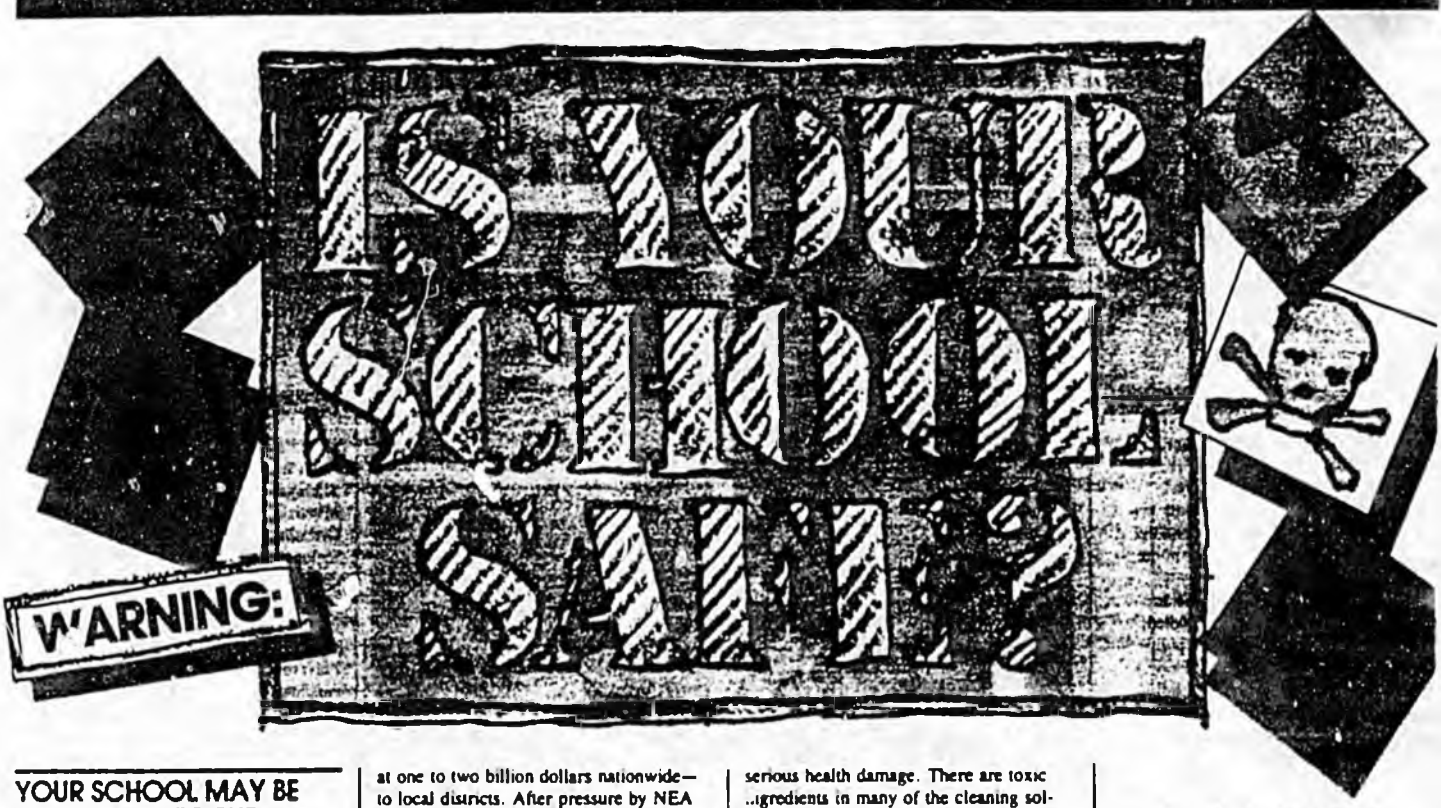
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"EPA guidelines must be strictly followed," he says. "Sloppy removal work actually increases the danger—not only for the workers, but for all employees and students in the school."

—H.S.

EMPLOYEES AND STUDENTS . . .



YOUR SCHOOL MAY BE HAZARDOUS TO THE HEALTH OF STAFF AND STUDENTS ALIKE.

Maybe you think you're safe—that occupational exposure to toxic hazards is limited to places like steel mills, petroleum refineries, and chemical plants.

Schools, after all, are where children learn. No manufacturing takes place; there are no dangerous chemicals, no poisonous emissions. Schools are "safe."

Ten years ago few would have disputed that comfortable assumption. The absence of noxious fumes and billowing smokestacks provided a sense of security. No longer. We now recognize that unseen toxic hazards inhabit our schools.

Asbestos provided the first warning of toxic danger. For more than three decades, asbestos was the material of choice for fireproofing, soundproofing, and insulation in schools. Then scientists and public officials began to worry. A proven—and potent—cancer-causing agent, asbestos is virtually indestructible. But the materials that bind it together are not. These materials can become friable (easily crumbled) and release asbestos fibers into the air.

Slowly the recognition grew that asbestos is a time bomb ticking away in our nation's schools. In 1980 Congress passed legislation requiring school districts to inspect all buildings and notify parents and employees if friable asbestos was found. But the government does not require friable asbestos to be either sealed off or removed.

Last August, Congress passed the School Hazard Abatement Act of 1984, authorizing the Environmental Protection Agency (EPA) to spend up to $600 million over the next seven years on grants and loans to school districts for asbestos removal. Initially the EPA told Congress it would not use the funds but would leave the cost of asbestos cleanup—estimated at one to two billion dollars nationwide—to local districts. After pressure by NEA and other concerned groups, the Reagan EPA reversed itself, announcing last month that the funds would be used.

The EPA estimates that 15 million children and 1.4 million employees study and work in schools containing friable asbestos.

Asbestos is only the tip of the toxic iceberg. The potential health hazards in schools are many, and students as well as school employees are potentially at risk. Teachers, custodians, clerical workers, paraprofessionals, mechanics, and administrators—no school employee is immune from occupational health hazards.

Toxic hazards can be found in art rooms, science labs, and vocational shops. Most duplicating fluids contain methanol, a powerful solvent that can cause serious health damage. There are toxic ingredients in many of the cleaning solvents and pesticides used in schools. Even the sites on which schools are built and the air that circulates through them can pose health dangers.

Some hazards, like asbestos, take considerable detective work and expertise to track down—and a lot of money to correct. Others are more easily identified and removed. They are dangers that—with awareness, some work, and cooperation—employees and parents can eliminate.

Art classrooms may be the most dangerous rooms in school. A major reason for the danger is lack of awareness that many art materials—including those designed for young children—contain substances that can cause cancer or damage to the reproductive, nervous, and respiratory systems, the heart, and other vital organs.

"Art materials aren't adequately labeled," explains Lou Spelich, an NEA-New York member in Albany who has taught art for 30 years. "We have to find the hazards," he adds, "because children—and especially teachers—are at risk."

From paints and magic markers to glues, clays, glazes, and silkscreen inks—the list of art materials containing ingredients that can cause long-term, serious health damage is astounding. As with any toxic substance, these materials pose a danger when inhaled, absorbed through the skin, or ingested by a person who licks his or her fingers, eats, chews gum, or smokes in their presence.

Safety has been a concern for many years in both science laboratories and vocational education workshops. But only recently has it been recognized that many commonly used materials pose serious health risks for students and employees alike.

A 1981 survey by the Consumer Product Safety Commission concluded that school science labs routinely contain "312 stock chemicals including 27 recognized or suspected carcinogens and 11 suspected teratogens" (chemicals that cause birth defects). Other health threats—such as damage to the lungs, liver, and kidneys—come from acids, organic solvents, and other chemical substances that are not cancer agents.

Many of the specimens used for dissection in biology labs are pickled in formaldehyde, a proven carcinogen in animals and a suspected one in humans.

In many schools, vocational shops now resemble mini-industrial workplaces, filled with sophisticated machinery and equipment, and posing health hazards similar to those found in the workplaces themselves. Dangers run the gamut: poisonous gases released during welding, carbon monoxide fumes in auto shops, toxic chemicals in cosmetology classes.

The many energy-efficient, "air-tight" school buildings constructed dur-

Ventilation Problems at Indian Brook

Teachers and students at Indian Brook Elementary School in Plymouth, Mass., began noticing health problems during the 1981-82 school year, more than four years after the new closed-environment school opened.

"Teachers and students were reporting frequent headaches, dizziness, nausea, and respiratory problems," recalls Susan Offner, a biology teacher and activist in the Education Association of Plymouth and Carver.

An unusually high number of childhood cancers were reported among students in the school. "Then we started counting," Offner reports. "We realized that out of 20 teacher pregnancies since 1979, there were four babies born with serious birth defects, three miscarriages, and one stillbirth. Something was terribly wrong."

Finding out what was wrong took investigations by three federal agencies, three state agencies, and one private lab.

"It was a very emotional period," says Mary LeSueur, president of the local Association. "We really weren't sure what was causing the problems."

The experts finally determined that due to a malfunction in the school's central ventilation system, no fresh air was entering the closed building. In addition, an unvented duplicating machine in the teacher's lounge was releasing methanol fumes that were circulating throughout the school.

After the duplicating machine was moved and vented, and the building's fresh air intake adjusted, the complaints of headaches, dizziness, and nausea stopped. The problem pregnancies remain unexplained.

"The most important thing," Susan Offner reflects, "is that other people learn of the problems we faced—and that they are alert for health problems in their own closed-environment schools."

—*H.S.*

STATE OF ALASKA

BILL SHEFFIELD, GOVERNOR

DEPARTMENT OF LABOR

Pouch 7-018
Anchorage, Alaska 99510

OFFICE OF THE COMMISSIONER

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07-40LH

Asbestos Abatement Facting Finding Committee

I. Introduction

Commissioner Robison to satisfy many petitions to approve asbestos abatement training programs, such as described by the following excerpt from a "Request for Proposals" by the Municipality of Anchorage:

> "Contractor shall provide notarized certification by name and social security (number) certifying that all employees involved in asbestos removal have been thoroughly instructed through an Asbestos Removal Training Program as approved by the State of Alaska Department of Labor in the hazards of exposure to asbestos fibers; proper care and use of protective respiratory equipment; proper use of protective clothing; decontamination procedures and all other conditions and requirements as reviewed under relevant DOSH, EPA, and OSHA standards."

and a response by the purchasing officer to the members of the request for proposal evaluating committee to wit: that eight of nine proposers offered training programs of varying scope and strength. "Not withstanding inferences to the contrary, no federal, state, or municipal guidelines exist against which specific training programs can be objectively evaluated. Absent such guidelines, the adequac of individual programs remain in question."

The Commissioner recognizing the need as identified above and his responsibility to lead the way in this critical area of worker safety and health, appointed our industry (government, labor and management) task force to act as a fact finding committee for asbestos abatement and related problems.

The committee, although few in number, represents all aspects of this industry:

The committee includes:

1. Chair, Ambrose Bittner - State Director
   U.S. Department of Labor - Bureau of Apprenticeship and Training

2. Co-Chair, Ron Cunningham - Safety and Health Director
   Alaska General Contractors

3. Ray Jorgensen - Chief of Industrial Health Comp.
   Alaska Department of Labor, Department of Safety and Health

4. Dan Middaugh - Member Asbestos Workers Local 91
   Joint Apprenticeship and Training Committee Asbestos Abatement Instructor
   Member, Board of Directors, Alaska Health Project

5. Leonard Limtiaco - Area Director
   U.S. Department of Labor, Occupational Safety and Health Agency

6. Joe Churchill - Manager
   E. J. Bartell Company
   Secretary - Asbestos Workers Joint Apprenticeship and Training Committee
   President, Western Insulation Contractors Association

7. Les Lauinger - Training Director
   AGC - Laborers Training Trust
   Instructor - Abestos Abatement

3. Nancy Cannington - Special Assistant to the Commissioner

The committee in its collective wisdom did not attempt to reinvent a wheel, but rather outline and describe existing practices and procedures. The committee report outlines procedures and programs to deal with the safety and health concerns of those involved in an asbestos abatement project.

Our report follows.

II. Scope

This report is intended to describe recommended rules which are in existence and to establish minimum content for an acceptable training program, provide for certification of trainers, recognition of trainers, and to establish the requirements for a presurvey and provide disposal procedures while performing demolition, removal, enclosure, remodeling and disposal of asbestos contaminated materials.

III Asbestos Abatement Safety and Health Standards and Regulations

A. Federal and State Regulatory Agencies

B. Federal and State Applicable Regulations

In addition to enforced regulations, the agencies have enforcement policies and regulation interpretations that affect the contractor/employer, worker/employer, and owner/operator asbestos abatement/compliance programs.

IV Asbestos Abatement Project Responsibilities

A review of the standards and regulations in Section III of this report revealed a need for the assignment of specific responsibilities of owners/operators, contractors/employers and workers/employees prior to the initiation or commencement of work on any asbestos abatement project. Therefore, this Fact Finding Committee has determined that specific responsibilities be assigned:

A. Owners/Operators
B. Contractor/Employers
C. Workers/Employees

V Recommended Procedures for Abatement Projects

The Fact Finding Committee, based on information uncovered and their collective experience dealing with asbestos abatement, safety and health and training, recommends the following procedures for:

A. Owner/Operator
B. Contractor/Employer
C. Worker/Employee

VI Conclusions

Committee Recommendations to the Commissioner

35 U.S. School Boards Sue to Force Manufacturers to Remove Asbestos

By JAMES BARRON

With the Environmental Protection Agency stepping up its campaign against asbestos in schools, more than 35 school boards around the nation have filed lawsuits to get asbestos manufacturers to pay for removing the potentially hazardous material from their buildings.

The agency says 62 percent of the school districts it has inspected violate some of the Federal regulations that require local school officials to inspect and report on asbestos. Alvin Alm, Deputy Administrator of the E.P.A., said the figure dropped as low as 50 percent earlier in the year but climbed recently as the inspections continued.

To improve the compliance rate, the environmental agency has proposed fines of more than $300,000 against 16 school districts where Federal inspectors found problems.

Four of the school districts fined were in New Jersey: Brick Township, South Orange, Springfield Township and Dunellen. The largest fine was $102,000 against the Waterbury public schools in Connecticut. There, the agency said it had found that 16 of 26 schools contained asbestos that could become airborne.

Some Call E.P.A. Rules Vague

Some local school officials say the agency's rules are vague and subjective and its inspectors interpret them arbitrarily. But others have turned to the courts because of the high cost of removing asbestos, more than $100,000 a school by some estimates.

One case in South Carolina was settled last month when U.S. Gypsum agreed to pay $675,000 to the school district in Lexington County. One in Pennsylvania may be used as the basis for a suit that would consolidate all the claims against manufacturers by school boards around the country.

Asbestos was widely used as fireproofing insulation between World War II and the late 1970's. It has since been found to pose a threat of a variety of serious diseases, including mesothelioma, a cancer of the lining of the lungs that is often fatal.

The E.P.A. says it cannot estimate how many children face possible future health problems from attending classes in schools containing asbestos or how much exposure causes a health hazard. The National Education Association, which maintains that children are more susceptible to asbestos-related diseases than adults, says there are asbestos problems in 14,000 schools. The teachers' union has threatened to make asbestos removal a bargaining issue this year.

Under the Federal rules, more than 121,000 public and private schools with more than 50 million pupils are required to notify parents and school employees if asbestos is found by inspectors. In most cases, there are two types of asbestos in schools: asbestos in ceiling insulation and asbestos wrapping on plumbing and heating equipment.

The environmental agency's inspectors are supposed to check for asbestos that crumbles or can be pulverized at a touch, but they may also cite school districts for failing to keep detailed records on their own inspections.

"The unsettling thing is I'm afraid that is sidetracking the E.P.A.'s attention from the real issue, which is what's hazardous," said William Anderson, a lawyer who represents the National Association of School Boards. "It's also creating an adversarial situation. The E.P.A. is making enemies of many school districts as a result of what the schools see as nit-picking and unfair enforcement."

The Syracuse public schools complied with New York state regulations before the Federal environmental inspectors arrived. Ernest Rookie, the system's facilities supervisor, said the Federal inspectors questioned whether there was asbestos in an auditorium ceiling at Fowler High School.

"We had already taken samples in nine different spots," he said. "They were proved to be not asbestos. The E.P.A. came through and demanded a lab analysis. It cost $450, and we were sure that stuff wasn't asbestos."

Fine Is Called 'Unreasonable'

In Waterbury, Thomas G. Parisot, an assistant corporation counsel, called the proposed fine "unreasonable" and questioned how the agency had determined it. Long before the Federal inspectors showed up, he said, Waterbury made plans to have the asbestos removed.

"The E.P.A. inspected only four schools before it lowered the boom," he said. "They were not really familiar with the makeup of our school system when they issued their complaint. We say any asbestos-containing material is limited in comparison to other districts. We don't have any spray-on beam insulation, wall insulation, or the kinds of materials that are a great deal more friable."

He said samples taken before the E.P.A. inspection "indicated there was no exposure problem for airborne concentrations."

Many school boards are divided on how to proceed with the suits, stalled since Federal District Judge James M. Kelly ruled in Philadelphia that all the cases should be combined and tried there.

After lawyers representing many of the other districts with pending cases protested, he scheduled a hearing on whether to go ahead with the merged legal actions. The case before him originally concerned only the schools in Lancaster, Pa., which had sued the Lake Asbestos Company, a Canadian company, among others.

"To require thousands of lawsuits to be tried in one forum means that each individual school district will be lost in the mass," said Daniel Speights, a Hampton, S.C., lawyer handling more than a dozen cases. "Historically, parties in a class action do not get the amount in damages that they would get if they tried their cases separately. Many of them could file locally and try the case in a year or less."

David Berger, one of the lawyers who represented the Lancaster districts when the case began, said individual trials would prove "costly, repetitive and duplicative."

"If everyone operates independently," he said, "that might make it impossible for anyone to recover. There is no way this industry could withstand $4 billion or $5 billion in judgments relating to school claims, which is what would happen if we used the tremendously ineffective case-by-case basis."

Ruckelshaus En:

By PHILIP SHABECOFF

Special to The New York Times

WASHINGTON, May 19 — One year after his return as Administrator of the Environmental Protection Agency, William D. Ruckelshaus is widely credited with restoring morale, stability, purpose and credibility to an agency he found in a state of chaos.

But his critics, including members of Congress and environmentalists, charge that he has failed in leadership on such important environmental issues as emissions into the air of sulfur and nitrogen oxides that fall in particles called acid rain, killing aquatic life and threatening forests; that he is seeking to weaken environmental regulation by weighing risks to health against other social values: that he is serving as a benign front for what the critics call the anti-environmental policies of the Reagan Administration.

In an interview in his office overlooking the Potomac, Mr. Ruckelshaus denied that the Administration was anti-environment.

"It is a fair criticism of this Administration that the environment is not one of its high priorities — it has not been a high priority of the President in his career," he said. But he added that "this Administration has much more sympathy for the environment than the Nixon Administration," though many major environmental laws were passed in that Administration's tenure. IN the

Bartlett calendar approved

By ANDREW PERALA
Daily News reporter

The Anchorage School Board unanimously approved an extended summer vacation for students at Bartlett High School next year to give contractors time to remove asbestos from campus buildings.

Representatives of the school's students, teachers, parents and staff had supported the new school calendar, which will also extend the school day by 90 minutes beginning Jan. 21, 1985.

Under the plan, students at Bartlett will be out of school from April 26 to Oct. 15, 1985. The long summer break will allow contractors to remove asbestos insulation from inside the school building.

In a separate action, the board approved a $14.8 million contract to Vertecs Corporation for removal of the asbestos.

Of that amount, $13.4 million will be for the base contract and $1.3 million will be reserved as a contingency fund.

The contingency fund, said district superintendant Gene Davis, will cover unforeseen problems encountered during the 150-day asbestos removal project.

"It has not even been determined how many lights will have to be removed" from the school's ceilings, Davis said.

Removal of the asbestos has been classified as an emergency and the state Department of Education ruled

See Page C-3, BARTLETT

Bartlett

Continued from Page C-1

recently that the district can alter the school calendar.

Any new asbestos-removal expenses over $20,000 will require approval of the board. Amounts under $20,000 will be approved at the discretion of the superintendant, Davis said.

The 5½-month Bartlett summer vacation won't come without a price, however. In order for students to get the equivalent of 162 days of classroom instruction, the class day will be lengthened by an hour and a half. Students will start school at 7:30 a.m. as usual, but will not be released from classes until 3:30 p.m.

The extra-long summer break aroused the most concern from the speakers before the School Board.

"Our one concern is that students remain active" during the long break, said Karla Josephson, who spoke on behalf of the high school's staff. "Most students do like the idea of a five-and-a-half month summer," said student representative Brian Schmidt. The calendar plan represents a better solution than attending school on Saturdays or double-shifting with another school, he said.

In conjunction with approving the new calendar, the board also approved spending an additional $231,432 in the spring semester of this school year to accommodate the extra costs of changing the school calendar.

About $98,000 will go toward the expected added costs of school buses the district will have to pay a bus contractor. And $78,000 will be allotted to local moving companies to move the hundreds of student desks and other furniture into the school's gymnasium.

News Miner
2/1/84

EPA: schools ignore law about asbestos warnings

WASHINGTON (AP)—Local school officials, worried about their budgets or about "panic and hysteria," are widely ignoring a federal law requiring parents to be notified about dangerous asbestos in their school buildings, a government study says.

The study by the Environmental Protection Agency said that study said.

In many cases, the study said, school officials did not want to notify parents because of the money the school district would have to spend if forced to clean up the asbestos hazard.

School officials "are reluctant to notify parents because they believe this will result in a redirection of limited operating funds and-or create unnecessary panic and hysteria," the study said.

But whatever the reason, the EPA study added, it is undermining the program to get rid of hazards from asbestos that face millions of schoolchildren.

"The success or failure of the asbestos in schools rule, which relies heavily upon public involvement, is the degree to which information is communicated to the public," the study said. "Poor public awareness has resulted in only slight activity on the part of the parent groups in schools."

The finding are included in an internal program review requested by EPA Deputy Administrator Al Alm and completed in December. A copy was obtained by The Associated Press.

The study involves asbestos insulation that once was widely used in schools and other public buildings. Health officials now say that some types of asbestos can flake into microscopic particles that can be inhaled, causing lung cancer or other lung diseases. There is no known safe exposure level.

Under federal law, school officials are required to inspect their buildings for hazardous asbestos and to notify parents and school employees if it is found It is then up to the local officials to decide what to do

The law covers more than 37,000 public, private and parochial school systems with more than 50 million students.

The EPA study was intended to find out how well the program was working. Some of its findings, including the conclusion that two-thirds of the nation's schools are in violation of some part of the law, have been reported earlier.

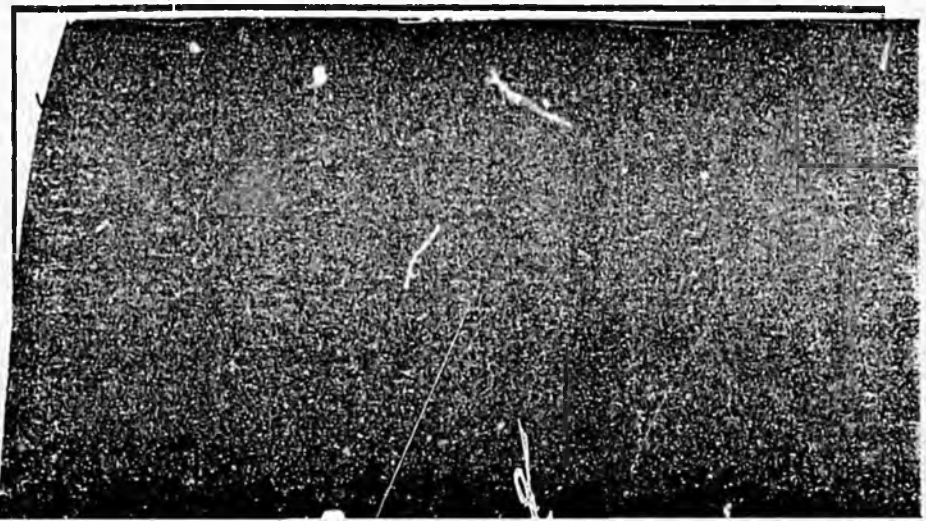
The EPA study did not blame school officials alone. It also found that the agency itself needed to devote more money and people to the program, including more than doubling the EPA inspection program.

"The agency has not issued a high-level statement detailing the risks of exposure to asbestos and the importance of considering various abatement options," the study said. "The regions and the public have not been made fully aware and have received mixed signals on the seriousness of asbestos health hazards."

The congressional author of the asbestos in schools law, Rep. George Miller, D-Calif., focused on those shortcomings in his analysis of the report.

"This document, drafted by EPA's own experts, again confirms the shocking inadequacy of this administration's approach to a threat that endangers the health of millions of school children," Miller said. "It is apparent that at least some officials within EPA are trying to warn their agency about the consequences of the current policies."

Whatever the failings of the agency, however, the study indicated that school officials have not endorsed the program wholeheartedly.



Funding limits asbestos removal

Associated Press

Washington — Local school officials, worried about their budgets or about "panic and hysteria," are widely ignoring a federal law requiring parents to be notified about dangerous asbestos in their school buildings, a government study says.

The study by the Environmental Protection Agency said that of 275 schools inspected by EPA, 190 were found to be violating the federal law on asbestos insulation. Of those 190, the EPA said, 134 had violated the requirement that parents be notified of the exposure levels.

"Consequently, we can conclude that the parents of students exposed are in many cases unaware of the existence of such a hazard," the study said.

In many cases, the study said, school officials did not want to notify parents because of the money the school district would have to spend if forced to clean up the asbestos hazard.

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Federal funds to help remove asbestos

by Stephen J. Downes 2/9/84
Times Writer

The federal government has offered at least $2.1 million to help remove asbestos at Bartlett High School, a school district official said Wednesday.

And federal dollars will also pay for removing asbestos at Mount Spurr Elementary School, said assistant superintendent Tom Freeman.

Freeman said the federal Department of Education made the offer in a letter received by the district Tuesday, after three months of lobbying by the school district and members of the school board.

The district wanted the federal government to pay a portion of the bill for the schools because they are both on federal land.

About 35 acres of Bartlett is on federal land and technically belongs to the federal government, Freeman said. The other 118 acres have been deeded to the municipality, he said. The district operates the whole school.

Mount Spurr is on Elmendorf Air Force Base. The school district estimates it will cost $80,000 to remove asbestos at the school.

Negotiations between the district and the DOE that might result in even more money being obtained are still continuing. The district is seeking additional funds because cost estimates for Bartlett are increasing, Freeman said.

The $2.1 million represents 39 percent — the federal government's share — of what the district originally believed the Bartlett project would cost: $5.5 million.

"We've informed them that it may be more," Freeman said.

Howard Games, a DOE project engineer in Seattle, said a request for the money would go to DOE offices in Washington as soon as the school district provides a revised estimate of the cost. The estimate could come as early as next week.

Construction firms will be asked to come up with estimated costs of removing asbestos at Bartlett. The firms will also seek a way to complete the work without disrupting the school year, which could mean higher costs.

The federal Environmental Protection Agency has linked exposure to asbestos with lung cancer and other diseases. The Anchorage School Board last year ordered asbestos removed from all district buildings.

The state legislature is now considering a district request for $10 million to remove asbestos from six schools, among them Bartlett and Mount Spurr. Bartlett is the top priority and has by far the most asbestos.

Anchorage lawmakers have already proposed $[illegible] million for Anchorage asbestos removal.

DOE representatives will come to Anchorage in the next couple of weeks to advertise for bids on the Mount Spurr project, Freeman said.

The bid specifications will be drawn up by Gobbell, Hays and Pickering, the firm evaluating the asbestos problem for the school district.

Another DOE official, Jim Ishihara, said the federal government is also paying for asbestos removal on other Alaska schools: a $2.2 million project at Reeve Junior and Senior High School in Adak, and a $250,000 project at nine schools in Fairbanks.

5/8/84

Parents, scientists tell EPA to ban asbestos in schools

By BETTY ANNE WILLIAMS
The Associated Press

WASHINGTON — Scientists, union officials and parents urged the Environmental Protection Agency on Monday to require the removal of the carcinogen asbestos from schools and other public buildings.

"Ultimately, what you will do is decide who will live and who will die," said Irving Selikoff, director of the environmental sciences laboratory at Mount Sinai School of Medicine and an authority on the health effects of asbestos.

"We're gazing at children being exposed to asbestos. We're seeing teachers, personnel being exposed. We don't really need any additional research about what can happen. What we need now is controls."

Selikoff and other witnesses testified as the EPA held the first of four hearings on what to do about the asbestos which was used in public building construction and insulation until it was pinpointed as a cancer-causing agent in humans in the late 1970s. Other hearings will be held in Boston, San Francisco and Chicago in June.

The hearings series was planned after the Service Employees International Union petitioned the EPA to issue an asbestos abatement rule which would assure the removal of the substance from schools and other types of public buildings.

William Borwegan, director of occupational safety and health for the union, said the EPA should be prepared to come up with more money and staff to implement a tougher standard and monitor its enforcement.

"At a minimum, the agency should immediately train at least 100 individuals that can act as technical advisers to advise building owners and local school districts on how to evaluate and control asbestos in building hazards," he said.

National Education Association Vice President Keith Geiger estimated that as many as 650,000 teachers and other workers and three million children are exposed to asbestos every school day in 14,000 institutions.

"An emergency exists in our schools. Each day that the asbestos hazard goes unabated, the likelihood increases that there will be more victims," he said.

The EPA believes only 250,000 teachers and other school personnel are at risk but does not quarrel with the other estimates cited by the NEA.

Geiger also called the asbestos problem "a national disaster" and said the federal government must take the lead in arranging for the cleanup.

White House rejects suggestion to cut Social Security benefits

The Associated Press

WASHINGTON — Democrats in Congress criticized Treasury Secretary Donald

Nevertheless, Senate Minority Leader Robert Byrd, D-W.Va., said the Reagan

untary item," said House Speaker Thomas O'Neill

Del

to

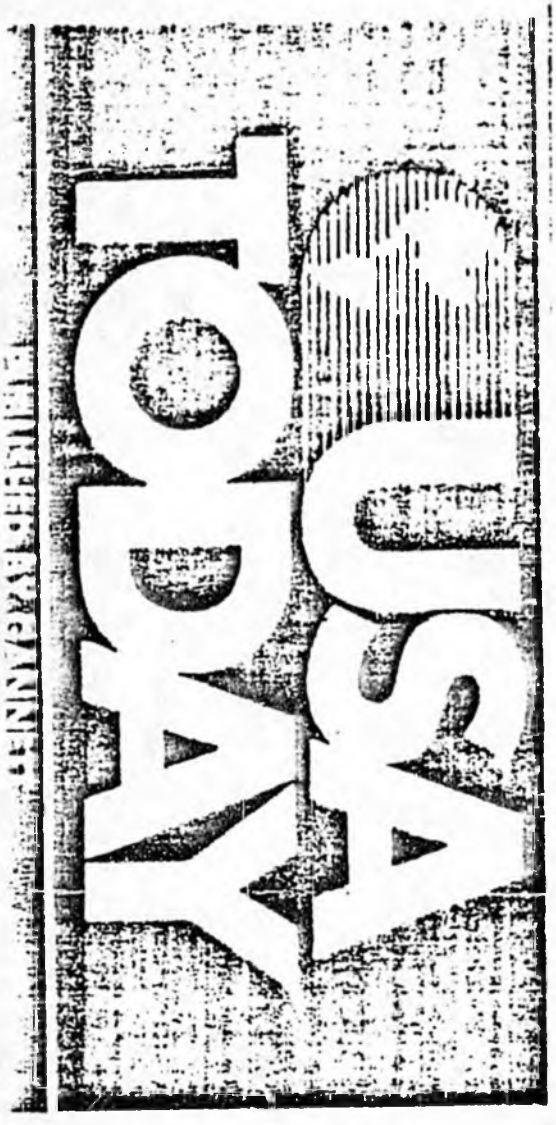
alaska women's run 1984



"I made it all the way

On June 12, there wi
very special runners amor
hundreds of participants ir
Alaska Women's Run 1984
months of training with vo
coaches, these ten women
giving their personal best t
money for The Association
Retarded Citizens of Anchc
They know how much ARC
help people with mental ret

Soon, volunteers
will be asking you to
pledge an amount



School asbestos program failing

By Carol Stevens
USA TODAY

Mary Banscombe hopes to find out today if her sixth-grade son is being exposed to cancer-causing asbestos at his Goffstown, N.H., school.

The suburban Manchester district will get results of an inspection ordered after it was fined 11 days ago for failing to tell parents about possible asbestos dangers.

Meanwhile Banscombe, like many USA parents, is worried: "At this point we don't know what we're dealing with."

Says executive director James Fite of the White Lung Association: "Conditions in the nation's schools are absolutely horrible . . . and getting worse."

The federal Environmental Protection Agency's $24,000 fine against Goffstown was its first at any school.

It's been a decade since EPA outlawed asbestos as a fireproofing agent because of studies linking it to cancer. Yet EPA estimates asbestos is still present in as many as half the USA's 121,000 schools.

As a result, 3 million to 5 million children in schools built in 1940-60 risk asbestos exposure, says Arnold Fege of the National Congress of Parents and Teachers.

EPA's voluntary cleanup program is partly to blame. Schools had until June 1983 to inspect buildings and tell parents of the asbestos dangers.

Nine months after the federal deadline, EPA says the regulations have failed. Spot checks of 275 school districts found more than 69 percent violating asbestos standards.

Administrators say they can't afford cleanup at $100,000 per school.

FRI./SAT./SUN. MARCH 23-25, 1984

January 18, 1984

MEMORANDUM

To: HESS Committee members

From: Nancy Bennett, Committee staff

Re: Asbestos history/Alaska information

IN YOUR FOLDER:

A copy of SSHB 5, asbestos health hazard enabling legislation, and HB 57, the companion appropriation bill.

A section analysis of SSHB 5 and memorandum from DOTPF on the costs of inspecting state buildings for asbestos.

School district information on asbestos.

Relevant periodical and newspaper articles.

Information from the EPA/Alaska specific.

Alaska Health Project asbestos packet.

Packet of materials from the Association of General Contractors

ALASKA SCHOOLS INFORMATION:

The EPA has estimated from their Alaskan survey that only half of the school districts have inspected their facilities for asbestos, leaving approximately 220 buildings for review. By regulation, all schools in the USA were to be tested by June 30, 1983, parents and school boards were to be notified of the findings, school employees were to be instructed on minimization of health risks and records were to be maintained on testing and notification.

District needs in Alaska for asbestos abatement:

Kodiak	$ 1,138,507	
Petersburg	107,000	
Delta Greely	99,700	
Cordova	120,000	
Nenana	15,000	
Anchorage	11,000,000	(Phase II)
Skagway	25,000	
Kuspuk	5,296	
Mat-Su	105,959	
Juneau	300,000	(expended, estimate the possiblility of several million)

Ketchikan (unknown, estimates the possiblity of several million)

HISTORY

Following World War II, asbestos was widely recognized as a miracle fiber - it was an excellent insulator and would not burn - and was therefore widely used in construction during the "Baby Boom" period.

Asbestos was known to be dangerous long before Congressional hearings in the late 1970's, when the Johns-Manville Corporation admitted to paying physicians to down-play the health hazards. Most early reported cases were among pipefitters and shipyard workers who faced heavy exposure in the workplace, but it was soon discovered that family members and people living in close proximity to factories were also affected. Asbestos is an inert material which cannot be removed from the body, and although the symptoms of asbestosis and mesothelioma often take decades to surface, the diseases are always fatal.

Congressional action in 1980 aimed at the removal of asbestos from schools was prompted by the increased susceptibility of children to asbestos because of their higher activity level and elevated respiration.

In 1984, the EPA began applying sanctions to individual school districts for non-compliance, rewrote their regulations for demolition and renovations with asbestos products and have more recently been receiving public pressure to take a more aggressive stance on asbestos in schools. Many speculate that the regulations were designed to bring pressure on states to fund asbestos removal by public notification, placing districts in the precarious position of raising concern about an issue they are unable to address financially. The $172 million authorized by the Asbestos Health Hazard Detection and Control Act of 1980 was never appropriated, although the federal government has made limited funds available in some schools on federal land.

A flurry of lawsuits filed in the last few years against manufacturers, contractors and school districts has pointed out confusion over the issue of liability. In addition, resource limitations of the EPA (they have .1 staff working on asbestos in Alaska) have created difficulty for rural schools districts to receive the type of assistance needed in this technical area

MEDICAL ASPECTS OF ASBESTOS EXPOSURE

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1984 ASBESTOS SYMPOSIUM
THE GEORGIA INSTITUTE OF TECHNOLOGY
ATLANTA, GEORGIA
MARCH 19-23, 1984

Asbestos-Related Diseases

and

Medical Surveillance

Prepared by:

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I Causes of death among 17,800 insulators (1). Estimated exposure approximately 15 fibers/ml. of mostly chrysotile and some amosite throughout working life. Note that almost 10% of deaths were due to asbestosis, but that the major problem is cancer.

TABLE 1 DEATHS AMONG 17,800 ASBESTOS INSULATION WORKERS IN THE UNITED STATES AND CANADA, JANUARY 1, 1967 TO DECEMBER 31, 1976*

Underlying Cause of Death	Expected†	Observed (BE)	Observed (DC)	Ratio, Observed/Expected (BE)	Ratio, Observed/Expected (DC)
Total deaths, all causes	1658.9	2271	2271	1.37	1.37
Total cancer, all sites	319.7	995	922	3.11	2.88
Cancer of lung	105.6	486	429	4.60	4.06
Pleural mesothelioma	‡	63	25	—	—
Peritoneal mesothelioma	‡	112	24	—	—
Mesothelioma, n.o.s.	‡	0	55	—	—
Cancer of esophagus	7.1	18	18	2.53	2.53
Cancer of stomach	14.2	22	18	1.54	1.26
Cancer of colon-rectum	38.1	59	58	1.55	1.52
Cancer of larynx	4.7	11	9	2.34	1.91
Cancer of pharynx, buccal	10.1	21	16	2.08	1.59
Cancer of kidney	8.1	19	18	2.36	2.23
All other cancer	131.8	184	252	1.40	1.91
Non-infectious pulmonary diseases, total	59.0	212	188	3.59	3.19
Asbestosis	‡	168	78	—	—
All other causes	1280.2	1064	1161	0.83	0.91

*Number of men 17,800, man-years of observation 166,853

†Expected deaths are based upon white male age-specific U.S. death rates of the U.S. National Center for Health Statistics, 1967-1976

‡Rates are not available, but these have been rare causes of death in the general population

(BE) Best evidence. Number of deaths categorized after review of best available information (autopsy, surgical, clinical)

(DC) Number of deaths as recorded from death certificate information only

II Concept of mesothelioma as a "signal" tumor (2). When mesothelioma occurs in the United States, the cause is likely to be past asbestos exposure until proven otherwise. But note that mesothelioma is frequently mis-diagnosed, especially the peritoneal (abdominal) variety, and hence under-reported. Mesothelioma may occur with minimal exposure (bystanders, household contacts, neighborhood cases).

III Lung cancer numerically the most important problem. This burden falls mainly on cigarette smokers (3). Risk of lung cancer among cigarette smoking insulators approximately 53 times risk of non-smoking U.S. white males. However, risk is elevated among non-smoking and ex-smoking insulators as well.

IV Latency Period. Crucial concept for understanding asbestos-related diseases. Note that only a few deaths of lung cancer, mesothelioma, and the other asbestos-related diseases occur prior to 20 years from the time of first exposure (4). However, the duration of exposure need not be long (a few days for mesothelioma, a few weeks, perhaps, for lung cancer - the lower limits are not entirely known). Note that if exposure begins early, cancers will occur in young adulthood or middle age.

TABLE 2

DEATHS AMONG 17,800 ASBESTOS INSULATION WORKERS IN UNITED STATES AND CANADA, JANUARY 1, 1967–DECEMBER 31, 1976
ANALYSIS BY DURATION FROM ONSET OF EMPLOYMENT

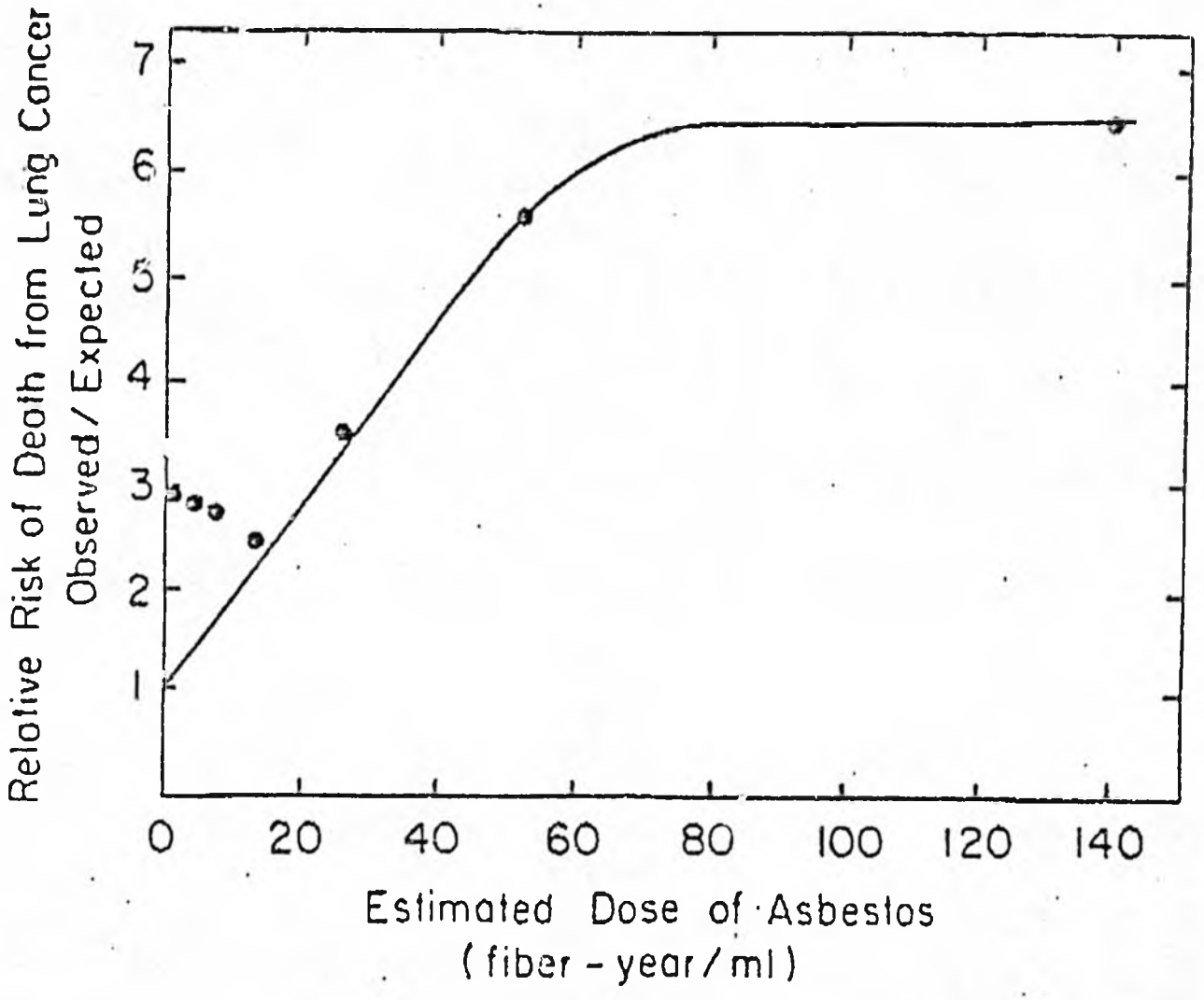
Duration from Onset (Years)	Number of Men	Person-years of Observation	Lung Cancer					Pleural Mesothelioma			Peritoneal Mesothelior		
			Exp.*	Observed (BE)	Observed (DC)	Ratio o/e (BE)	Ratio o/e (DC)	Number (BE)	Number (DC)	No./1000 Person-years (BE)	Number (BE)	Number (DC)	No /1(Perso year (BE
<10	8,190	26,393	0.7	0	0	—	—	0	0	0	0	0	0
10–14	9,063	29,003	2.7	7	5	2.55	1 82	0	0	0	0	0	0
15–19	9,948	34,066	8.5	29	27	3 40	3 17	2	2	0.06	3	0	0.09
20–24	8,887	31,268	17.0	59	53	3 46	3 36	6	4	0 19	3	2	0.10
25–29	6,596	20,657	21 0	105	96	5 00	4 56	13	5	0.63	19	3	0.92
30–34	3,547	11,598	18 4	112	103	6 09	5.59	9	3	0.78	23	6	1.98
35–39	2,020	5,403	11.5	65	57	5 68	4 98	15	4	2.78	19	5	3 52
40–44	1,108	3,160	8.1	40	131	4 93	3 82	4	3	1.27	16	3	5 06
45 +	1,448	5,305	17.8	69	53	3.89	2.98	14	4	2 64	29	5	5 47

*Expected deaths are based upon white male age-specific U.S. death rates of the U.S. National Center for Health Statistics, 1967–1976 Smo habits not taken into account.

(BE). Best evidence. Number of deaths categorized after review of best available information (autopsy, surgical, clinical)

(DC): Number of deaths as recorded from death certificate information only.

V Dose-Response Relationship. Extremely complex subject. All data available are compatible with a linear dose-risk relationship with a levelling-off, or "saturation", of risk at higher levels. The corollary of this is: no known zero-risk exposure level (5).



VI Medical Surveillance of People Exposed to Asbestos. Contents of such a program determined by objective:

A. Objective: to determine whether asbestos exposure has been sufficient in a given population to cause disease. For this objective, medical data are a useful adjunct to dust measurements, engineering specifications and information concerning work practices. Unique advantage of medical data: dust levels in the past cannot be known if no measurements were done, but the human body acts as an "integrator" of exposure over the years. Most useful medical tools here would be chest X-ray, medical history, occupational history and search for mesothelioma deaths among people with sufficient latency period (20 years or more since first exposure).

B. Objective: Minimization of disease among those known to have been exposed and known to be at risk. This objective essentially calls for secondary prevention of disease, early detection, and aggressive treatment of early lesions, especially cancer.

VII Elements of the Port Allegany Asbestos Health Program

A. Establishment of a computerized registry of all those at risk: workers and their household contacts.

1. Maintenance of the registry (address changes, name changes, etc.)

B. Establishment of intensive medical surveillance tailored to each person's degree of risk (cigarette smoking, latency very important). Utilization of standard cancer-detection tests: chest X-rays, sputum cytology, stool blood, examination of mouth, tongue and throat, etc.

C. Health education for those at risk. Necessary to provide a balanced view of the risks; useful in promoting compliance with program, calming unwarranted fears, and promoting good health behavior.

D. Smoking cessation assistance. A powerful intervention.

E. Continuing education for local medical providers concerning asbestos-related diseases.

F. Adjunct measures: influenza and pneumonia vaccines.

G. Review and evaluation.

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5. Nicholson, W.J. Dose-response relationships for asbestos and inorganic fibers. February 15, 1981. This detailed monograph reviews the available world-wide literature on dose-response relationships. Difficult going, but definitely rewarding. Available from the author at the Environmental Sciences Laboratory, Mount Sinai School of Medicine, 10 E. 101st St., N.Y., N.Y. 10009.

ASBESTOS:

ITS HEALTH HAZARDS AND ITS PROBLEMS

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I. ASBESTOS--ITS TYPES, ORIGIN, AND CHARACTERISTICS

Asbestos is a name given to a number of naturally-occurring fibrous silicates, the word asbestos being derived from the Greek word similarly spelled, meaning inextinguishable. There are two main varieties of asbestos; the serpentine form, which is characterized by long, soft, flexible, and finely-polished strands, which may be woven into a cloth, of which chrysotile is the primary representative, and the amphiboles, which occur as straight, needle-like fibers, of which crocidolite, amosite, and anthophyllite, tremolite, and actinolite are the primary examples.

Chrysotile makes up approximately 70% of the world production of asbestos and is mined primarily in Quebec, Canada, which produces 95% of the world production of chrysotile. Chrysotile is also produced in Vermont, the Union of South Africa, Russia, and to a lesser extent, in certain parts of Europe. Its unique characteristic is the fact that the long, white, silky fibers can be woven into cloth, whereas the other types of asbestos do not have this capability. All types of asbestos have the outstanding characteristics of being almost indestructible on exposure to body fluids, highly resistant to heat, and extremely resistant to acid erosion. Chrysotile is especially resistant to heat, being able to withstand 500 degrees centigrade, but is less resistant to acid erosion, and in bodily tissues, for example, the magnesium gradually tends to be leached out over many years.

Crocidolite is blue asbestos is produced primarily in the Cape of South Africa, especially since 1910, and makes up approximately 3.5% of the world production of asbestos. It is more acid resistant and hence is used often in marine insulation and aboard ship, is less resistant to heat, being able to withstand only 200 degrees Centigrade. Its needle-like morphology enable it to penetrate further and deeper than the other types of asbestos in body tissues.

Amosite is produced largely in Transvaal South Africa, primarily since 1907; and has somewhat coarser brownish fibers which have the outstanding characteristic of being more acid-resistant and hence is used primarily in marine insulation and shipbuilding. It was also widely used in pipe and boiler lagging in buildings.

Anthophyllite is mined predominatly in Finland, is the coarsest of the asbestos silicates, is less heat resistant, being able to withstand only 200 degrees Centigrade, and has an inherent tensile strength much less than crocidolite. It is not flexible, and is used primarily in the chemical industry. Its exposure is associated with greater incidence of pleural plaques and rarely, if ever, is mesothelioma seen in men exposed to this type of asbestos. Anthophyllite makes up less than 1% of world usage of asbestos. It is only rarely found in building insulation.

The other two little-used types of asbestos are tremolite and actinolite. Tremolite is a more brittle asbestos, has a fairly good heat resistance, and it, as well as actinolite make up each less than 1% of world asbestos production. Actinolite is rarely used, although it is very acid and heat resistant. Tremolite has been found in some talc mines causing asbestos contamination of certain talc products.

Table 1 Varieties of asbestos[1]

Variety	Colour	Major components (%)			Approximate formulae
		Si	Mg	Fe	
Chrysotile	white	40	38	2	$3MgO.2SiO_2.2H_2O$
Amphiboles					
Amosite	grey brown	50	2	40	$5.5FeO.1.5MgO.8SiO_2.H_2O$
Anthophyllite	white	58	29	6	$7MgO.8SiO_2.H_2O$
Crocidolite	blue	50	-	40	$Na_2O.Fe_2O_3.3FeO.8SiO_2.H_2O$
Tremolite	white	55	15	2	$2CaO.5MgO.8SiO_2.H_2O$
Actinolite	white				$2CaO.4MgO.FeO.8SiO_2.H_2O$

[1] From Hodgson A. A. (1965) *Fibrous silicates* Lecture Series No 4. The Royal Institute of Chemistry and the Asbestos Information Committee, London

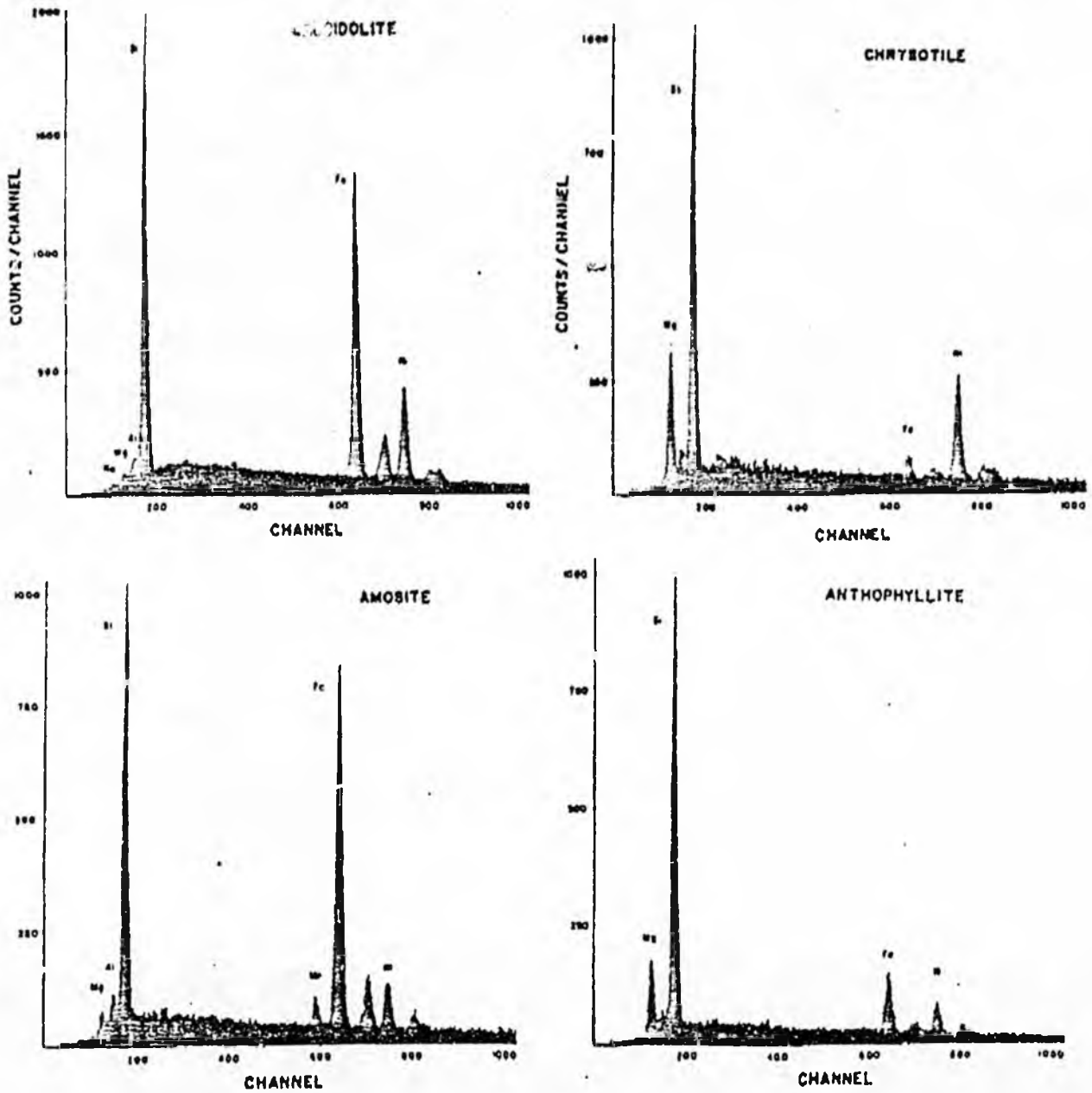


Figure 7. Examples of typical spectra from different types of asbestos: amosite; crocidolite; chrysotile; anthophyllite. (The nickel lines are present due to the specimen support.)

Reprinted from: Ivan B. Rubin and Carl J. Maggiore, "Elemental Analysis of Asbestos Fibers by Means of Electron Probe Techniques". Environmental Health Perspectives. Vol. 9, December 1974.

II. THE USES OF ASBESTOS

The United States used over 5 million tons of asbestos yearly in 1974, most of which came from the Quebec mines. Most was used for fire-proofing and insulating materials, especially in the construction industry where it was incorporated into cements, tiles, felts, and garments. In the textile industry, uses are fire-proof draperies and floor tiles, the former as used on theater curtains, asbestos sheets, and in the use of asbestos building boards. Plasterers applied an asbestos mix on steel foundations in order to prevent the steel from buckling in case of fire; this asbestos mix hardened within 8 hours without cracking or shrinking and without interrupting other construction activities. Boats and ships were similarly treated. Formerly, over 3 million pounds of fire-proofing mixture, which contains 30% chrysotile asbestos were used annually, and when sprayed, approximately 25% of the material goes directly into the air rather than being applied to building surfaces, and hence, workers may inhale as much as 50 million fibers in an eight-hour day. For this reason the use of a wet mixture of asbestos applied by trowelling was the preferred method of application. The practice of spraying asbestos-containing insulation in buildings was banned by the EPA in the 70s. In 1982, the United States used less than one-half million tons of asbestos, a significant decrease from the 1974 level referred to above.

Asbestos products resist heat and withstand abrasive forces. Chrysotile makes up 50% of the brake-lining material in brakes, and hence, workers exposed to this use of asbestos in repairing brake linings, are exposed to asbestos dust themselves. If not properly controlled, clouds of the asbestos dust appear in the air in this and other circumstances. Asbestos is also used in certain papers, paints, and plastics, where the positives charge of the chrysotile combines with the filler in pigment to form a more durable product. Similar friction products are used on

railroad cars, airplanes, and industrial machinery. The ship-building industry has been a major user of asbestos because the substance is good for insulating boilers, steam pipes, hot water pipes, nuclear reactors in ships, both in initial fitting and in repairs and refittings. Various sealants and patching tape compounds contain asbestos, and both floor and ceiling insulating tiles in the past often used asbestos.

It is apparent, therefore, that a large number of workers are exposed to asbestos; indeed, somewhere between 18 and 11 million U.S. workmen have been exposed to asbstos dusts during their lifetime in the past 40 years, including approximately 4½ million shipyard workers, 300,000 textile workers, 100,000 insulation workers, and perhaps another 3 to 5 million workers who handle asbestos at some course during its manufacture. It is apparent that individuals exposed include those who mine the asbestos, those who work in the mills in which asbestos is crushed, and those who manufacture the asbestos products-are all at risk in varying degrees. Those who load and truck the asbestos ore as in using it for rock filler on roads, as is the case in at least one area in Maryland are at risk, as well as the people who drive on this particular road. Carpenters are exposed when they cut asbestos board, or when they work in the presences of insulators or other workers working with the asbestos products themselves. Any worker aboard ship or working in shipyards is similarly exposed to asbestos dust, and indeed even families of workers who work in the vicinity of a shipyard or mine are at similar risk, including the families, for example, of shipyard workers, where asbestos dust may be brought home on the clothes of the workers, if proper precautions are not taken. The demolition of buildings containing old asbestos exposes such workers, as well as passers-by, to varying degrees of exposure to the asbestos dust. During the past 15 years it has become increasingly apparent that indirect family exposure, workers and family living near a mine, mill, or shipyard, represent a secondary risk not

previously appreciated. It has been demonstrated beyond a doubt that a period of time as short as one month's exposure to asbestos dust results in a significant risk to the individual from asbestos-associated diseases.

III. FATE AND BIOLOGIC EFFECTS OF INHALED ASBESTOS PARTICLES

It has been shown that the aerodynamic behavior of asbestos particles is a function primarily of the diameter of the fiber. It has been shown that fibers larger than 5 microns in diameter are precipitated out primarily in the nose and bronchi or upper parts of the bronchial tree, while fibers between 1 and 5 microns are capable of descending into the lower portions of the bronchial tree into the respiratory bronchioles. Only fibers less than 1 micron in diameter are capable of entering the air spaces or alveoli, where they may more readily penetrate the lung tissue. It is also apparent with asbestosis that gravity must play a part in the deposition of asbestos particles, as lung scarring is more prominent in the lower lung field suggesting that the weight of the particles tends to allow them to be deposited in the lower lung fields primarily. Once the asbestos fibers enter lung tissue approximately 25% of them become coated or walled off by macrophages, the scavengers of the lung, which try to wall off foreign particles to prevent tissue injury. At least 75% of the smaller fibers are not similarly walled off and remain uncoated and more difficult to see by usual light microscopy, and can only be seen with the higher magnification of electron microscopy.

The coated asbestos fibers, are called asbestos bodies, may be seen by regular light microscopy. These asbestos bodies are probably better called ferruginous bodies, as it has been demonstrated that other foreign particulates in the lung, primarily talc and probably zeolite, as found in certain towns in Turkish Anatolia, also have the capability of forming a similar-appearing coated fiber. The ferrugionous body is a long, beaded, rod-shaped particle of asbestos or talc having clubbed ends, staining darkly with iron stain and very easily picked up, when present, by the light microscope. This coating contains ferritin or iron granules

with some amorphous material of up to 5 microns in diameter, the latter apparently representing the breakdown process of macrophages and containing acid mucopolysaccharide with hemosiderin content. In most instances, however, the ferruginous body is diagnostic of asbestos exposure, while the presence of uncoated asbestos fibers can be confirmed by electron microscopy when necessary, by lung tissue obtained by either open lung biopsy, needle biopsy, or transbronchial biopsy. It is theorized that the physical characteristics of each asbestos fiber plays a distinct part in the type of disease produced in man.

IV. CELLULAR EFFECTS OF ASBESTOS

Once the asbestos fibril has penetrated lung tissue, local irritation there causes increased permeability of cellular membranes and as a result of this over a long period of time the particles are surrounded by macrophages, some chemical leaching or digestion of the magnesium, especially in chrysotile, occurs, macrophage death occurs, and fibrosis or scarring of the lung is stimulated in an effort to wall off these particles and prevent further lung damage. Chrysotile is probably the most potent in causing asbestosis than are the other types of asbestos. It is probable that the degree of the reaction is definitely related to the number of fibers inhaled into the lung as well as the individual's inherent biologic susceptibility or reactivity. It has been shown that both the total years of exposure, the dustiness of the job, account for the cumulative dust exposure, and that these exposures are directly related to patient's symptoms, lung function tests, x-ray changes, the development of lung cancer, as well as mortality statistics. It is apparent, however, that mesothelioma needs much less exposure to the asbestos dust than the other diseases associated with asbestos.

In analyzing the presence of coated and uncoated fibers in the lung, it has been demonstrated that in carefully conducted studies almost 98% of all urban dwellers have asbestos fibrils or bodies in their lungs, this being in a higher percentage of men, in a greater number of older people, and in a greater percentage of individuals who work with shipping or docking areas or in industrial sites. The longer one lives in an urban area the higher the percentage and the greater the number of asbestos fibrils and ferruginous bodies have been found. Interestingly, ferruginous bodies are rarely found in the hilar lymph nodes or beyond the lung itself.

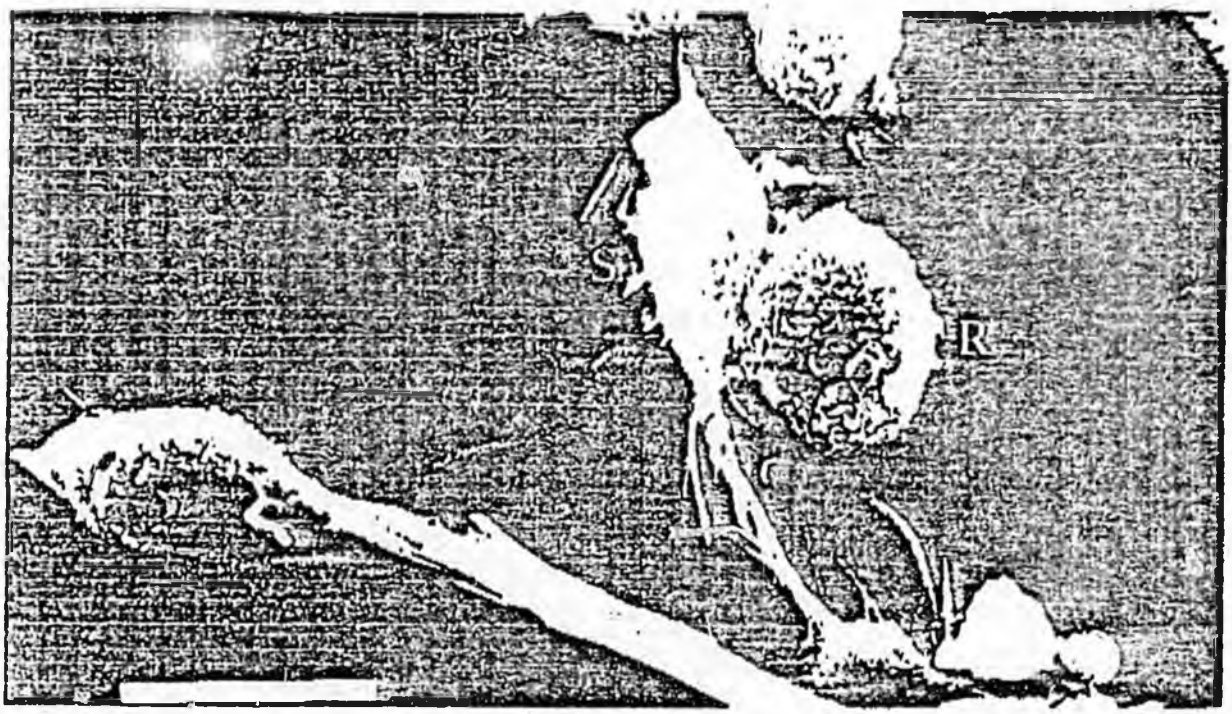


FIGURE 6. Scanning electron micrograph of untreated UICC chrysotile asbestos fibers associated with bovine alveolar macrophages: cells(S) were often observed spread along asbestos fibers with additional rounded macrophages (R) nearby (1940 x, bar = 10 μm).

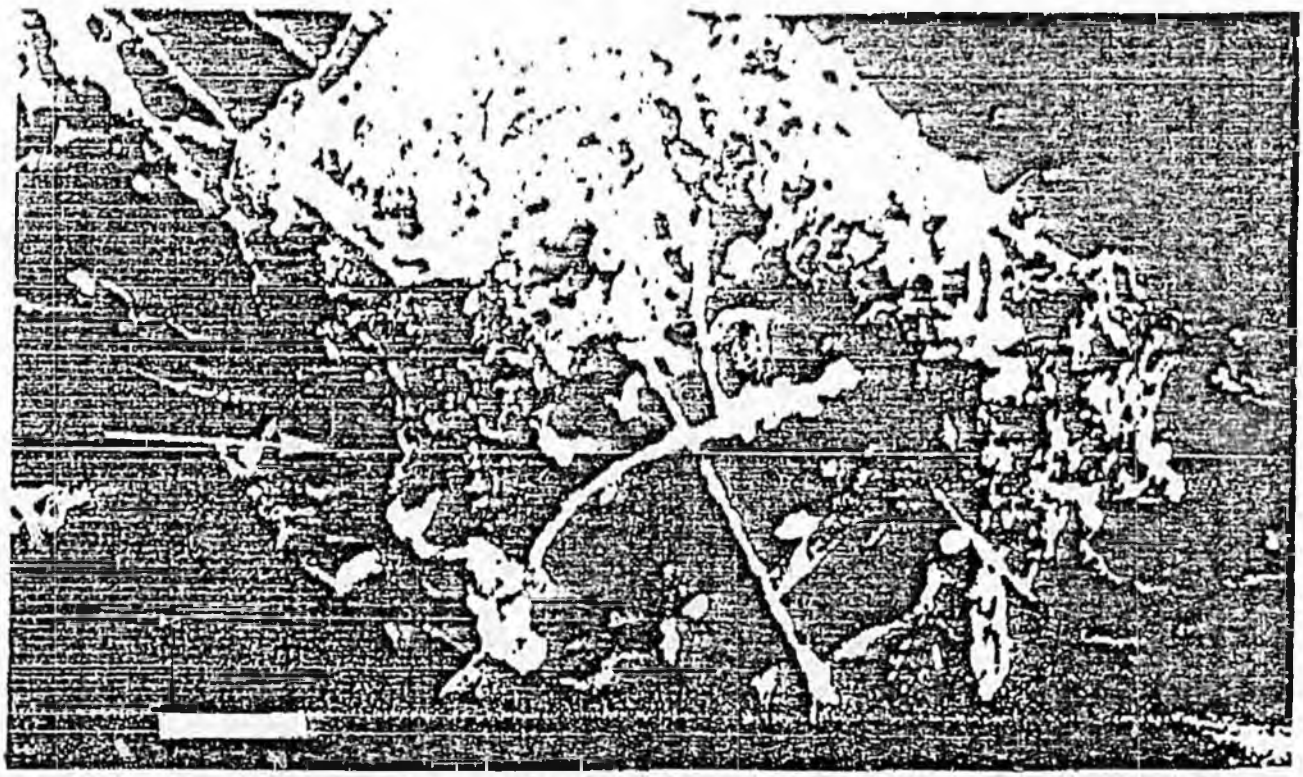


FIGURE 7. Some macrophages appeared mottled with numerous holes and a loss of typical membrane surface features. Fibers, previously X-ray irradiated, are visible (arrow) on such cells (9,700 x, bar = 1 μm).

Micrographs reprinted from: R. Valentine, et. al., "Thermal Modification of Chrysotile Asbestos: Evidence for Decreased Cytotoxicity". Environmental Health Perspectives. Vol. 51, September 1983.

V. ASBESTOS INDUCED OR ASSOCIATED DISEASES

There are six general areas of human disease caused by or at least strongly associated with exposure to asbestos dust. Most important, certainly historically, is that of diffuse interstitial pulmonary fibrosis or asbestosis. In previous years before adequate control of asbestos dust in the air was obtained, approximately 20%, or 1 out of 5 miners, would develop significant pulmonary fibrosis with the characteristic gradually progressive exertional dyspnea or shortness of breath, characteristic of this entity. With better precautions used in the handling of asbestos during more recent years, it is already noted that perhaps up to only 10% or 1 out of 10 miners have been afflicted with interstitial fibrosis of the lungs. Chest x-rays made over the years in a group of asbestos insulation workers have shown a gradually increasing number of abnormal chest x-rays with the passage of time, there being approximately 10% abnormal within 10 years, 44% abnormal within 20 years, 73% abnormal within 30 years, 87% abnormal within 40 years, and practically 94% of all chest x-rays show some abnormality secondary to asbestos dust inhalation in workers who have been exposed for over 40 years. The peak age for the development of disability in asbestos workers occurs after 20 years of exposures, in other words, after the worker has been exposed from 15-25 years. He may indeed have worked only 1-3 years in asbestos dust, and yet, 15-20 years later, full-blown asbestosis of the lung becomes apparent, indicating that the scarring in the lung progresses even after exposure to the asbestos dust per se has stopped. It is also interesting that the progression to moderate or severe pulmonary fibrosis is not related entirely to dosage, but perhaps to some genetic factors not fully understood at this time.

Examination of the lungs of the man who has died of asbestosis shows that there is diffuse fine fibrotic scarring scattered throughout primarily the lower halves of both lung fields, frequently but not usually associated with some degree of centrilobular or bullous emphysema, and with relative retraction or generalized decrease in size of the lung in the involved areas. X-ray changes of these same lungs demonstrate a ground-glass appearance of linear scarring or fibrosis with partial obliteration of the diaphragmatic and heart borders primarily in the lower lung fields. During the worker's lifetime, pulmonary function studies show what is called a restrictive defect, characterized by a decreased vital capacity, diffusing capacity, and arterial oxygen content secondary to the diffuse scarring throughout the lower lung fields. One of the earliest changes that can be discovered, in fact, is that of the decreased vital capacity which can be recognized by doing pulmonary function studies. There are occasions when more complicated pulmonary function tests such as the use of the diffusion capacity, measurement of alveolocapillary oxygen gradients and exercise blood gas tests will show an abnormality before pulmonary function studies, but this is the exception rather than the rule. The use of the chest x-ray coupled with pulmonary function studies, as is required now by OSHA, are reasonable and practical means of measuring and picking up these changes as early as they can in general be.

On occasion, it is desirable or even necessary to prove that a patient or worker has pulmonary asbestosis, and this nowadays can be done without an open lung biopsy which requires a major chest operation. The abbreviated procedure being that of transbronchial bronchoscopy with biopsy of a tiny bit of lung tissue. This tissue, if carefully examined by electron microscopy for uncoated fibers, and for coated fibers or ferruginous bodies by light microscopy can frequently give unequivocal evidence of underlying asbestosis. It must be mentioned, however,

that efficient evaluation of electron microscopy requires the full day of a trained microscopist or pathologist in order to adequately examine a single specimen. Exposure to crocidolite probably accounts for more fibrosis than chrysotile exposurs. Although we do not know what the actal fiber level is insofar as the threshold for human disease, in this instance (pulmonary fibrosis) workers are currently living longer, are having less disability due to pulmonary fibrosis, and their disease entities are picked up sooner.

The second most common disease entity related to asbestos dust exposure is that of the pleural plaque. This is a hyalinized and often calcified discrete parietal pleural plaque, not located on the wall of the lung, but on the pleura lining the chest wall and never on the lung itself. These plques are extrapleural and occur most commonly in workers exposed to anthophyllite fibers. The hyaline or calcified plaque is picked up often on routine chest x-ray as an ill-defined modular density along the margin of the lung which is almost pathognomonic of asbestos exposure. Interestingly, only 15% of the plaques are found on chest x-rays that are actually identified at autopsy, illustrating that multiple chest x-rays would need to be done in order to pick up all or most of these densities.

Clinically these plaques are rarely, if ever, symptomatic, and if a plaque is found on the chest x-ray, one can anticipate that individuals with the plaque will have a higher than expected incidence of bronchogenic carcinoma, otherwise they have little significance except for that of a signpost which calls out "asbestos". Another rare and more recently recognized disease apparently induced by asbestos fibers is that of the exudative reaction or pleural effusion of which there have been approximately 70 cases described in the medical literature. These cases are diagnosed partly by exclusion, that is, by ruling out all other causes for pleurisy with effusion, and in some instances, by parietal pleural biopsy in which asbestos

bodies and fibers are found in areas of pleural thickening and associated local pneumonitis or pneumonia. The development of this benign pleural effusion in the worker may occur in as little as 1 or as long as 5 years after exposure to asbestos. There is no specific treatment for this entity.

The malignant mesothelioma of the pleura or peritoneum, which was first described in a case reported in 1946, has become increasingly more common during the past 30 years, primarily in workers exposed to asbestos to the exclusion of other people generally. It is now well accepted that malignant mesothelioma can be induced by asbestos dust inhalation for as short a period of time as 1 or 2 months primarily to crocidolite fibers, less frequently with amosite fibers and least with chrysotile fibers, while anthophyllite fibers have not been known to produce this entity. It is interesting to speculate that the size of the fibers is the most important aspect in explaining this variation, as the crocidolite fibers are the tiniest and most needle-like of all, and therefore can penetrate deep into the tissues lining the lung and the peritoneum in order to produce this cancerogenic effect. It is also interesting that more cases are produced in those workers who are the furthest along the line in the processing of the asbestos ore, the fewest cases of mesothelioma occurring in the workers with the heaviest of the ore exposure. This implies that processing breaks down the asbestos into finer particles which are better able to penetrate deep into the tissues of the lungs. Mesothelioma is more often found, therefore, in industries which use crocidolite and amosite asbestos, as in the shipyard workers, and in workers exposed to manufactured products using these types of asbestos fibers. During the past 10 years, it has become apparent that the wives, sons and daughters of asbestos workers and individuals who live in the vicinity of shipyards where asbestos dust is used, are often the ones who, though they have no direct exposure to asbestos in their work, inhale the particles brought home by their husbands in their work

clothes or breathe in the particles from the air blown from the shipyards where asbestos is being used. Among the seventeen thousand insulation workers in America at this time, approximately one worker every two weeks dies of mesothelioma. This is in contrast to the general association among people at large of only one case of mesothelioma per million persons in the United States.

The mesothelioma usually develops in the pleural or peritoneal surfaces and spreads diffusely around and into the lung or abdominal cavity with death generally occurring within 1 year after the tumor is recognized. Pulmonary fibrosis or asbestosis is usually associated with mesothelioma in varying degrees, and ferruginous bodies are generally found in the lung, although they are not generally found in the mesothelioma itself. Uncoated fibers of asbestos can usually be found by electron microscopy.

The clinical features of mesothelioma are generally insidious with weight loss, lassitude, chest or shoulder pain, abdominal swelling or obstruction of the intestine, with generally rapid progression of the disease with average survival being less than one year. Adequate treatment is not yet available but appropriate chemotherapy is currently being evaluated. The amount of asbestos fibers needed to produce mesothelioma is apparently much less than that necessary to produce asbestosis or pulmonary fibrosis.

Carcinoma of the lung has been associated with asbestos exposure since the early 1930's, definitely confirmed by 1947. During the past ten years it is anticipated that from 15 to 20% of men having significant asbestos exposure die of carcinoma of the lung. There is a greater incidence of adenocarcinoma of the lung in asbestos workers, probably related to the fact that asbestos dust pervades every part of the lung especially in the periphery where the cells which develop into the

adenocarcinoma are more plentiful. The worker's likelihood of developing carcinoma of the lung is slightly greater in the worker who has pleural plaques noted on chest x-ray. Cancer of the lung can be more effectively treated than mesothelioma of the pleura or peritoneum, and for this reason, early diagnosis by chest x-ray or in cetain instances by Pap smears of sputum may be helpful in effecting palliative relief of symptoms and indeed cures in some patients, if they are discovered early enough in their clinical course. For this reason, annual chest x-rays in every asbestos-exposed individual should be carried out for their lifetime. The longer the duration of the asbestos-exposed worker's employment the greater the risk of developing lung cancer. Even 1 month of working with asbestos was enough to increase the instance of bronchogenic carcinoma, in that the instance of cancer was twice as much in such a worker, as in one who has no asbestos exposure. After two years of exposure the instance of lung cancer increases to six times that of the normal person, and after ten years rises markedly. The smaller the dose of asbestos, it has been found, the longer the induction period before the cancer deevelops. In general, when cancer of the lung is first diagosed, 75% of them are inoperable at that time. If the lung cancer can be found as a small peripheral nodule resected by lobectomy, 40 to 50% will survive for as long as 5 years.

The final area of asbestos-associated disease, mainly where the relationship is less positive as to the etiologic agent being asbestos, includes other tumors or cancers which are found to be of greater incidence in workers or people exposed to asbestos. At this time, cancer of the esophagus, larynx, stomach, colon, and more recently the pancrease, are definitely in increased numbers as compared with the general population, and hence pose added risk to the asbestos worker. These entities are, in general, two to five times more common in asbestos workers than in the general populace.

VI. RELATIONSHIP OF SMOKING TO ASBESTOS INDUCED DISEASES

In August 1978, Johns-Manville, the biggest producer of asbestos products in the United States, not only had banned smoking entirely in the company work area, but has since established a policy that no person who smokes will be hired by the company for any operation where there is a possibility of exposure to asbestos, and that applies to the entire plant, including the officers. Even visitors to the plant are prohibited from smoking inside the plant itself. This action is to be strongly commended, and yet it was not enforced without considerable controversy. What in fact are the effects of smoking or not smoking on the health of the asbestos worker?

Insofar as pulmonary fibrosis or asbestosis of the lung, there is little or no effect on the scarring in the lung insofar as whether the worker smokes or does not smoke. There is no question, however, that smoking aggravates and causes to develop a significantly greater obstructive defect in the lung, which further increases the worker's shortness of breath, and especially his amount of cough and expectoration, as compared with the non-smoking worker who develops asbestosis. There is also no apparent statistical role in the development of mesothelioma of the pleura or of the peritoneum in asbestos workers, and the same probably applies to the development of the asymptomatic pleural plaque and the benign pleural effusion. There is, however, a greater incidence of cancer of the stomach and larynx associated with smoking, but it may not have a significant effect insofar as the asbestos worker is concerned.

Wherein, therefore, is the data for forbidding smoking in an asbestos plant? Statistically it has been shown that the non-smoking asbestos worker will develop

cancer of the lung approximately five times more commonly than the non-smoking, non-asbestos worker. This proportion, in itself is relatively mild, but significant. In the smoking asbestos worker, however, there is a multiplicative or synergistic effect in that there is a fifty-four times greater rate of cancer of the lung than in the non-smoking, non-asbestos-exposed individual, and these facts are borne out that approximately 15-20% of all asbestos-exposed workers in previous years will develop carcinoma of the lung, almost one of every five workers. This is in sharp contrast to the one or two out of each hundred to one hundred fifty workers who do not smoke. In other words, the worker's chance of developing cancer of the lung is 20 times greater if he smokes while working in an asbestos environment than if he does not smoke. Unfortunately, banning smoking on company premises does not stop the person from smoking, but an adequate educational program by management, backed up by labor, is the best approach towards reducing the high incidence of lung cancer in these individuals.

VII. DURATION OF EXPOSURE AS RELATED TO DISEASE DEVELOPMENT

TABLE I

ROENTGENOLOGIC CHANGES IN ASBESTOS INSULATION WORKERS

Years of Exposure (yr).	No.	Percent Normal	Percent Abnormal	Asbestosis 1	2	3
40+	121	5.8	94.2	35	51	28
30-39	194	12.9	87.1	102	49	18
20-29	77	27.2	72.8	35	17	4
10-19	379	55.9	44.1	158	9	0
0-9	346	89.6	10.4	36	0	0
	1,117	51.5	48.5	366	126	50

Selikoff et. al.

In general, the initial exposure of the asbestos worker to asbestos dust may be measured in decades for convenience in categorization. For example, in the fibrosis induced by asbestos dust there are few changes noted during the first ten years, but during the second ten years, mild changes occur. These changes moderate from ten to twenty-nine years after the initial exposure, and result in a greater degree of pulmonary scarring during the fourth decade. As shown in Table I, pulmonary fibrosis, as evidenced by x-ray changes, becomes increasingly more prominent the longer the time from initial onset of exposure. Practically every asbestos worker who has worked for over forty years or has had forty years from the initial exposure has some evidence by chest x-ray of lung or pleural abnormality not found in the normal individual. The same applies to the development of disability in these workers, in that the average person who develops asbestosis or pulmonary fibrosis becomes disabled somewhere between the fifteenth and the twenty-fifth year peaking at the twentieth year following initial exposure to the dust.

28 8 30

The same findings are similarly true with mesothelioma and lung cancer, as is shown by the accompanying Figure 2 (below).

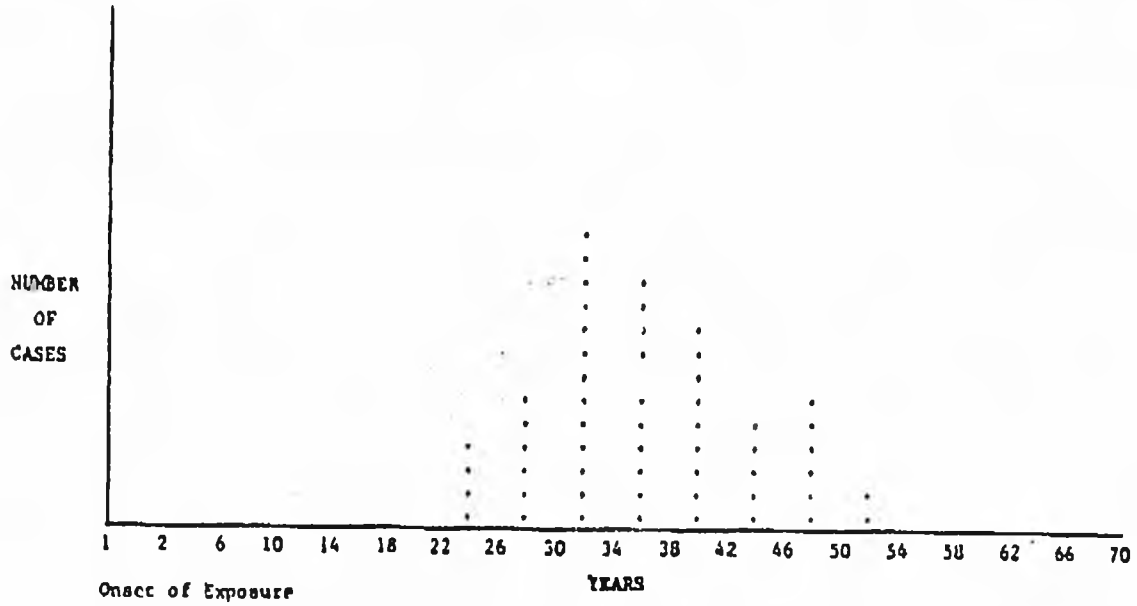


Figure II. Fifty-six cases of neoplasm of the lung or pleura (each case represented by a dot). The elapsed time from onset of exposure is shown on the base line.

The individual exposed to asbestos dust will develop cancer in approximately eight or ten out of every hundred workers rarely before twenty years from the date of initial exposure, and usually over thirty years after the initial exposure, which indeed may not be more than one or two months total exposure time for this entity to develop. The average age of development is approximately 31.8 years for mesothelioma, while for lung cancer, which rarely occurs before thirteen years after initial exposure, the average age of development from date of onset of initial exposure to asbestos dust is approximately 30.7 years. As mesothelioma and lung cancer are relatively late-developing asbestos-induced diseases, it is quite likely that an even greater percentages or workers will develop these cancers as they become older.

29 & 30

The primary importance of recognizing the time lag between initial exposure and the development of the disease is many current laws concerning Workmans' Compensation, Social Security benefits, and Workers' Pension Plans, contain a statute of limitations which states that the person is not liable for a company-induced disease, if the disease is discovered or diagnosed more than two, five, or perhaps seven years from the date the worker left the company's employment. State, federal and company rules or laws need to be modified in order to accept the medical facts related above. Each of these three major disability diseases; pulmonary fibrosis, mesothelioma, and lung cancer, all may develop twenty to thirty-five years or longer after the exposure to the asbestos dust has terminated.

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Asbestos

EVALUATION BASED ON TYPE OF FIBER REFUTED BY THREE FEDERAL HEALTH GROUPS

The Environmental Protection Agency's policy of regulating asbestos uniformly, rather than by the type of asbestos fiber, was endorsed recently by three federal health groups after the policy was challenged in a House Appropriations Committee report and by U.S. Geological Survey officials.

The House report and Geological Survey officials maintained that chrysotile or "white" asbestos is less of a health hazard than other forms of the substance, and should not be regulated as stringently.

That position, however, was disputed by the Centers for Disease Control, the National Toxicology Program, and the National Institute for Occupational Safety and Health. The groups said scientific evidence clearly links chrysotile asbestos exposure to increased incidences of human cancer.

Their opinions came in letters sent in response to an inquiry from Sen. Robert T. Stafford (R-Vt), chairman of the Senate Environment and Public Works Committee, and committee member Sen. James Abdnor (R-SD).

Stafford and Abdnor said they sought to clear up the confusion created by a Geological Survey mineralogist who briefed committee staff members on the human health risks associated with chrysotile asbestos fibers.

Support of Chrysotile Asbestos

The mineralogist, Malcolm Ross, cited a study of Canadian chrysotile asbestos miners that Ross said demonstrated that inhaled white asbestos does not present a significant health risk.

After receiving a similar briefing, the House Appropriations Committee said in its May 23 report on fiscal 1985 funding for HUD-Independent Agencies that EPA should study chrysotile asbestos before taking any further regulatory action restricting asbestos use.

The House report concluded "there is no conclusive evidence of measurable adverse health effects produced by the inhalation of 'white' asbestos at low nonoccupational exposure or from ingestion even at high concentrations."

EPA is seeking to control asbestos exposure in schools and other public buildings, and has included the substance among its top agency regulatory priorities for fiscal 1984 (Current Report, Feb. 24, p. 1678; Jan. 13, p. 1518).

Most of the asbestos used in this country is the chrysotile variety, according to the House report.

Health Groups' Responses

Citing a number of health effects studies, the Centers for Disease Control said current data "have shown that chrysotile asbestos is carcinogenic and fibrogenic."

CDC officials said the conclusions by the Geological Survey that white asbestos is not as hazardous as other forms of the substance were "made using many statistical manipulations that are highly inappropriate." The USGS also failed to "consider the period of time from first exposure to disease manifestation," which can be up over 30 years, according to CDC.

David Rall, director of the National Toxicology Program, said that, while early reports on Canadian miners "suggested that chrysotile was less carcinogenic than other forms of asbestos," recent studies have shown "that chrysotile causes lung cancer and there is a linear dose response relationship between chrysotile fiber concentration and lung cancer. Further, there has been an increased incidence of mesothelioma related to chrysotile exposure."

Richard Lemen, director of NIOSH's Division of Standards Development and Technology Transfer, said that chrysotile asbestos "is as potent as the other types of asbestos." Lemen said current epidemiological studies demonstrate white asbestos' "ability to induce non-malignant respiratory disease and cancer in humans."

Premanufacture Notification

CONSENT ORDER LIMITS USE, EXPOSURE OF THREE CHEMICALS, ALLOWS MANUFACTURE

Workplace exposure controls, use limitations, and recordkeeping requirements for three premanufacture review chemicals were approved by the proposed manufacturer and the Environmental Protection Agency in a consent order which allows the firm to make the substances.

According to the Toxic Substances Control Act agreement, the controls are needed on PMN 84-105, 84-106, and 84-107 because the chemicals are similar to a substance shown to cause kidney, liver, and lung damage in test animals. Dermal, oral, and inhalation exposure was anticipated for the substances.

Exempted from the controls, however, is manufacture of the chemicals in small quantities for research and development purposes and manufacture solely for export.

Under the consent order, the company agreed to limit airborne concentrations of the chemicals, require respirators when the concentrations reach a certain level, require workers to use protective clothing and impervious gloves, and maintain records on the safety precautions. Exposure protection information must be distributed to all employees who might be exposed to the substances.

The agreement, developed under TSCA Section 5(e), also limits uses of the chemicals. PMN 84-105 was approved for use as a monomer, and 84-106 and 84-107 as intermediates.

Section 5(e) of the act allows the agency to limit or ban premanufacture review chemicals on which insufficient data are available. In this case, the company agreed to follow the exposure and use controls in return for being allowed to produce the substances.

Confidentiality Claims

Claimed as confidential business information on the premanufacture notices were the manufacturer's name and identification of the substances, exact use, and environmental release or disposal information. Generic names provided for the chemicals identified PMN 84-105 as halogenated alkene and 84-106 and 84-107 as halgenated alkanes.

Toxicity data indicated that 84-106 was a severe skin and eye irritant in animal studies and 84-105 and 84-107 were moderate skin and eye irritants, according to the consent agreement. The agreement was signed June 13 by John Moore, assistant EPA administrator for pesticides and toxic substances, and by the firm June .

The agency indicated that the substances have the potential for bioaccumulation, but noted that no significant releases are expected under the conditions of manufacture and use and no environmental effects are anticipated.

While not requiring further study of the three chemicals, the agency indicated it might modify or eliminate the exposure and use controls if certain recommended tests showed the substances are safe. Subchronic inhalation studies were recommended for all substances; a teratogenicity study was recommended for PMN 84-106.

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FIELDNOTES
From The Arizona
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ASBESTOS

Toward A Perspective

by H. Wesley Peirce, Principal Geologist
and
Meliton M. Garcia, Industrial Hygienist

Director's Comment: Asbestos has achieved international notoriety largely because of its reported carcinogenic (cancer-causing) tendencies. A dilemma exists because of a conflict between two issues: 1) negative effects related to public health, and 2) positive public benefits derived from asbestos use. Although positions have already been taken on this subject by many, it is our belief that enough uncertainties exist to encourage further research and discussion. The purpose of this article is to put current knowledge into perspective and to encourage additional analysis. [W.P.C.]

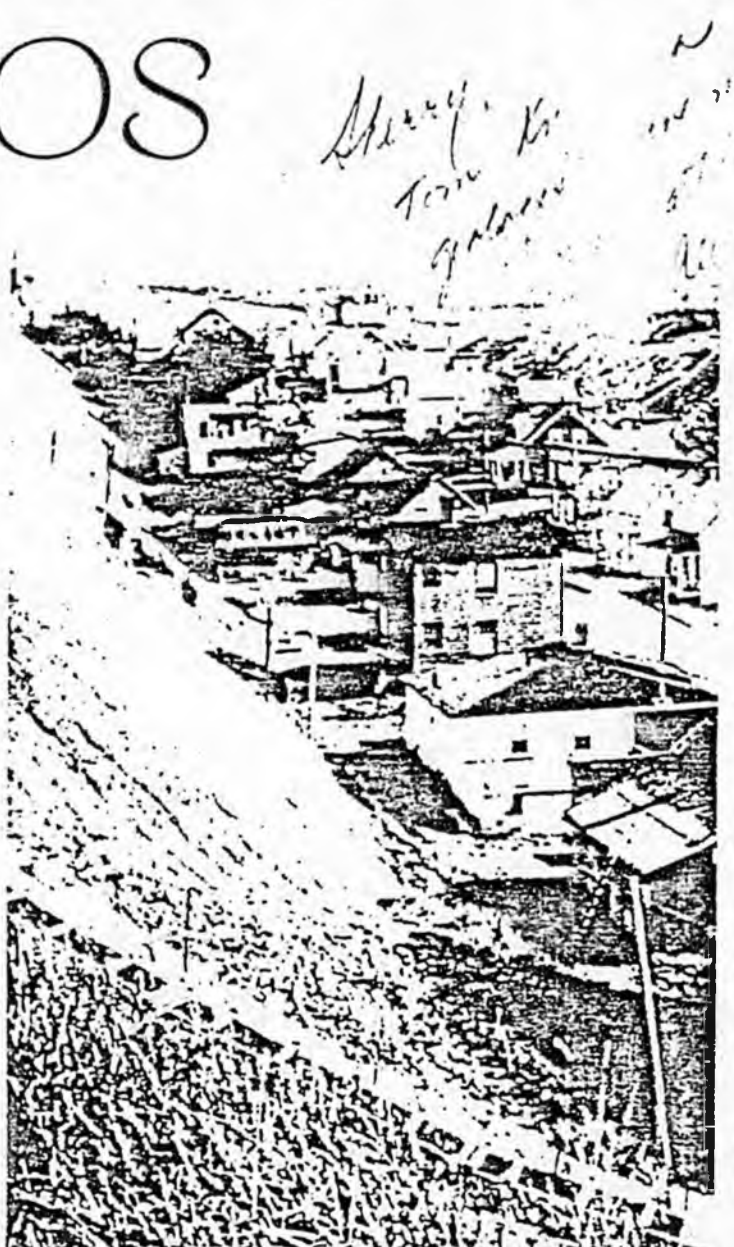
INTRODUCTION

Like the word "snakes", asbestos is not a scientific word. Both are lumping terms encompassing a group of similar, yet different species. Although such terms serve a useful purpose for general identification, they do not acknowledge component parts and, therefore, perpetuate misunderstanding of specific characteristics. Are all snakes identical? Are all fibrous (asbestiform) minerals under the label "asbestos" likely to be identical? Where data exist, is the cause of good science served by not differentiating species and their respective attributes? "No" seems the logical response to each of these queries.

A summary follows of: 1) the nature of the problems related to the use of asbestos, 2) the world-wide geologic distribution of economic deposits of asbestos minerals, 3) the scope and significance of the asbestos industry, 4) highlights of asbestos in Arizona, and 5) health-related considerations. The term "asbestos" will be used in this article to denote the family of commercially exploited mineral fibers.

NATURE OF THE PROBLEM

As civilizations increase in complexity, the number of technical issues projected into the arena of public debate and reaction, especially in democratic societies, also increases. In those technical issues that are delivered to the body politic through the news media (a dominant form of public education), rhetoric may quickly overrun the information base or selectively use data to focus on a specific idea or perceived problem. In such cases, choosing between legitimate concern and overreaction, though difficult at best, seems an essential pursuit, if truth is to be sought rather than emotional response.



Part of a Quebec, Canada mining town nestled among waste piles resulting from the mining and milling of chrysotile asbestos. Photo from *Resources Quebec* 1980, v. 4, no. 1, p. 18.

The rejection of asbestos into the forefront of public awareness over the past decade stems from two conflicting factors: 1) asbestos, a naturally occurring group of earth materials used in a myriad of industrial and domestic products,

constitutes the base for an extensive, international mining, milling, and manufacturing industry, and 2) asbestos, under certain circumstances, is a contributing factor in the cause of cancer and other diseases. Thus, there is a diversity of interest in asbestos.

The lack of agreement on what constitutes an asbestos material is a continuing problem. Much disagreement exists over the definition of asbestos, especially as it pertains to occupational health and safety regulations. Defintions vary depending upon those concerned–medical interests, occupational health and safety enforcement agents, mineralogists, lawyers, industrial users, economists, etc. The occupational health and safety standards derive their definition from governmental agencies (U.S. Department of Health and Human Services, NIOSH-OSHA Work Group, 1980).*

The question before the world's health and regulatory establishments is the extent to which the hazards of asbestos outweigh the benefits. On this subject, the Office of Technical Assessment stated in 1981: "Because the Federal Government does not accept a threshhold level for carcinogens, a strict interpretation of these laws would require that risk be entirely eliminated." Obviously, this kind of interpretation creates a dilemma of large proportions. To what extent, as a practical matter, should such laws be enforced? Is there no room for flexibility? Actually, some flexibility is provided to regulatory agencies by Congress through the use of expressions like "unreasonable risks". However, who is to judge what constitutes a reasonable risk? The ideal is to balance risks, costs, and benefits, at the same time being sensitive to equity considerations (i.e., risks may be disproportionately borne by some in order to provide benefits for others).

Can a condition of reasonable risk be attained without debilitating the entire asbestos industry for all time? The answer to this question is encouraged by epidemiological data coming to light which indicate that chrysotile, the principal mineral of the asbestos industry, does not present the degree of risk that attends some of the other commercial fibrous materials.

MINERALOGY AND USAGE

Although there are many naturally occurring elongated minerals that are referred to variously as fibrous, asbestiform, acicular, filiform or prismatic, few occur in deposits suitable for commercial exploitation. Commercial asbestos is generally considered to occur naturally in six forms (see footnote on page 1). It is important to recognize that these six commercial fibrous minerals are not identical in crystal structure, chemical composition, abundance, geologic occurrence, degree of exploitation, etc. Furthermore, human epidemiologic data (i.e., incidence, occurrence, and control of disease in population) suggest that they also are not identical in their disease-causing potential. These commercial fiber types not only differ between species, but also somewhat within species as well. Differences exist in fiber dimension, flexibility, tensile strength, resistance to heat, electrical conductance, specific gravity, and other properties (Shride, 1969).

Each mineral locality tends to have its own set of fiber characteristics suitable for certain, but not all, possible uses. In other words, all occurrences of the same mineral species are not necessarily suited for identical uses. As examples, fiber length is a major factor in grading asbestos for commercial purposes–the longer lengths being more valuable, with the soft fibers worth more than harsh fibers. The longer fibers are valuable because they can be spun or woven into fabrics. Most of the spinning fibers are chrysotile asbestos. Amosite fibers are shorter and are used for various felted insulation products. Lighter weight products can be made with amosite for use in aircraft and ships. Crocidolite has high tensile strength and is acid resistant. Spun or woven crocidolite fibers are used in making fiber cement pipe because they allow free and rapid filtration of fluids that speeds up manufacturing processes (Bowles, 1959).

OCCURRENCE

Major sources of amphibole fibers have been the amosite and crocidolite deposits of South Africa, the crocidolite of western Australia, and the anthophyllite of East Finland (Ross, 1981). Minor occurrences of amphibole-type fibers in the U.S. that have had some production include anthophyllite in Georgia, North Carolina, Idaho, Maryland, and Massachusetts. Tremolite has been mined only in a small way from deposits in South Africa and Maryland. Commercial mining of actinolite is practically unknown. Today, mining of amphibole asbestos is essentially confined to South Africa.

By far, the most important commercial mineral fiber comes from the serpentine type known as *chrysotile*. The two most important world sources of this fiber are the Ural Mountains of Russia and the Appalachian Mountains portion of Quebec, Canada (Table 1), and northern Vermont, U.S.A.

Fiber Type	Continent/Source	Amount Produced
Chrysotile (5,317,000 MT)	Europe	2,775,000
	North America	1,713,000
	Africa	377,000
	Asia	293,000
	South America	101,000
	Australia	58,000
Crocidolite (210,000 MT)	Republic of So. Africa	210,000
Amosite (71,000 MT)	Republic of So. Africa	71,000
	World Total	5,598,000 MT

Table 1. Estimated world asbestos production by fiber type (metric tons), 1978 (data from U.S. Bureau of Mines).

Sixty years ago Arizona led the nation in the production of chrysotile. At that time Arizona chrysotile, formed about 1.2 billion years ago, contained about half as much iron as did the known Canadian (Quebec) chrysotile, a valuable asset

*At present, a widely used definition of asbestos in the United States is included in the proposed regulations and guidelines of "Occupational Exposure To Asbestos", published in the Federal Register by the Occupational Safety and Health Administration (OSHA). In this notice, the naturally occurring amphibole minerals (amosite, crocidolite, anthophyllite, tremolite, and actinolite) and the serpentine mineral (chrysotile) are classified as asbestos if the individual crystal fragments have the following dimensions: length greater than 5 micrometers (microns), maximum diameter less than 5 micrometers, and length-to-diameter ratio of 3 or greater. Any product containing any of these minerals in this size range is also defined as asbestos. [1 meter = 1,000,000 microns; 5 microns = .0092 inches].

A joint National Institute for Occupational Safety and Health and OSHA committee published the following in 1980: "Definition of Asbestos. Having considered the many factors involved in specifying which substances should be regulated as asbestos, the committee recommends the following definition: *Asbestos is defined to be chrysotile, crocidolite, and fibrous cummingtonite-grunerite, including amosite, fibrous tremolite, fibrous actinolite, and fibrous anthophyllite. The fibrosity of the above minerals is ascertained on a microscopic level with fibers defined to be particles with an aspect ratio of 3 to 1 or larger.*"

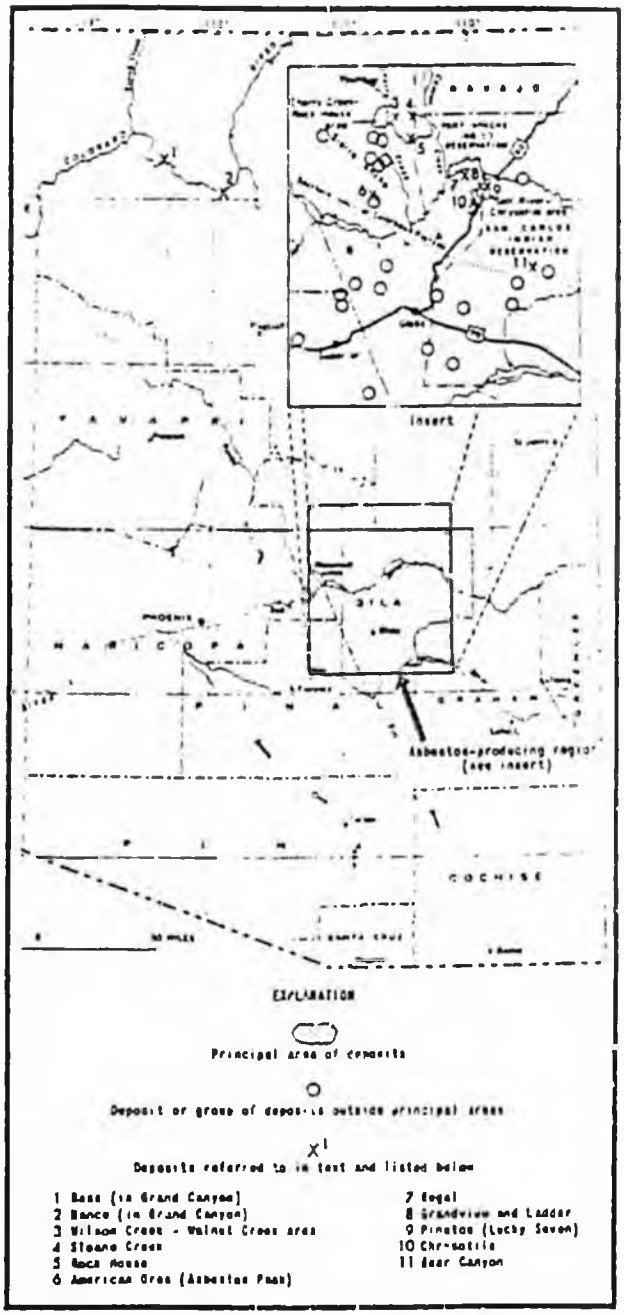


Figure 1. Map of major chrysotile asbestos occurrences in Arizona (from Arizona Bureau of Mines Bulletin 180).

for certain electrical applications. As recently as the 1950s, Arizona chrysotile was the only domestic source of low-iron chrysotile spinning fiber (used in covering electric cables) that met Navy asbestos specifications (Stewart, 1955). The filter market has been the principal outlet for high-grade Arizona chrysotile.

Chrysotile fiber is reported to have been seen in 1869 in the Grand Canyon by members of the Powell expedition (Wilson, 1928). Claims were filed about the year 1900 and a small amount of fiber was mined in 1903. The first of the more famous Gila County occurrences was recognized in 1872. However, additional discoveries were made and the first claims filed in 1913 (Stewart, 1955). In 1914 the Johns-Manville Company acquired the claims and soon became the leading producer in Arizona. Because of this early success, prospecting increased and hundreds of locations were made along the Salt River, Cherry Creek, and in the Sierra Ancha region of east-central Arizona. After World War I, the highest price for the best grade crude chrysotile reached $3,000 per ton, resulting in much early prospecting. In response to this early interest, the Arizona Bureau of Mines published a bulletin called *Asbestos* (Allen and Butler, 1921). Because of a continuing demand for information, another bulletin about Arizona asbestos followed (Wilson, 1928). Major Arizona occurrences of chrysotile asbestos are shown in Figure 1.

PRODUCTION

Although asbestos had been mined as far back as Roman times, the modern industry did not start until the late 1800s. By 1890 the asbestos industry was going strong, with hundreds of commercial applications for fibrous material. Northern Italy was the first region to come into production. However, by 1900 the large South African crocidolite deposits had been opened and the Russian deposits in the Ural Mountains were being mined in large quantity. A few years later, mining of amosite deposits of South Africa was initiated. By 1980 about 100 million MT (metric tons) of asbestos fiber had been mined throughout the world. More than 90 percent of this was chrysotile and about 5 percent amosite and crocidolite (Ross, 1982). The remaining few percent is attributed to the other amphibole fibers, principally anthophyllite.

Amosite from South Africa, crocidolite from Australia, and anthophyllite from East Finland all come from rocks about two billion years in age. South African fiber production presently amounts to about 200,000 MT per year. The production of Australian crocidolite was terminated in 1966 after 138,000 MT had been shipped. The anthophyllite deposits of East Finland were operated continuously between 1918 and 1975, when mining terminated for economic reasons; approximately 350,000 MT of fiber was produced, 230,000 MT of which was exported.

The Quebec chrysotile deposits were discovered in 1877. By 1900 Quebec had already supplied 150,000 MT of fiber; by 1980 nearly 40 million MT had been mined–approximately 40 percent of the world's total mineral fiber production (Ross, 1981). Russia is the world's largest producer of chrysotile today, the Ural area contributing about 2.4 million MT per year.

Other exploited chrysotile deposits are located in the Italian Alps (160,000 MT per year), Cyprus (40,000 MT per year), South Africa (113,000 MT in 1978), Swaziland (43,000 MT in 1978), Zimbabwe (210,000 MT in 1978), and in the Coalinga area of California. Although the California deposits include large near-surface reserves, mining has lagged because of short fiber length and environmental controls (Ross, 1981).

In 1978 Russia produced 2,582,000 MT of chrysotile fiber, 46.1 percent of the world's total fiber output. Canada produced 1,620,000 MT of chrysotile fiber, 28.9 percent of the world total. Thus, in 1978, 75 percent of the world's asbestos production came from just these two regions. In contrast, the U.S. produced 93,000 MT of fiber (chrysotile), less than 1.7 percent of the total. South African amosite and crocidolite production amounted to 281,000 MT or 5 percent of the world fiber output. The remaining 18.3 percent, all chrysotile, is attributed to 15 other countries, the largest shares assigned equally (3.7 percent) to China and Zimbabwe. Only three firms, operating in Vermont and California, are now producing asbestos (chrysotile) in the U.S. Table 1 shows the estimated world production for 1978.

Shride (1969) states that chrysotile asbestos was mined from about 160 deposits in Arizona and that perhaps another 60-70 occurrences are known. In terms of production, Arizona asbestos has, overall, been a small contributor. Shride estimates that total production through 1966 of at least 82,000 MT was valued at about $17 million at the time of sale. Today, the Arizona asbestos industry is inoperative.

CONSUMPTION

The following excerpts about the asbestos industry, as it once was, are taken from Bowles (1959):

> Asbestos furnishes a major raw material for a great variety of essential products, the manufacture of which constitutes a vast industry . . . the United States has developed the greatest asbestos-products industry in the world . . . Domestic mines furnish (in the form of chrysotile fiber) only 6-8 percent of all grades and an even smaller percentage of the important strategic grades.
>
> The procurement of necessary supplies is a problem of world-wide scope, and in every war emergency asbestos assumes top priority among strategic minerals. It is of paramount importance, therefore, that a thorough knowledge should be gained of the composition and properties of asbestos, its uses and requirements for each use, grades and specifications, the degree of essentiality of each application, the nature and extent of sources of supply throughout the world, mine and mill capacity, reserves, transportation, facilities, political and commercial control, world requirements by countries, import and export data, allocation of supplies, fiber beneficiation, possibilities of synthetic asbestos manufacture, use of substitute materials, past war controls, war history, and various other problems that may appear.

The U.S.S.R. has supplanted the United States as the largest consumer of asbestos fiber (Clifton, 1979). U.S. consumption for the years 1977-1982 is shown in Figure 2. Whereas the use of asbestos in developing countries is expanding, Figure 2 indicates a continuous decline in U.S. asbestos consumption since 1977. Clifton (1983) states that the 1982 domestic consumption of about 250,000 MT (over 90 percent supplied by Canada) is the lowest since 1940. He estimates that about 400 firms, centered in the eastern states, are manufacturing asbestos products. In 1982 U.S. commercial uses of fiber included asbestos-cement pipe (37 percent), flooring products (20 percent), friction products (14 percent), roofing products (9 percent), packing and gaskets (6 percent), asbestos-cement sheet (6 percent), and other uses (8 percent). Clifton also suggests that certain domestic market segments may have been permanently lost to substitutes. Although no wholly satisfactory substitutes are available for asbestos in many applications, such as friction needs, much research is underway to evaluate possible alternatives.

HEALTH HAZARDS

That asbestos fibers, under certain conditions of exposure, may cause disabling diseases in humans appears to be well established. Three principal diseases have been attributed to excessive exposure to asbestos fibers: 1) asbestosis, a fibrosis of the lung tissue which reduces the elasticity and function of the lungs, 2) lung cancer, and 3) mesothelioma, a rare cancer of the pleural and peritoneal membranes. Nearly all of the asbestos-related diseases have occurred in occupational groups–those concerned with mining and milling of asbestos, the manufacture of asbestos-containing products, and the application and removal of insulation materials containing asbestos fibers. However, some non-occupational asbestos-related disease has been documented and is summarized later.

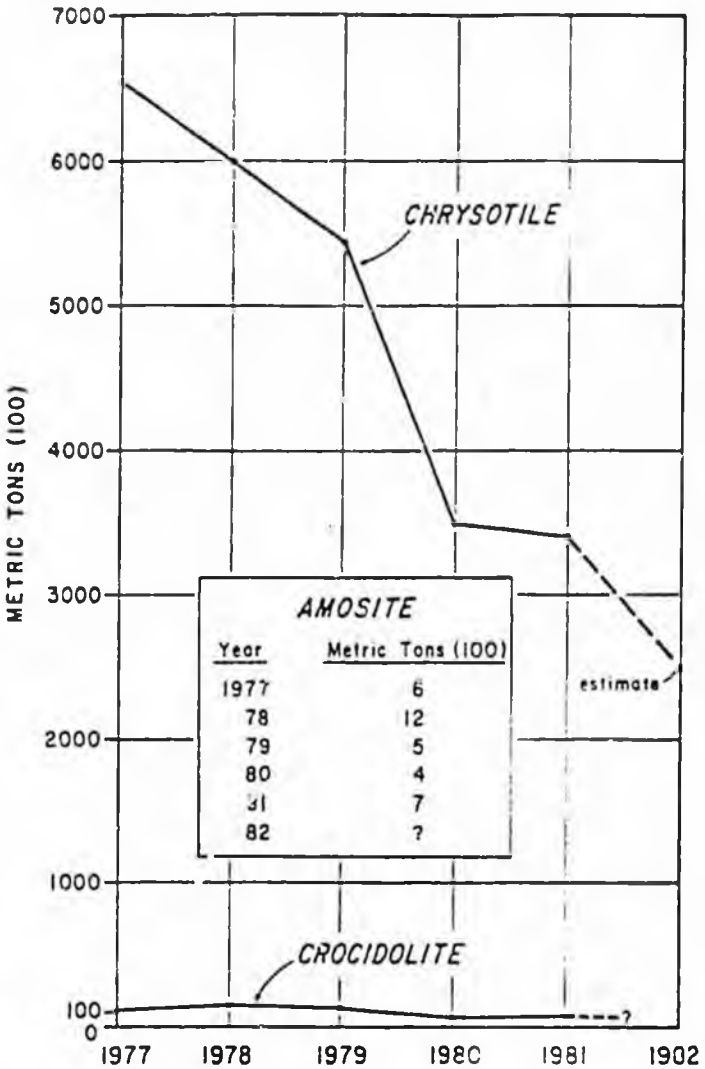


Figure 2. U.S. asbestos consumption by fiber type (100 metric tons), 1977-1982.

During the turn of the century when the use of asbestos fibers was increasing due to rapid expansion of product lines, the control of dust created by certain operations was not perfected. It is known that in some textile manufacturing operations, such as carding, spinning, and weaving of asbestos fibers, dust concentrations were so high that a person could not see beyond an arm's length. After many years of this type of exposure, some employees developed a pulmonary disease that was named asbestosis. Upon recognition of this affliction, dust control measures were initiated that significantly reduced the incidence of asbestosis.

The first suggestion of a causal relationship of exposure to asbestos fibers and lung cancer was proposed in the mid-1930s (Lynch and Smith, 1935). It was also recognized that there was a long time lag between first exposure and onset of disease. As with asbestosis, the control of exposure resulted in a marked decrease in the incidence of lung cancer.

The association of exposure to asbestos fibers and mesothelioma was not given serious consideration until after

1960 when 33 cases of mesothelial malignancies were reported in a crocidolite mining population in South Africa (Wagner and others, 1960). This disease appeared many years after initial exposure.

Generally, asbestos-related diseases appear in asbestos workers only after many years have elapsed since first exposure. A significant increase in the lung cancer death rate appears 10-14 years after first exposure and peaks at 30-35 years. The mesothelioma death rate becomes significant 20 years after first exposure, but continues to climb even after 45 years have elapsed. The asbestosis death rate becomes significant 15-20 years after first exposure and apparently peaks at 40-45 years (Selikoff and others, 1980). It is to be emphasized that these cited, generalized statistics are based upon studies of workers who were exposed daily to various fiber types as part of their work environment. The significance of exposure levels of the different fiber types, over time, needs to be addressed if precision and a guiding perspective are to be gained.

Risk

The determination of asbestos risk can be approached in two ways: 1) tests on animals, and 2) observations on humans exposed to asbestos dusts in mines and mills, and various plants and workplaces where these particular fibers are involved. The argument is made that animal studies are essential because the time required to study humans renders most direct studies impractical. The only reliable study of humans involves case histories with statistical data assemblages. A result is said to be positive when it reveals an excess of mortality that is caused by the agent under study. (An excess is that amount beyond what is statistically expected in a population not exposed to the risk.) Positive epidemiological results are taken by agencies as strong evidence of carcinogenicity, whereas a positive bioassay (animal test) is taken as evidence that a substance is a *potential* human carcinogen. Apparently, agencies specify stringent requirements with which to weigh negative epidemiological data against positive animal information.

Carcinogenicity of asbestos fibers has been studied by exposing laboratory animals to fibers by the following methods: intratracheal injection, intraperitoneal injection, intrapleural injection, ingestion, and inhalation. With the exception of inhalation, and ingestion to some extent, the foregoing routes of exposure are not likely in humans. In addition, the quantity of asbestos required to produce these effects in laboratory animals, by any of these routes of exposure, is high relative to dosages experienced by humans in occupational environments.

A report dealing with airborne asbestos was prepared by the Committee on Biological Effects of Atmospheric Pollutants (National Research Council, 1971), and information derived from their assessment of animal studies may be worth noting:

> Asbestotic pulmonary fibrosis has been produced experimentally in various species of animals, including rats, guinea pigs, hamsters, rabbits and monkeys. In many of the studies, the disease resembled early asbestotic development in man . . . Diffuse fibrosis has also been produced, but to do so it was necessary to use very high concentrations of asbestos dust and long periods of exposure or observation after exposure . . . Lung cancer from chrysotile dust has been produced experimentally in rats and in mouse lung implants. Other investigators who used different methods for introducing the dust did not find lung cancer in animals they studied... Rats whose lung clearance had been artificially impaired had twice the lung cancer rate of animals with normal clearance... cancer of the pleural surface (mesothelioma) has been reported in rats and hamsters that received intrapleural injections of the three most common types of asbestos. The amounts of asbestos dust introduced into the thoracic cavity were very large, and translation of results to human inhalation of asbestos is uncertain.

As already indicated, disease incidence increases significantly among various asbestos trades workers. Most of these are men who most likely handled several types of asbestos fibers during their working careers. In contrast, miners and millers tend to be exposed to only one form of fiber. This latter category, then, provides some opportunity to isolate the effects of individual fiber forms on health. More about this later.

Lungs of persons in urban and rural non-occupational settings have been shown to contain "asbestos" fibers. Many of these fibers, or bodies, are probably derived from the burning of leaves and from plant products, such as paper, wood, and coal, man-made fibers, talc used generously as a body dusting powder (which may contain tremolite), graphite, hornblende, diatomaceous earth and carborundum (National Research Council, 1971; Cooper, 1967). That thousands or even millions of fibers are present in most human lungs has been recognized since the turn of the century. Although many urban areas contain measurable asbestos fiber counts in the ambient air, epidemiological study indicates that there are no unusual health problems attributed to breathing chrysotile fiber in a non-occupational setting (Ross, 1982).

In many epidemiological studies, "asbestos" is the common denominator and specific fiber types are not considered. Some feel strongly that such lumping serves to mask the probability that the various fibers differ in their disease-causing tendencies in humans (Ross, 1982; Rutstein, 1982). This distinction, if valid, should be viewed with the knowledge that chrysotile fiber is the overwhelming contributor to asbestos production the world over, besides being the only fiber mined commercially in the U.S. However, amosite and crocidolite, though normally minor contributors, were heavily used in certain war-related industries during World War II.

Malcom Ross (1982), a physical chemist and geologist-mineralogist with the U.S. Geological Survey, has reviewed and analyzed asbestos-related data from 110 published sources from around the world. His primary interest was to survey asbestos-related disease in all aspects of the industry and assess *non-occupational* risks of fibrous minerals. Following are some of Ross' conclusions:

> 1) Non-occupational exposure to chrysotile asbestos, despite its wide dissemination in urban environments throughout the world, has been shown by epidemiological studies to be of no recognized health significance. If chrysotile asbestos were hazardous to health, the women of Thetford Mines, Quebec (where over 20 million MT of chrysotile asbestos has been mined), would be dying of asbestos-related diseases; yet this has not occurred (see cover photo). The health studies completed in Canada suggest that populations

can safely breathe air and drink water that contain significant amounts of chrysotile fiber.

2) Crocidolite asbestos shows an entirely different fiber-dose disease-response relationship from that observed for chrysotile asbestos. Health studies of those exposed only to crocidolite show that it is much more hazardous than chrysotile, perhaps 100-200 times more hazardous with respect to mesothelioma. The danger of crocidolite dust is particularly emphasized by the many mesothelioma deaths occurring among the residents of the crocidolite mining districts of the Cape Province, South Africa, where the exposure occurred in a non-occupational setting. Such mortality is practically unknown among residents of the chrysotile mining localities of Quebec. Control of crocidolite dust, particularly in mines and mills, presents a considerable engineering problem in that dust levels at or below the 1969 British Standard of 0.2 fibers/cm³ (1 cm³ = one cubic centimeter or one milliliter) virtually cannot be achieved (Simpson, 1979, p.74).

3) The hazards of amosite asbestos are more difficult to assess. The amosite factory employees of Paterson, New Jersey, who worked under very dusty conditions during World War II, have experienced excess mortality due to lung cancer, asbestosis, and mesothelioma. In contrast to these factory workers, amosite miners, and millers elsewhere in the world, at least with regard to mesothelioma, do not appear to be at much risk. This suggests that dust controls are possible which can greatly reduce or prevent the occurrences of asbestos-related diseases in amosite workers.

4) The fear caused by statements and implications to the effect that "one fiber can kill" and by the apparently exaggerated predictions of the amount of asbestos-related mortality expected in the next 20 or 30 years, has generated much political pressure to remove asbestos from our environment and to greatly reduce or even stop its use. An example of this is the concerted effort in several industrial nations, including the United States, to remove asbestos from schools, public buildings, homes, ships, appliances, etc. This is being done, even though most asbestos in the U.S. is of the chrysotile variety, and even though asbestos dust levels in schools, public buildings, and city streets are much lower than dust levels found in chrysotile mining communities where no asbestos-related disease has been reported in the non-occupationally exposed residents. The impetus for these costly removals and appliance recalls (hair dryers, for example) apparently comes from capitalizing on the "one fiber can kill" concept. Not only is this program costly–it could be dangerous if the removal of crocidolite asbestos is not accomplished with great care. In most cases, asbestos coatings and insulation, where necessary, can be repaired at no risk and at a fraction of the cost of complete removal.

Rutstein (1982) comments on relative health hazards of the various fiber types:

> Outside the U.S., particularly in Great Britain, it is widely believed that crocidolite is much more dangerous than chrysotile, and, further, that much of the data suggesting that asbestos is harmful is based on the effects of crocidolite, and perhaps, amosite, but not on the much more widespread chrysotile . . . Let us now consider why there was an asbestos scare. Irving Selikoff of the Mount Sinai School of Medicine continues to lead in advocating the dangers of asbestos. His classic studies (1973) of the asbestos-insulation workers of New Jersey show quite clearly that they were indeed much more susceptible to asbestosis and various cancers. Lung cancer was prevalent, especially if the workers smoked cigarettes. Most of the asbestos workers in Selikoff's studies were probably exposed to more than just the chrysotile variety of asbestos. Crocidolite was particularly favored for insulation on ships. However, the interpretation of the epidemiological data did not stress distinguishing between health effects attributable to different mineral species, but only to "asbestos".

Why should these fiber types act differently? Perhaps because they have contrasting physical and chemical attributes. For instance, chrysotile fibers curl into spirals, whereas the amphiboles (crocidolite and amosite) develop straighter, more needle-like fibers, and appear to penetrate more deeply into the terminal air sacs of the lungs (Figure 3). Chrysotile is a magnesium silicate, amosite is an iron-magnesium silicate, and crocidolite is a sodium-iron-magnesium silicate. Their solubilities and resistance to chemicals are known to differ.

Recently, the authors attended a talk (January 21, 1983) about asbestos-related disease, presented by Margaret Becklake, M.D. (McGill University, Canada) at the University of Arizona medical center. She restated her belief that chrysotile eventually dissolves in the lungs and therefore does not continue to accumulate like the amphibole fibers do. Previously, she had reported the following (Becklake, 1982):

> Subsequent studies have also strengthened the evidence that fibers dissolve out of the lungs over time, the loss occurring preferentially in chrysotile fibers. Thus, though chrysotile accounts for the bulk of commercial use and hence human exposure, it is the amphiboles that constitute the core of the majority of asbestos bodies found in human lungs, even in those known to have had occupational exposure to chrysotile (Warnock, 1979; 1980; 1981) . . . All these findings strengthen the evidence that chrysotile is cleared more readily from the lungs than other fibers . . .

Perhaps the best available information on chrysotile fiber exposure-risk levels comes from studies in Canada, the source of much of the chrysotile fiber used in the U.S. As an example, Ross (1982) reports:

> Epidemiological studies of the chrysotile asbestos miners and millers of Quebec, undertaken by medical researchers in Canada, show that for 3,105 men exposed for more than 20 years to chrysotile dust averaging 20 fibers/cm³, the total mortality was less than expected (620 observed deaths, compared to 659 expected deaths). Risk to lung cancer was slightly increased–48 deaths observed and 42 deaths expected. Exposures to 20 fibers/cm³ are an order of magnitude greater than those experienced now (generally less than 2 fibers/cm³); thus chrysotile miners working a lifetime under these present dust levels should not be expected to suffer any measurable excess cancer.

How much is 20 fibers/cm³? According to Rutstein, at an allowable limit of 2 fibers/cm³ of air (over an 8-hour industrial environment workday), the average worker could easily inhale 7 million fibers per day. Thus, he too questions the incon-

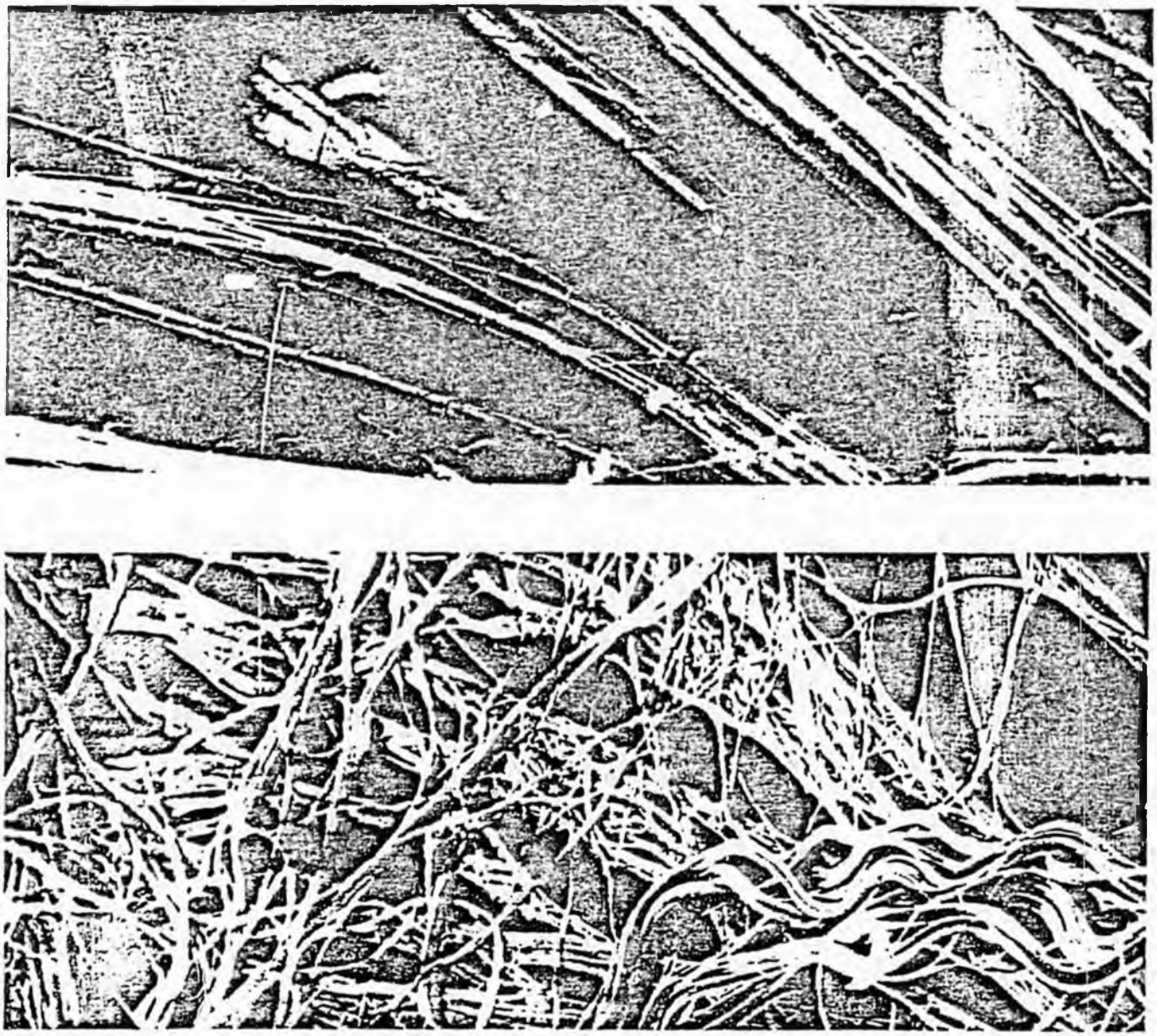


Figure 3. Crocidolite (straight fibers) from South Africa and chrysotile (wavy fibers) from Globe, Arizona, viewed through a scanning electron microscope. The thinner fibers are less than .0004 inches thick. Photos courtesy of the U.S. Geological Survey.

sistency revealed in permitting the inhalation of several million fibers on the one hand and promoting the "one fiber can kill" concept on the other hand.

Clifton (1983) reports that the United Kingdom Health and Safety Commission decided to implement tighter controls over asbestos exposure. The new limits, which were effective January 1, 1983, are: chrysotile, one fiber per milliliter of air (1 f/ml); amosite, 0.5 f/ml; and crocidolite, 0.2 f/ml. [chrysotile was lowered by 1 f/ml and the others are unchanged.]

What is known of the asbestos-related mortality rate in the U.S. and what are the estimates for the future? If one looks over the data, it becomes obvious that firm numbers do not exist. Ross points out that former Secretary of the U.S. Department of Health, Education and Welfare, Joseph A. Califano, reported figures in a 1978 speech that translate into 76,000 cancer deaths per year due to asbestos. The data came from medical scientists associated with the National Institutes of Health. In 1980, Dr. Irving Selikoff stated at a press conference that 20,000 U.S. asbestos workers would die each year for the next 40 years of "excess disease". Subsequently, in 1981 Dr. Selikoff, through a press release to the Associated Press, stated that 10,000 American workers are dying each year because of asbestos exposure. He did not supply a data source for these estimates.

Ross asks if any of these numbers are correct. Using existing statistics from Vital Statistics of the United States dealing with mortality factors, asbestosis deaths in the nation for the period 1967-1977 are seen to average 41 per year. However, Ross cites data indicating that deaths due to this cause are underreported, therefore adjusts the average figure to 88. Using this number in combination with asbestos-related epidemiological statistics, Ross estimates the likely annual mortality due to lung cancer and mesothelioma. Combining these, his estimates for total annual asbestos-related mortality range from 522-587. Furthermore, he thinks that asbestos-related mortality will peak between 1981 and 1985, 35 to 40 years after the large World War II shipyard employment.

In regard to the estimation of risk in human non-occupational exposure to asbestos, the National Research Council's

Committee on Biological Effects of Atmospheric Pollutants (1971) wrote:

> The most important question in the case of persons with non-occupational exposures to asbestos is whether there is an increased risk of malignancies. Industrial experience indicates that there is no likelihood of significant asbestosis in non-occupational exposure. The major potential for risk appears to lie in those with indirect occupational contacts, household contacts, or residence in the immediate neighborhood of asbestos sources; and even there, the actual risk is poorly defined. But the fact that there appears to be a gradient of effect in such groups suggests that there are levels of inhaled asbestos without detectable risk. It is not known what range of respirable airborne asbestos fibers will ultimately be found to have no measurable effects on health. At present, there is no evidence that the small numbers of fibers found in most members of the general population affect health or longevity.

More recently, in response to a question concerning non-occupational exposure to chrysotile asbestos in Canada (see cover photo), Dr. Becklake stated the following (personal communication, 1983): "A mortality study has been carried out referring to residents of the asbestos mining towns of Quebec. No significant excess general mortality was shown in women. The excess in men was thought to be related to occupational exposure." Asked if society should ban all forms of asbestos use, Dr. Becklake commented, "We humans live with many dangerous materials and are able to control others; why not this one?"

Globe, Arizona, has been in the news periodically, most recently because of its association with EPA's Superfund. A mobile home park is situated on land, parts of which were once dedicated to the processing of chrysotile asbestos. At question is the health risk. A dilemma prevails because there are no factual scientific data that clearly define the relationship between all possible exposure levels of chrysotile asbestos and risk. As already pointed out, high *occupational* exposure levels can be risky, whereas there is no evidence of significant risk at levels frequently characterized as *non-occupational*. However, how should the possible exposure levels at the mobile home park be characterized? Might they be high, low or intermediate, depending upon several variables? Is living there likely to be more or less hazardous than living in the chrysotile mining and milling centers of Quebec, Canada? Because of a paucity of accurate, scientific data, and in spite of efforts to gather more, answers to such questions remain largely subjective and somewhat arbitrary. Although this is the nature of the problem that confronts the various state and federal agencies, decisions must nevertheless be made. In the absence of definitive, scientific health-risk data, decisions on final actions will inevitably be based upon economic-political considerations.

Substitutes

In a report of the Advisory Committee on Asbestos, Health and Safety Commission of Great Britain, the following statement is made regarding substitutes for asbestos (Simpson, 1979, v.1, p.69):

> As a general principle we take the view that control of any useful but hazardous material is preferable to the ultimate sanction of prohibition. It is very easy to say that a dangerous substance or process should be banned and to hope that that will solve the problem. In our view, this is a gross over-simplification of a complex equation of interlinked factors. It ignores the possibility that prohibition of a particular substance may directly result in an increase in health or safety risks, for example from fire, which the use of that substance currently prevents or reduces. It also ignores the implications of statutorily enforcing substitution by materials or substances that presently appear to be suitable but may at a later date be found to constitute a risk to health. The social and economic consequences of the possible closure of factories using the original material or process need be taken into account.

Until recently, the U.S. has been the largest producer of asbestos products, mostly from imported fiber. The three principal natural fibers that enter into commerce–crocidolite, amosite, and chrysotile–have physical and chemical characteristics that are difficult to duplicate by substitution. As a consequence, substitutes tend to perform in an inferior way. The costs (including health and safety), imposed on society because of inferior performance, are not yet known.

CONCLUSIONS

The mining, milling, processing, and fabrication of a family of naturally occurring fibrous asbestos minerals, especially chrysotile, is world-wide in scope. The overall benefits of asbestos products to society at large are incalculable. Because of adverse publicity, the "hazards" of asbestos seem to preclude benefits derived from its use.

The specter of disease, especially cancer, has been attached by some to the exploitation, processing, use, and even general occurrence of asbestos. How serious is the asbestos-related disease threat? Judging from the data cited in this perspective-seeking report, the hazard seems to depend principally on two points: 1) the specific mineral, and 2) exposure level.

The nature of the asbestos problem is recognized and it is believed that present technology is capable of controlling occupational chrysotile exposures to levels that are not anticipated to result in excess disease. Studies of the non-occupational health risk of chrysotile suggest no detectable excess disease; therefore, the prevailing generalization that *any* non-zero exposure to chrysotile can cause serious medical problems should be questioned.

These data, though not finally definitive, nevertheless support the contention that failure to discriminate between the various fiber types and exposure levels is scientifically and practically inappropriate. Thus chrysotile may have become the victim of "guilt by association", having been lumped with the more dangerous minerals, crocidolite and amosite, under the general term, "asbestos".

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ERRATA

Two figures in the Technical Report prepared by Reynolds and Keith, *Geochemistry and Mineral Potential of Peraluminous Granitoids* (December 1982, v. 12, no. 4, p. 5), were mislabeled. Figures 1 and 3, reprinted below, have been corrected. The positions of the labels "alkaline" and "subalkaline" have been reversed, as shown here.

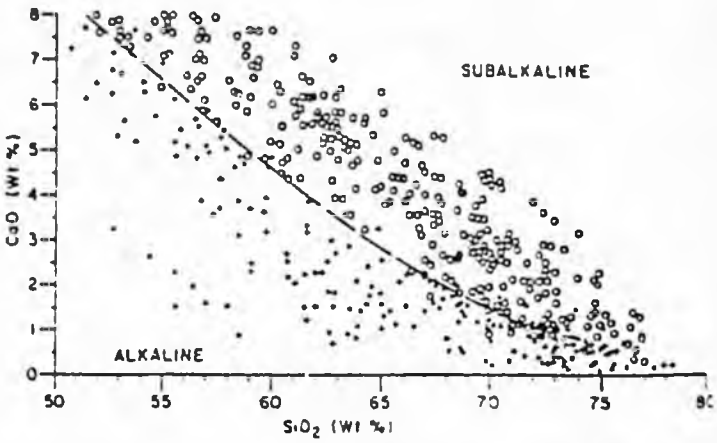


Figure 1. SiO_2 versus CaO variation diagram for metaluminous-suite igneous rocks of known alkalinity. Dots represent calc-alkalic and calcic rocks; crosses indicate alkali-calcic and alkalic rocks (classifications according to Peacock, 1931).

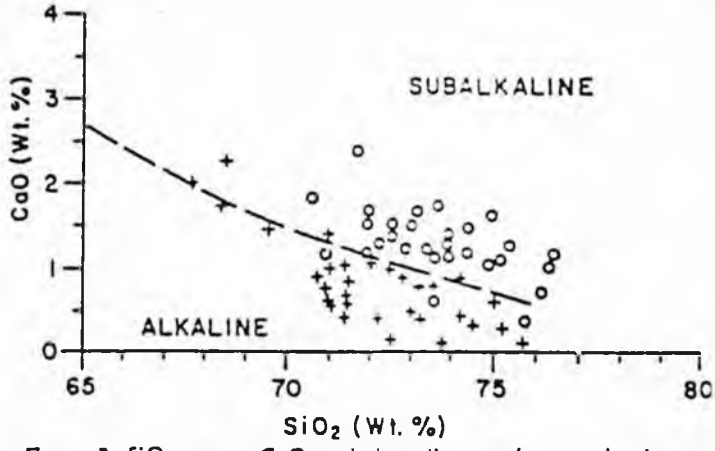


Figure 3. SiO_2 versus CaO variation diagram for peraluminous granitoids of Arizona (⊕) and the Hercynian belt of Europe (+).

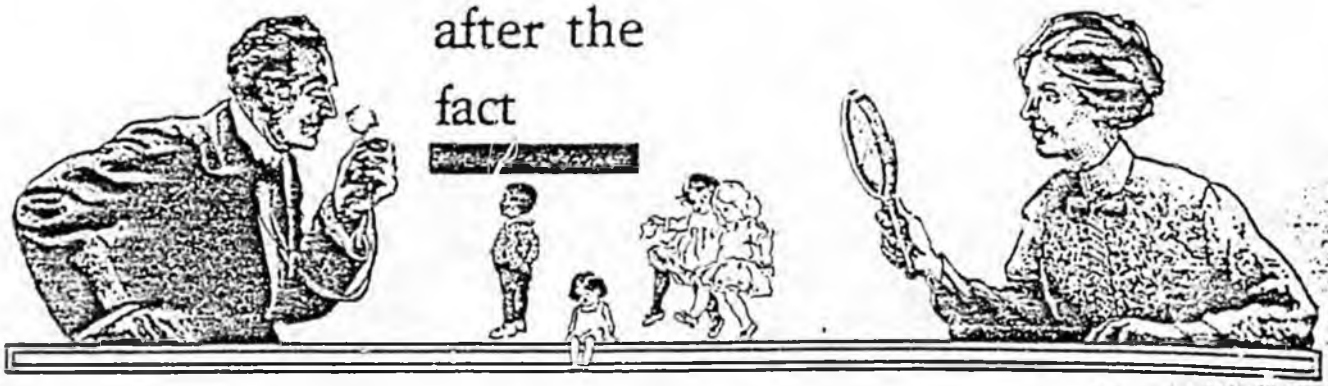
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NEW PUBLICATIONS

Roadside Geology of Arizona, by Halka Chronic; Mountain Press Publishing Co. (Box 2399, Missoula, MT 59806; 406/728-1900). 1983, 314 p. Aspects of Arizona's geology and diverse landscapes that can be seen from the highways are presented in this "guidebook" as an introduction to those with little or no geologic training. $9.95

Checklist of Arizona Minerals, by Raymond W. Grant, Mineralogical Society of America (PO Box 902, Phoenix, AZ 85001), 1982, 78 p. Describe physical properties of 640 known minerals in Arizona; lists the state's minerals according to Dana's system. ($6 + shipping) $7.0

journal after the fact



Asbestos: Decide your legal strategy now

If your schools contain hazardous asbestos—or if your board already has removed the harmful substance—your school system stands to benefit from a nationwide class action suit currently under way. Early this fall, a federal district court in Pennsylvania approved a suit against 55 asbestos manufacturers on behalf of *all* U.S. elementary and secondary schools that contain hazardous asbestos.

It's an unprecedented, massive legal effort marking the first time a nationwide class action suit has been approved for property damage arising from a question of product liability. Your school system automatically is included unless you decide to "opt out" and sue asbestos manufacturers on your own. Moreover, if your school system already has spent money to remove harmful asbestos materials, you will be able to use the class action to recover costs. And as other school systems incur removal expenses, your system, too, will be able to seek compensation.

Under a special exclusionary provision in the ruling, your school system may decide to "opt out" and sue asbestos manufacturers on your own for *actual* damages (cost of removal). If you wish to seek *punitive* damages from asbestos companies, however, you must remain in the class action suit. This provision is to ensure that one or more school systems that sue separately won't receive the lion's share of any awards for punitive damages.

The pivotal ruling, which came September 28, requires that all school systems be notified of the class action suit and of their option to be excluded. So in the next few weeks, watch for notification, probably by letter, explaining the terms of the suit and specifying the date by which you must let the court know if you wish to be excluded.

Whether your schools should initiate their own suit against asbestos manufacturers depends on several considerations, such as the total cost of removing asbestos from your schools and whether your board can afford the litigation costs. Gwen Gregory, deputy legal counsel for the National School Boards Association, advises school board members to "sit down with your attorney right away and decide whether it's best to stay in the class action or opt out."

Staying in the suit could save your schools plenty in litigation costs. According to the presiding judge in the case, Judge James McGirr Kelly of the U.S. District Court for eastern Pennsylvania, "Instead of hundreds of thousands of school asbestos cases in separate forums, the litigation would be concentrated in a single forum, thereby economizing litigation expenses."

The court's decision to allow the class action has advantages for both small and large school systems. Wrote Judge Kelly: "Many of the larger school districts, such as Los Angeles and Chicago, have a significant interest in pursuing their own actions. However, many more thousands of districts will be benefited by being relieved of the onerous decision of bringing a complex action which could consume in costs more than the recovery anticipated."

Before the class action ruling, approximately 50 cases had been filed in state and federal courts on behalf of school systems attempting to recover asbestos removal costs from manufacturers. Only one had proceeded to judgment: On April 9, 1984, the Lexington (South Carolina) schools won $675,000 from U.S. Gypsum Co. for a damage claim of $375,000 in asbestos removal costs. All other cases had been held up in the courts, awaiting Judge Kelly's decision in the mandatory class action.

For the four school systems (three in Pennsylvania and one in South Carolina) that initiated the class action—and potentially, for thousands of others—the ruling is a victory. "From a legal standpoint, it's a landmark decision," says Al Lewis, a partner in the Lancaster (Pennsylvania) law firm of Hartman, Underhill, and Brubaker, attorneys for the Pennsylvania school systems. "From a practical standpoint," he says, "[the class action] represents the only real opportunity for school boards to obtain something close to adequate reimbursement for the asbestos problem."

Some school systems objected to being included automatically in the class action. Attorneys representing the school systems of Anchorage, Los Angeles, Chicago, and Clifton, N.J., as well as some 50 other school systems and states represented by the National School Boards Association, view their option to be excluded from the suit as a victory.

"There's no question but that we can recover costs better on our own," explains Pat English, an attorney representing the Clifton schools. "Any large school district is in the same shape. And even the smaller districts, depending on the amount they would spend to remove asbestos, could come out ahead" by pursuing their own legal actions.

To qualify for a class action suit under

Rule 23 of the Federal Rules of Civil Procedure, the plaintiffs in the case had to meet four "threshold requirements": numerosity, commonality, typicality, and adequacy of representation. Judge Keily found that attorneys for the four school systems indeed had established (1) that with an estimated 8,500 public school systems and private schools facing asbestos abatement problems, numerous individual lawsuits against manufacturers would be impractical; (2) that the questions of law and fact, such as the health hazards posed by asbestos, are common to all school systems in the class; (3) that the claims made by the representative school systems are typical of claims that would be made by other school systems; and (4) that attorneys for the representative school systems fairly and adequately would protect the interests of all school systems that wish to recover asbestos removal costs from manufacturers.

"In my view," wrote Judge Kelly, "the school asbestos litigation is uniquely suitable to class action treatment." The court and the public at large, he wrote, "are only too well aware of the staggering costs that the asbestos personal injury litigation has generated." □

Here's curriculum help from the experts

Defining—and redefining—the core curriculum for your schools is an ambitious but appealing task: How do you determine whether your curriculum is up to par? How do you decide which courses are necessary and which are outdated? Are the courses your schools offer tough enough? Will they adequately prepare students for college? Or for life? Getting the chance to pose and answer such questions probably is part of the reason you sought a school board seat to begin with. But how does your board go about the process?

Here's help: The Association for Supervision and Curriculum Development (A.S.C.D.) has published the results of an ambitious curriculum study project. But this report is different from others you might have read. *Redefining General Education in the American High School* is the result of a two-year curriculum-study project involving 17 high schools across the U.S. (Fourteen of the schools are discussed in the report.) Sponsored and guided by A.S.C.D., these schools conducted comprehensive reviews of their core curriculums and developed new definitions of more than 100 "common learnings" they think students should acquire. What's more, they undertook this Herculean task as a network—a support group, if you will.

The report from this project won't give you ready-made answers that you can plug into your community, but it offers its own kind of support for undertaking such a project in your school system. Between this book's covers, you'll find 14 case studies of schools representing various geographic regions and school system sizes. The network schools, according to the report, also represent many types of U.S. communities—affluent, middle class, and poor; large cities, small towns, and suburbs. In other words, you're likely to find several schools in the network that have a lot in common with those in your own system.

And if you're wondering how to start to review your school system's curriculum, the report offers a description of how network schools did it—how they appointed committee members, how they invited teachers and community members to participate in the curriculum discussions, how the process of review unfolded. Results are included, too. Not surprisingly, given the push following *A Nation At Risk* to require more academic courses, most schools in the network stiffened their graduation requirements, adding more science and mathematics courses as well as more credits in English and social studies.

If the report posts any drawback, it's that—as the report itself points out—merely hearing about the network is "a pale substitute for being there." The motivation the network offered its members might be difficult to duplicate in your system, without the support of other schools going through the same challenge. Nevertheless, *Redefining General Education* is a fine place to start for any review of curriculum.

To purchase copies of the report, send $8.50 per copy to A.S.C.D., 225 N. Washington St., Alexandria, Va. 22314. Taxes and mailing charges are included in the price. □

A conditional hosanna for test scores

The good news in recent months is that average scores on the Scholastic Aptitude Test (S.A.T.) have nudged up four points over marks posted last year—the largest increase in S.A.T. scores since 1963. The bad news, of course, is that everyone and his mother wants to tell you what the increase means.

Most every explanation refers to the fundamental reforms that have taken place in public education since board members and administrators first grew alarmed at sliding scores and other signs of weakness in the public schools. Statistics compiled by the federal and state governments tell us this reform cycle started well in advance of *A Nation At Risk*; since the early 1980s, in fact, U.S. high school students have been taking more academic classes, and kids of all ages generally have been buckling down to the difficult task of learning.

The rise in S.A.T. scores, then, is just one more indication local school boards successfully are attacking flabby curriculums, pushing for higher academic standards, and supporting legislative efforts to raise the level of public education in the U.S. It hasn't been an easy crusade. Status quo in education is hard to combat; among our readers, any number of veterans have bent more than one lance trying to slay the dragon of mediocrity in our schools.

Before we spend too much time thumping our chests in triumph, though, a word of caution is in order. As College Board President George Hanford says, "In the context of the decline in scores from 1963 to 1980, it would be naive to conclude that national attention to the quality of American education . . . is no longer

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CSG Backgrounder

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Date: November, 1984
Topic: ASBESTOS
Infokey: Public Protection

ASBESTOS IN BUILDINGS

Asbestos: The Mineral and Its Uses

The term "asbestos" refers to a unique group of naturally-occurring, fibrous minerals useful because of their special properties. Asbestos is found in rock formations throughout the United States and other parts of the world. Air, wind and water erosion of these natural deposits, and mining, manufacture and use of some asbestos-containing products results in asbestos being found commonly in outside and indoor air, as well as in drinking water supplies.

The mineral's fire retardent and insulating qualities are among its most valuable characteristics. During World War II, asbestos use jumped dramatically in the United States because the U. S. Navy determined that it was essential for shipboard fire protection. Until the mid-70s, asbestos-containing products were used extensively in building construction. Asbestos is currently used in hundreds of products including vehicle brakes, roof shingles, building panels, water and sewer pipes, floor tiles, specialized thermal and electrical insulation, and textiles.

Asbestos and Health

Asbestos can separate into microscopic fibers that can be inhaled. Numerous studies of exposures in workplace environments, such as shipyards or mining and manufacturing facilities, have linked prolonged or heavy exposures with three diseases: asbestosis, a fibrotic lung condition; lung cancer; and mesothelioma, a rare cancer of the lining of the lung or abdominal cavity. The studies have also found that the lung cancer risk from asbestos exposure is

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*This CSG Backgrounder was compiled by John F. Welch, President, Safe Buildings Alliance, Washington D.C. and Kevin J. Fay, Alcalde, Henderson and O'Bannon, Rosslyn, VA in cooperation with Jon Grand, Program Manager, CSG Environment and Natural Resources.

Note: *Backgrounder* information is the latest available at the time of publication, but for updates, you should contact the appropriate state or federal agency directly. This material does not represent the position of The Council of State Governments. Information is included based on relevance to the topic. Some material, as noted, is copyrighted and may not be reproduced further without permission of the original publisher. Contact the States Information Center or the writer at CSG.

No risk occurs unless a significant number of asbestos fibers are released from the materials and enter the building air supply. As a result, most concern relates to certain materials that release fibers in large quantities.

Asbestos Exposure Levels in Buildings

While there is general agreement concerning the health risks to asbestos workers, the hazard posed by asbestos in buildings is less clear. Numerous studies, including those conducted by EPA, have determined that in many cases asbestos levels in buildings have been so low as to be indistinguishable from outside air. In some, measurements show levels that exceed outside air levels by small amounts, and in only a few, measurements have significantly exceeded outside levels. Even at the highest levels, exposure is substantially lower than OSHA standards and tens of thousands of times less than workplace exposures of the past. According to recent studies, the majority of exposures in buildings with substantial amounts of friable asbestos are less than 0.0001 f/cc with a few single readings as high as 0.01 f/cc.[3]

Independent experts believe that in most cases asbestos exposures can be properly controlled by a combination of improved custodial control, special maintenance procedures and minor patching and repairs. In those rare circumstances where these procedures cannot lower high airborne asbestos concentrations, other control techniques may be appropriate. These include encapsulation (use of penetrating sealants or coatings) and enclosure (construction of airtight enclosures around surfaces coated with asbestos-containing materials). Removal is the last resort. It is the most costly method in terms of meeting EPA and OSHA regulations, and, most importantly, often results in increased fiber release even when careful work practices are followed.

A number of expert governmental and scientific bodies have concluded the risk of disease from exposure to asbestos in buildings is not significant. These experts include Hans Weill, M.D. of Tulane University, Julian Peto of Oxford University, the Ontario Royal Commission on Asbestos and the United Kingdom Advisory Committee on Asbestos.[4] However, there is no consensus within the scientific community on this point nor on the issue of what the minimum standards ought to be. As noted earlier, OSHA standards for exposure provide some guidelines; however, these guidelines do not distinguish between exposure levels for normal healthy adults versus exposure levels for children or the elderly.

In September 1984, New Jersey's Asbestos Policy Committee concluded that the lifetime risk of cancer associated with nonoccupational exposures to asbestos is from 1,000 to 10,000 times less than the risk due to tobacco smoking alone.[5]

Emerging Problems: Unnecessary Removals, Unregulated Contractors

Many experts believe that removing asbestos-containing materials in buildings often does more harm than good. Very recently, the New Jersey Department of the Public Advocate cautioned that improper removal places workers, building occupants, teachers and children at serious risk and that

containing asbestos. The survey also revealed that 67 percent of the schools have taken action to control asbestos in their buildings. While nearly all the country's schools have been inspected, the survey showed that 34 percent of the schools have complied with major requirements of the 1982 rule.

A comparable EPA survey of asbestos in public buildings found that friable, asbestos-containing materials may be present in 20 percent of 733,000 residential units, federal buildings and private structures. In the majority (563,000) of buildings, the products involved are pipe and boiler insulation; sprayed-on or troweled on materials may be in 192,000 structures. Both the CPSC and EPA are investigating the possible presence of asbestos-containing building materials in homes.

Many state health departments, local education agencies, employee and teacher unions, and the former manufacturers of asbestos-containing building materials all agree that the lack of uniform federal standards, particularly for hazard definiton and worker protection, is the fatal flaw on EPA's asbestos-in-schools program. This situation prompted the Service Employees International Union (SEIU) of AFL-CIO to petition EPA to set standards under authority of the Toxic Substances Control Act. After a year of Agency inaction, SEIU pressed further by filing suit against EPA. The Agency promised the court and SEIU that it would announce by November 30, 1984 a decision on what, if any rules or standards it will propose.

Without such standards, other federal and state agencies are jumping into the breach. In October, the New Jersey Asbestos Policy Committee issued its Interim Report to Governor Kean recommending an "action guideline" at 0.003 f/cc and a decision-making protocol for building owners. Rules are expected to be proposed in early 1985.[7]

The federal Centers for Disease Control (CDC) also issued recently a report critizing EPA for its lack of "sufficient guidance." CDC also proposed an "action level" -- 0.01 f/cc or 3 times higher than the proposed New Jersey standard -- as a guideline for monitoring buildings with asbestos-containing materials and for making risk-management decisions.[8]

In 1984, Congress passed the Asbestos School Hazard Abatement Act to provide loan and grant money to school districts seeking to abate friable asbestos-containing materials in schools. The act appropriated $50 million for fiscal 1984, authorized $50 million for fiscal 1985 and $100 million per year for five years thereafter. The law also requires EPA to promulgate comprehensive guidelines to classify and evaluate asbestos hazards and abatement options, as well as training and certification standards for contractors.

The legislation created a number of deadlines for state authorities. By November 20, 1984, the Governor of each state was to submit a plan to the EPA Administrator addressing procedures to maintain records on the presence, detection and abatement of asbestos. EPA will extend to March 1, 1984 the original February 11 deadline for states to submit to the Administrator and the Secretary of Education a priority list of schools that are candidates for abatement. Financial assistance applications must be received at the same time. By May 11, 1984 and annually thereafter, governors also must submit reports describing activities in connection with record maintenance plans. By June 11, 1985, EPA must approve or disapprove state financial assistance applications.

Notes

1. Commission of European Communities, Public Health Risks of Exposure to Asbestos (1977); Consumer Product Safety Commission, Chronic Hazard Advisory Panel on Asbestos (July 1983); National Academy of Sciences-National Research Council, Nonoccupational Health Risks of Asbestiform Fibers (1984); United Kingdom Advisory Committee, Asbestos (1979).

2. R.N. Sawyer and C.M. Spooner, "Sprayed Asbestos-Containing Materials in Buildings: A Guidance Document, Part 2," Environmental Protection Agency, EPA-450/2-78-014 (March 1978).

3. D.J. Pinchin, "Asbestos in Buildings," Royal Commission on Asbestos Study Series, No. 8 (1982); Report of the Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario (1984).

4. Testimony of Dr. Hans Weill before the Ontario Royal Commission on Asbestos, Vol. 9 (1981); Testimony of Julian Peto, Ibid., Vol 25A; Report of the Royal Commission.

5. J. Richard Goldstein, Asbestos Policy Committee's Interim Report to the Governor [of New Jersey] (September 1984).

6. New Jersey Department of the Public Advocate, "Asbestos in the Schools: An Interim Report," testimony for presentation to the State Asbestos Policy Committee (Aug. 29, 1984).

7. Goldstein, Interim Report.

8. R.S. Bernstein, "A Review of the Scientific Basis for EPA's School Asbestos Hazard Program with Recommendations to State Health Officials" (1984).

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STATE ACTIONS ON ASBESTOS IN BUILDINGS

	Legislation Adopted	State Funding	State Assistance	Local Funding Option	Contractor Certification and Training	Encapsulation Allowed	EPA NC Citation
Alabama			*5				*
Alaska			*				
Arizona							
Arkansas							*
California	*	*				*	*
Colorado							
Connecticut		*	*			*	*
Delaware	*1						*
Florida							
Georgia		*	*				*
Hawaii							
Idaho				*			
Illinois	*		*	*			*
Indiana							*
Iowa	*			*	*	*	
Kansas							*
Kentucky	*1		*				*
Louisiana	*7						
Maine			*				
Maryland	*		*		*		
Massachusetts		*	*				*
Michigan							*
Minnesota	*	*		*		*	*
Mississippi							
Missouri							*
Montana							
Nebraska	*			*			
Nevada							
New Hampshire							*
New Jersey	*	*4,2	*		*		*
New Mexico			*				
New York	*	*	*		training	*	*
North Carolina		*2					*
North Dakota							
Ohio	*1						*
Oklahoma							
Oregon							*
Pennsylvania	*	*					*
Rhode Island							*
South Carolina	*3		*		*6		*
South Dakota							*
Tennessee	*1		*				
Texas							
Utah							
Vermont							
Virginia							*
Washington							*
West Virginia							
Wisconsin			*			*	*
Wyoming							*
Washington, D.C.	*1						*

THIS SHOULD BE DELIVERED TO THE CMTE RIGHT AWAY FOR THE ON-GOING T/C

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TO: JNO FOR: H. HESS Cmte PHONE: _____

FROM: Geo. Riley, UAF PHONE: _____

ADDITIONAL INSTRUCTIONS: Immediately deliver please

DATE/TIME SENT: _____ SENT BY: _____

PLEASE ACK. RECEIPT: ✓ HOLD FOR PICK-UP: _____

NUMBER OF PAGES: 3 (NOT COUNTING COVER SHEET)

FROM: George Riley
U.A.F.

These will be my comments and presentation at the teleconference this afternoon. Call me if you think I should add anything.

Notes:

1. Regarding the comment about failure of an encapsulation program in Jefferson County, Missouri - I attempted to contact the people there and found there are 16 school districts in Jefferson County and I am not sure which one Mr. Freeman was referring to, however, the superintendent's office of the Fox School District in Jefferson County told me they had indeed encapsulated some material in there hallways and as far as they knew, there was no problem with their program.

2. I have put together a package of some material that I gathered on products available for encapsulation and sent them along to Rep. Pettyjohn and Rep. Koponen's office and would hope they would arrive by next week and I'm sure that they would be able to share that information with any interested parties.

3 I AM VERY MUCH IN SUPPORT OF THE CERTIFICATION PROVISIONS IN THIS HOUSE BILL 5

4 3. I would like to relate to you an outline of an asbestos abatement program for the University of Alaska-Fairbanks.

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4. For those who might be interested, Dr. Cohen, a consultant who deals specifically with asbestos containing materials and their control, will be in Anchorage next week from Wednesday thru Friday. Anyone who may wish to speak to him directly, can call him at his California office at the following number - 619-579-6233. I spoke with him on the phone today and he said he would be happy to answer any questions which you might have on the subject.

1. Regarding the question of the encapsulation program in Jefferson County, Colorado that supposedly failed, I spoke with Bud Barber, the Director of the maintenance department for the school district. He told me that between 1982 and 1983 they did both a removal and encapsulation program in 90 schools within their district. A majority of this work was an encapsulation program. Mr. Barber states that there have been no problems with any of the encapsulated areas and in fact they have recently received a commendation fr the EPA for there monitoring and record keeping system.

(2)

ASBESTOS RISK ABATEMENT PROGRAM FOR UNIVERSITY OF ALASKA-FAIRBANKS

The Fairbanks campus has 46 buildings, which translates into 2,168,000 square feet of functional space, along with a 20 megawatt coal and oil fired steam, heat and electric generating power plant and 5 miles of utilidor system, which provides utility support for the entire campus.

Much of the piping in the buildings, power plant and utilidor is covered with asbestos containing material. Additionally there is duct work in some buildings that is protected with rigid asbestos containing insulating board and several buildings have spray on fire protection material on steel beams and columns, much of which contains asbestos.

We are presently in the process of doing air and bulk sampling to determine the extent of our risk exposure. We know now that there are a number of areas that will need attention. We intend to address this in the following way:

1. Hire a qualified consultant with credentials in safety and health and hopefully a background in engineering and the sciences, to come to our campus and train a multi-disciplinary team of craft persons to be able to properly handle any small removal and replacement job dealing with asbestos material. In addition, begin on a program basis, the process of encapsulating, covering and protecting from mechanical damage the many miles of piping here on campus. It is our intention that the majority of the work in controlling asbestos contamination, will be by nature one or more methods of encapsulation. This is consistent with comments made to us by Dr. Kenneth Cohen, a consultant on the subject, that quotes a recent EPA statement that removal should be the last option in any asbestos hazard control program and they recommend strongly against it.

2. Where there is a large contaminated area beyond the ability of our staff to manage by removal or encapsulation, we would intend to select a qualified contractor to perform the job.

3. Our program will include the purchase of specialized equipment and materials utilizing the latest technology equipment, such as high efficiency filtered vacuum cleaners and specialized spray equipment along with complete personal protection and respiratory equipment for the workers along with the latest and most efficient products for encapsulation that also provide a safe method for eventual disposal and removal of asbestos containing materials when necessary. When insulated or fire protected material is removed it must be considered that the cost of a suitable and functional asbestos free replacement product and its installation be included in the project budget.

4. It is our intention to work with others in the state and promote the development and utilization of more accurate air monitoring techniques, as we agree with Dr. Thorn that the present industrial based methods of air sampling are not adequate to address our concerns for a safe public environment. We would suggest then that we pursue a method of air testing that establishes a standard base background level in the environment, whether induced by natural levels or man made products and we use this standard base outdoor level as a minimum standard that

we hold ourselves to indoors. The concept is much the same as that used for monitoring, and setting standards for radiation exposure. We intend here at the University of Alaska-Fairbanks, that a monitoring program be a continuous one, and that regular visual and air monitoring checks be part of our ongoing maintenance. It should be understood that this kind of monitoring program will represent some greater costs than the kind of sampling routine we have been using in the past, however, it will be generating information on which we can make prudent and reasonable judgements.

We have been asked to come up with a rough estimate of the potential costs for this program and we believe that we should be able to accomplish all of the above and control the risk of asbestos containing materials here on the Fairbanks campus at an estimated cost of $1.5 million. It should be considered that although the Fairbanks campus is the oldest and largest campus in the University of Alaska system, we might anticipate that we would find some asbestos containing materials in buildings on other campuses and they too may be looking for some funding to abate the risk in their areas.

In the process of researching this matter, we have made some useful contacts and obtained data that may be of interest to others and we look forward to working together with other individuals and organizations in the State of Alaska for our mutual benefit.



Asbestos: Still a Danger in Schools

By Elaine S. Knapp, editor

For Phyliss Adams and Ann Gibbs the last year has been a frustrating one—trying to get their local school board to remove asbestos from the school their children attend.

"It's frustrating, our children are being poisoned and there's not anything we can do," Mrs. Gibbs declared. What the Lexington, Kentucky, housewife has done is work through the PTA, form a group of concerned parents, go door-to-door telling parents of the danger, gather hundreds of signatures on petitions, read volumes on asbestos, call and write federal agencies and confront the school administrator and board.

After a year of parental pressure being applied and at least a decade after school authorities knew of the asbestos hazard, Mrs. Gibbs said, "We don't think anything will be done until the government makes them (the school board)." School authorities maintain the asbestos will be cleaned up if money is available for renovation next year.

Ironically, the major government effort to control asbestos lies in Mrs. Gibbs and others like her. Telling parents and teachers that their school has asbestos and relying on them to pressure local action is the heart of the U.S. Environmental Protection Agency's (EPA) strategy to rectify the nationwide problem of asbestos in the schools.

No effective federal program exists to protect school children from asbestos, state efforts vary widely and local schools often ignore the danger due to the cost of cleanup.

Asbestos Dangers

Any exposure to asbestos involves some health risk, according to the Congress, the EPA and the scientific community. Children are especially vulnerable, according to the EPA guidance document on asbestos sent to schools. Their remaining life expectancy provides the 20 to 40 years it takes for disabling and fatal asbestos-related diseases to develop. Large numbers of children may be exposed in a contaminated school and exposure is continuous during the school year. Children are active and breathe more frequently than adults possibly inhaling more asbestos fibers. Smoking can increase the cancer risk due to asbestos exposure.

Most hazardous is friable asbestos that can be crumbled. It sends deadly fibers into the air which may lodge in the lungs indefinitely, according to EPA's guidance document. Asbestos workers often develop a chronic and debilitating lung disease called asbestosis. Lower and shorter exposures are linked to lung and other cancers. Even brief exposure can result in death many years later.

Asbestos diseases include: 1) asbestosis, a disease in which asbestos clogs the lungs, 2) pleural calcification, a deposit of calcium salts in the lung lining, 3) malignant tumors of the lung, 4) mesothelioma, a rapid and fatal cancer of the lung, and 5) intestinal and uterine cancers.

Where It Is, What to Do

Use of asbestos materials was common in schools and other buildings from the mid-1940s until EPA banned sprayed asbestos in 1973. Friable (or soft) asbestos-containing material was used for fireproofing,

insulation or decoration. It was usually sprayed on overhead surfaces, steel beams, ceilings, walls and pipes.

As friable asbestos material ages, it breaks down and releases fibers into the air. School activities can damage or disturb asbestos, such as a ball hitting a gym ceiling. Asbestos material can be disturbed by maintenance activities, vandalism, water damage or vibration from people or machinery and release fibers into the air.

Many experts believe removal of asbestos is the only final and satisfactory solution to asbestos exposure. However, removal may cost more initially and be more complicated. Temporary measures include encapsulation by spraying asbestos with a sealant or enclosing the asbestos. EPA and other experts warn that such temporary measures make removal more difficult and dangerous later on, and must be constantly monitored.

The EPA guidelines call for asbestos work only after construction of sealed containment barriers and worker protection as mandated by OSHA. All but asbestos workers should be kept out of the sealed area and worker change rooms are required.

Hot Potato

Asbestos in the schools has been a "hot potato" tossed among various levels of government and federal agencies. One reason is that removal of asbestos can be quite expensive, especially if large areas of buildings are affected. Funding is basically up to local schools as is asbestos detection and control. No federal funds are available and state aid varies.

The U.S. EPA requires schools to inspect for asbestos and notify parents and employees of asbestos hazards. The EPA doesn't require removal or abatement. "The theory is that PTAs and employees would pressure local districts to take remedial action," said Terrell Hunt, assistant to EPA Deputy Administrator Alvin Alm.

However, a recent internal EPA report found that many schools did not meet EPA's June 1983 deadline for asbestos detection, record keeping and notification.

No Federal Funds

Federal funds of $172 million authorized by the Asbestos School Hazard Detection and Control Act of 1980 were never appropriated. Grants were promised for schools to identify asbestos hazards and loans for mitigation of asbestos hazards. But funds were never requested by the Department of Education, reported John Bennett, aide to U.S. Rep. George Miller, D-California, who sponsored the act. In 1983, a $50 million recommendation by the House was omitted in a House-Senate conference.

The U.S. Department of Education had a task force which set standards for state grants in 1980, according to W. Stanley Kruger, deputy director for state and local education programs. However, when the program wasn't funded the department "deferred to EPA," Kruger said.

Under pressure from Congress, the department reactivated its task force in October 1983 and is gathering information on asbestos to send to chief state school officials, Kruger said. The department also reactivated its requirement that states file plans for asbestos in the schools' programs and report on their progress every six months. All but two states have filed.

EPA's Program

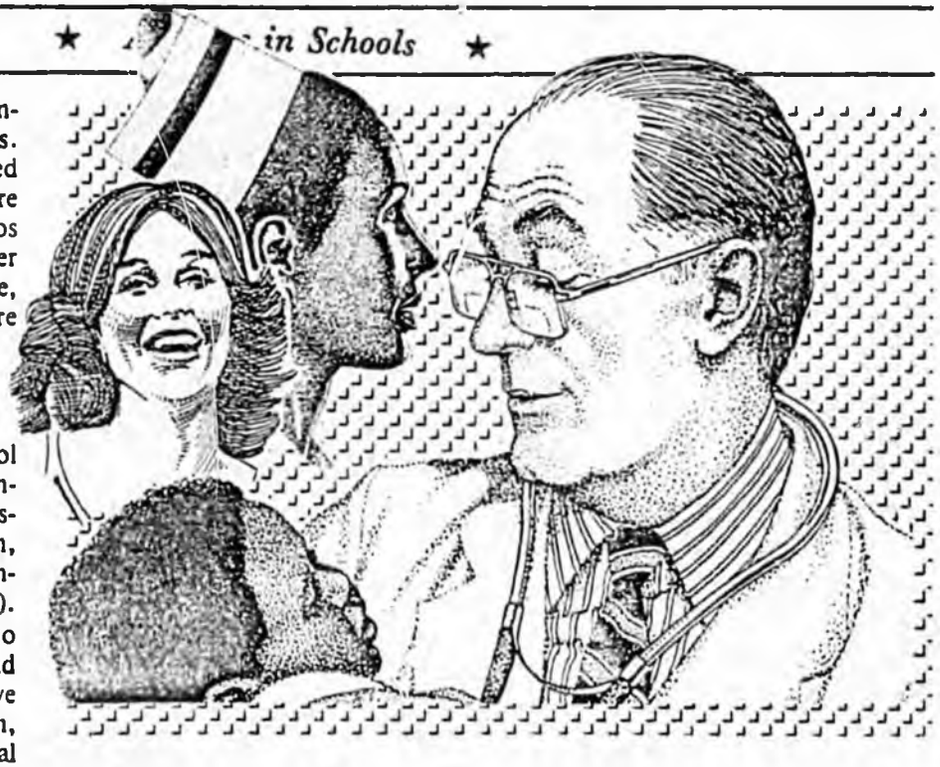
The federal effort has largely been a requirement by the EPA that schools inspect for asbestos hazards, sample and analyze material to determine if asbestos is present, keep records of the inspection, post notices, and notify parents and employees if asbestos is found. Although schools were to comply with the rule by June 1983, the EPA doesn't know how many did. It does not require schools to report to it and must send federal inspectors to schools to check their records. EPA staff said when the EPA regulation was written that the administration opposed imposing a data reporting requirement. The EPA recently doubled its field force of inspectors by adding 16 people through a contract with the American Association of Retired Persons, Hunt said. These include retired architects and engineers. Primarily, EPA staff look at school records and physically inspect some schools. However, there's not enough inspectors to cover but a small portion of the nation's schools.

In providing technical advice, EPA can help schools determine the best strategy for evaluating the risk and responding to asbestos, Hunt said. He said that anything short of removal is considered a short-term solution.

Connie Derocco, environmental protection specialist with EPA, said that out of 1,527 schools inspected in 468 districts, some 60 percent did not comply with EPA rules. Most failed

cont'd pg. 6





to notify and warn PTAs and employees of asbestos materials. Schools know they will be pressured once the word is out, and they are hesitant to deal with the asbestos problem, Derocco explained. After receiving a notice of noncompliance, schools have 30 days to act before the EPA files a civil complaint.

Labor Union Concern

An estimated 3.24 million school children and 648,000 school employees are potentially exposed to asbestos, according to Kitty Conlan, research analyst with the Service Employees International Union (SEIU).

The SEIU is lobbying Congress to fund the 1980 act for grants and loans to schools. Schools don't have the money to cleanup on their own, Conlan said. "It's definitely a federal responsibility," Conlan said. "It's a nationwide problem which affects the health of millions of people."

SEIU is suing the EPA to require schools to cleanup flaking asbestos. "Schools say if EPA thinks asbestos is so bad, then EPA would require them to get rid of it," Conlan commented.

EPA does give schools good technical advice on how to get rid of asbestos, Conlan noted. But some schools accept the lowest bid rather than follow EPA guidelines. If the cleanup is not done right, the asbestos danger can be worsened.

Conlan said SEIU doesn't think suing asbestos' manufacturers is worthwhile, citing lack of action on suits filed by asbestos workers. "We're hesitant to have our members litigate themselves to death," she said.

Conlan added that school districts can also be held responsible for asbestos. "They can face a big liability," she commented.

Lawsuits Filed

A number of lawsuits on behalf of school boards and building owners in Kentucky, Mississippi, New Hampshire, Florida, South Carolina, Alabama and Tennessee, have been filed by a South Carolina law firm.

Daniel Speights noted that legal theories available to school boards against manufacturers of asbestos include: contract (the products were not fit for the uses intended), negligence (the manufacturers were negligent in informing users of the risks associated with the products), strict liability (manufacturers should be strictly liable for failing to warn of asbestos hazards), and restitution (manufacturers have a duty to abate the hazard).

A civil action filed on behalf of the Barnwell, South Carolina, school district notes that school districts and public officials could be held liable for failing to abate a health hazard.

A September 1981 report by the U.S. attorney general to Congress recommended that school authorities seek to recover asbestos abatement expenses from asbestos manufacturers. The report said federal litigation would be inefficient unless Congress imposed liability on asbestos manufacturers.

Asbestos manufacturers are being sued by at least 20,000 people on the grounds that the companies knew of asbestos hazards and covered them up, according to a September article in the *National Journal.*

A 1983 report from the Rand Institute says that asbestos litigation and compensation has cost an estimated $1 billion over the past decade. Only 37 cents of every dollar went for actual compensation to plaintiffs. Estimates of the number of deaths due to asbestos over the next 30 years range from 74,000 to 265,000.

Future Problems

Generally, 15-40 years can elapse between asbestos exposure and manifestation of certain diseases. For instance, shipyard workers exposed during World War II may only now be filing claims, according to the Rand study. Despite this knowledge, no attempt is being made to monitor school children exposed to asbestos.

An internal EPA memo written in November 1978 called for long-term surveillance of children who are exposed. The memo noted that when they reach adulthood these children could then be informed and notified of their childhood exposure. They could be medically examined more frequently for respiratory diseases and cancer.

EPA Regions, States

Because no one tracks data on asbestos in the schools on a national basis, *State Government News* interviewed asbestos coordinators in five of the 10 EPA regions and several state asbestos coordinators.

Generally, the federal regional EPAs have switched their emphasis from providing technical assistance on identifying and dealing with asbestos in the schools to checking school records on asbestos inspections. Most found a high percentage of schools either had not inspected or had not notified parents and employees of asbestos in the schools as required by the EPA.

State programs differ widely in scope and authority. While a few states fund asbestos removal and cleanup, most simply help schools identify asbestos or provide other technical assistance.

Region I

"Compliance is terrible," said Paul Heffernan, asbestos coordinator for EPA Region I covering Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

Five full-time EPA inspectors have visited 160 districts covering 400 schools and issued 58 notices of noncompliance. Of the EPA violations, 37 percent had not even inspected and 53 percent had not notified parents or employees of asbestos found. Many school administrators didn't want to be "bothered," others had not read the regulation and others simply refused to post a warning in the building.

Oddly enough, schools in states which had asbestos programs in the late 1970s were most difficult to convince they needed to inspect for asbestos in ways not done in earlier years. For instance, the latest regulations require inspection of pipes and boiler rooms.

With 3,300 school districts in the region, there is no way EPA can inspect them all, Heffernan said. However, press releases announce schools found in violation, so the hope is that other schools will inspect rather than see themselves in the headlines.

Asbestos abatement efforts vary widely even in the same school district and among neighboring school districts, Heffernan said. He said West Haven, Connecticut, had an effective program while North Haven, next door, had none. While Hartford, Connecticut, spent $6 million on big problems in five schools, it had not tackled "mini-disasters" in 37 others. The same situation existed in Boston.

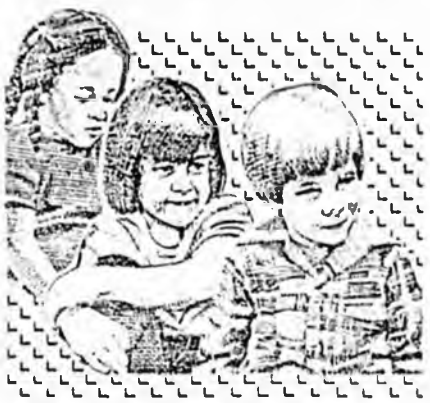
In the region, New Hampshire sent a checklist of EPA requirements plus abatement actions to help schools comply with the EPA.

Connecticut has granted $6.5 million since 1976 to localities for asbestos control in schools, reported Richard Krissinger, coordinator of school facilities, state Department of Education. State grants range from 40 to 80 percent of cost, depending on the aid formula the town qualifies for. If asbestos is found, the "chances are good it will be removed," Krissinger said. "We treat it as a health violation."

The state "accepts encapsulation" as an abatement measure, but doesn't encourage it. Krissinger said, "We believe removal is the only answer."

Al Siniscalchi, acting chief of the toxic hazard section of the Connecticut Department of Health Services and Education, noted that the state also provides technical assistance to schools. Schools were sent EPA guidelines and seminars were co-hosted by the state and EPA Region I.

A job freeze has reduced a former staff of nine to four and most inspec-



tions are now done by local health departments. Connecticut does follow-up inspections after asbestos removal to make sure the school is safe. Safe disposal of large amounts of asbestos is supervised by the state Department of Environmental Protection.

Maine is in good shape, according to Roy Nisbett, director of the Division of School Facilities. Most of the asbestos found was confined to pipe wrapping and boiler rooms. The state notified schools of the EPA rule and 90 percent complied with inspection requirements, Nisbett said. The Division of Industrial Safety trained school personnel to conduct asbestos inspections.

A proposed bill in Maine would authorize a bond issue to reimburse local schools for the cost of asbestos removal and repair.

In spite of the fiscal contraints caused by Proposition 2 1/2, public pressure has spurred asbestos abatement in Massachusetts, said Mike Malchik, assistant engineer, Division of Occupational Hygiene. "Parents and teachers are adamant about getting it (asbestos) down," Malchik said. The legislature allocated $2 million in 1983-84 to repay part of school removal costs if removal is recommended by the state.

Massachusetts inspects public buildings and schools, samples, analyzes samples and recommends abatement measures. There are at least five engineers and a project engineer available. The schools are being re-surveyed based on new guidelines, as inspections in 1978 only covered sprayed-on asbestos in public areas.

Region II

EPA Region II asbestos coordinator, Arnold Freiberger, has seven inspectors to check some 3,000 schools in New York and New Jersey. Out of 108 districts inspected, only 13 were in compliance with EPA rules, 32 had minor violations and 63 had either failed to inspect or identify asbestos or to post notices and notify parents and teachers.

New York has provided funds for asbestos control, reported Henry Binzer, associate in school business management, state Department of Education. In addition to state grants of $1.75 million annually for the past four years, school districts may tap state building aid for asbestos control.

An annual state survey of schools revealed 509,000 square feet of potentially hazardous asbestos.

The New York State School Asbestos Safety Act of 1979 required schools to identify asbestos and, if it is hazardous, take control measures. Encapsulation is most popular with schools. "The problem is that still has to be watched," Binzer noted. Removal is permanent, but expensive.

The state does not give advice on specific jobs, but provides an educational program for contractors and information to schools.

cont'd pg. 8

New Jersey doesn't provide specific aid for asbestos removal, but schools can get assistance through the foundation aid program, said Dr. Irving M. Peterson, manager, Facility Planning Services, state Department of Education.

In 1979, a governor's Task Force on Asbestos set minimum specifications for removal of friable asbestos. The specifications, which contractors must follow, require notification of state and federal agencies prior to the start of a project, require documentation of the contractor's qualifications, and require the contractor to follow stringent procedures for removal. The standards do not permit encapsulation (by coating the asbestos-containing layer) in New Jersey.

The state must approve all construction projects, plans, make field inspections to assure the work area is set up properly so contamination doesn't spread and check at the end of the project. Contractors, agents and workers must all attend a one-day state-EPA seminar and carry certification cards on the job.

Out of 2,400 public schools in New Jersey, asbestos removal projects have been approved in 350. Costs have totaled $46 million, for an average of $131,000 per school. It's up to local districts to remove the asbestos and as many as 100 more may not have acted yet.

Region IV

EPA doesn't have the resources to inspect school compliance with asbestos regulations, declared Dwight Brown, asbestos coordinator for Region IV covering Alabama, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee.

Most commonly, schools have either failed to inspect or to notify parents, Brown noted. He added that common law requires building owners to identify and notify occupants of hazards, and to provide medical surveillence if there is evidence of exposure.

Region IV also provides technical assistance and its intensive seminars on asbestos are attended by many from outside the region.

Most of the asbestos found in Georgia schools was in boiler rooms or pipe wrapping and has been corrected, said Lovett Fletcher, asbestos coordinator. State environmental, health and education departments worked with the U.S. EPA to provide information and hold seminars for superintendents. In addition, 70 environmental health specialists were trained to assist local systems. Schools with acute problems could get matching state aid through the state capital outlay, Fletcher said.

Kentucky helps schools comply with EPA inspection requirements, but has no money to aid them, said Jim Judge, unit director of property insurance, Department of Education. Asbestos cleanup was estimated to cost $26 million last year, but a survey now underway could change that estimate. Judge noted that the EPA doesn't require removal and many schools "are hesitant to post a warning." Asbestos problems in the state's 180 districts range from major ones with ceilings to boiler rooms.

Affected schools mostly include those built from World War II to the early 1970s. Judge said certain architects used lots of asbestos while others didn't.

South Carolina selected the critical points of EPA's regulations in requiring public and private schools to inspect, sample and analyze for asbestos, said Lee Bacot, asbestos coordinator, Department of Health and Environment. Results of the school surveys and health hazard assessments were required to be publicized in meetings and by notifying parents.

Out of 1,200 public schools, 1,080 or 90 percent complied with EPA's rule and 270 found friable asbestos. Only about 30 percent of the 450 private schools complied.

Asbestos inspectors must be certified by the state and must send survey results to the state. A one-day course is offered by the state to consultants and state and local staff. Schools are provided information, but the state does not provide specific advice or any funds.

Tennessee had a governor's task force on asbestos in 1978, according to Robert Foster, chief, technical services, Division of Air Pollution Control, Bureau of the Environment.

Out of 1,773 schools, 150 reported potentially hazardous asbestos.

The state provides free analysis of suspected asbestos materials, provides information to schools, and conducts training sessions. Because there is a shortage of EPA inspectors, Tennessee Gov. Lamar Alexander wrote the EPA offering to help enforce the inspections. However, EPA has not responded. The state plans to proceed to develop the data anyway, Foster said.

"We're convinced asbestos in the schools is one of the more important health problems," Foster declared. "It's an absolute human carcinogen. It causes serious irreversible health effects. Even brief exposure can cause painful disease. Children are



EPA's new rule requiring parental notice "triggered a lot of work," Peterson said. As many projects were approved last year as in the previous four years.

even at more risk."

The goal should be to eliminate the hazard, Foster continued, while the EPA only requires inspections and warnings which can lead to panic and make schools vulnerable to unscrupulous contractors. People need to be educated on how to abate the hazard, he said. He added that although "most want to do the best, it's hard to convince them that a little dust out of the ceiling will kill them."

"I've gone in schools where the material (asbestos) was hanging off chairs," Foster said. In that case the superintendent closed the schools upon the state's recommendation. More troublesome are marginal situations, Foster noted, where schools don't understand the potential hazard. "They look to the state or federal government," he said. "But hope for federal or state aid is a loser."

Region V

"There's quite a few violations of EPA's rule," said Anthony Restaino, asbestos coordinator for Region V covering Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin.

Many school officials thought asbestos "was a low priority, didn't take time to inspect, didn't touch asbestos-materials to see if it crumbled or didn't notify parents or employees," Restaino said. Out of 43 school districts inspected, 29 were in violation. The Region V inspection staff was recently doubled to eight.

Illinois treats asbestos as a health and public safety issue, said Ralph Morrisette, architect, school facilities and organization section, State Board of Education.

Under Illinois law, school boards can hire an architect to determine if school building conditions endanger lives. After a survey of the cost to remove the asbestos, the local district can levy a tax for the amount without a referendum. Because schools are able to raise the funds, most of those with asbestos are having it removed, Morrisette said.

Most Wisconsin schools have inspected for asbestos, reported Nori Roden, school asbestos program coordinator, Department of Health and Social Services.

Out of 3,027 schools, 3,006 inspected and 1,089 found friable asbestos. Corrective action was taken by 583: 395 rewrapped pipes, 94 removed asbestos, 33 enclosed it and 61 encapsulated it.

Wisconsin has had an asbestos program since 1980. The Department of Industrial Labor and Human Relations conducted asbestos inspections when it conducted fire and other safety inspections. Samples were analyzed by the state lab. The Department of Public Institutions targeted schools for the free inspections, helped with record keeping, and provided technical assistance and consultation services. The health department computerized and coordinated the data and consults on health effects of asbestos.

A position paper being developed by the health department will most likely recommend removal of all friable asbestos, Roden said. "We're cautious of encapsulation and enclosure," she said. Advantages of the temporary measures include less cost and time, but the disadvantage is the "asbestos is still in the building," Roden said.

Minnesota in 1983 authorized a $25 per pupil unit capital expenditure levy and aid for asbestos removal or encapsulation and PCB cleanup with Department of Education approval.

Region VIII

The major violation found in Region VIII is that schools "aren't willing to put up notices," said Steve Farrow, EPA asbestos coordinator for Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming. Instead, schools are trying to remove or encapsulate the asbestos first, he said.

Of the states, Farrow said that Utah's problems were with pipes and boiler rooms, North Dakota was making progress and Wyoming had few major problems.

Chuck Johanningmeier, technical advisor for the region, said, "Many people hoped it would go away. Medically, it is just getting worse." A Fargo teacher had contacted the EPA after discovering asbestos debris left in a school storeroom. Not long afterwards, the lawyer for the teacher's estate reported the man had died of mesothelioma (a rare cancer associated with asbestos exposure).

Unqualified contractors can do more damage than if the asbestos was left alone, Johanningmeier said. A proposed measure before the Colorado Legislature will require contractors to be certified to work on asbestos.

In another case, a contractor left asbestos which students and teachers dusted up. As a result the EPA is helping write specifications in a contract for cleanup which will be available to others as well.

There are some bright spots as well. Johanningmeier praised the work of Gill Johnson, the asbestos coordinator for a Jefferson County, Colorado, district. Johnson overcame school resistance and succeeded in cleaning up the asbestos in the district's schools.

No Cavalry in Sight

Although asbestos was recognized as a nationwide health problem by the Congress in 1980, there's no real federal effort to protect the health of exposed school children. Even though most states have asbestos coordinators, few states mandate cleanup or provide funds for removal. Essentially, asbestos removal or cleanup is left up to local school districts. Local school officials may not be willing or understand how to inspect for asbestos. Some may not understand the health dangers or legal liability they incur by allowing asbestos to remain. Apparently, many refuse to adequately notify parents or teachers if asbestos is found. Even then, students have no choice but to attend the school and teachers may be fearful of retribution if they take action. Many schools don't have or don't want to spend the money it takes to remove or cleanup asbestos.

Alvin L. Alm, deputy administrator of the EPA, recently acknowledged that the agency was reconsidering its approach to asbestos in the schools.

* * *

Leonard P. Stavisky

State Responsibility for the Control of Asbestos in the Schools

Asbestos, widely used in construction, is hazardous to human health. Schools represent the most pressing concern for public policymakers who are faced with the asbestos issue. With few exceptions, compulsory attendance laws exist throughout the United States. Typically, state statutes prescribe that minors from six to 16 years old attend school for approximately 180 days a year. Parents and guardians have no discretion in this matter and those who refuse may be charged with neglect. As a result of these laws, government's legal and ethical responsibilities may be greater in this area than in others where one's presence is voluntary or where minors are not involved.[1]

On the school asbestos issue, the educational and public health mandates of existing state constitutions come into conflict. In the language of one state constitution: "The legislature shall provide for the maintenance and support of a system of free common schools, wherein all of the children of the state may be educated." The same constitution further stipulates that "the protection and promotion of the health of the inhabitants of the state are matters of public concern and provision therefore shall be made by the state and by such of its subdivisions (including school districts) and in such manner, and by such means as the legislature shall from time to time determine." Obviously, though teaching and learning cannot be suspended, the public deserves ironclad guarantees that the instruction will be offered in a safe environment.[2]

Such guarantees come in implied warranties of quality — the presumption that a product is free from substantial, latent defects which are not obvious through inspection; these appeared in Roman edicts as early as 150 B.C. In modern commercial practice, the term warranty has always meant that the conditions are exactly as they have been stated, that standards of quality exist, and that those in positions of responsibility recognize their obligation to repair or replace defective parts. Implied warranty of quality exist even in cases in which there is no sale. Thus, nonprofit institutions have been named as defendants under breach of warranty.[3]

Statutory law has extended the boundaries. In real property law, states have enacted warranties of habitability which presume that a dwelling is suitable for human habitation and that the occupants will not be subjected to conditions which are "dangerous, hazardous or detrimental to their life, health or safety." Similar language appears in occupational safety codes, public health laws and environmental protection legislation.[4] In recent decades, government has become a landlord — involved in the ownership and management of public housing. Formerly private buildings have been acquired through "in rem" proceedings resulting from non-payment of taxes. Does the warranty of habitability therefore apply to the public sector?[5] Does it extend to other physical settings such as schools? Presumably, when a child is enrolled in a public school, for which

taxes are paid in lieu of tuition, there is an implied warranty that professional services will be rendered in a building that is free from conditions and substances which are hazardous to health.[6]

Asbestos, a hydrated mineral silicate which was widely used for fireproofing, soundproofing and decorating during the post-World War II construction boom, was introduced in Great Britain in 1932 and in the United States three years later. Between 1946 and 1972, sprayed-on asbestos was used in school auditoriums, gymnasiums, classrooms, hallways and libraries. Of the one million tons consumed in the United States in a single year, the material was applied to insulation, ceilings, floor tiles, cement, roofing and shingles. Homes, offices, factories, government buildings, private institutions and places of public accommodation were laden with this ubiquitous substance. More than 3,000 known asbestos products came into use.[7]

Concern over the impact on human health arose as a result of the inordinately high rates of disease discovered among employees handling asbestos in mining, manufacturing and construction. During the 1950's and 1960's, clinicians and researchers reviewed the medical records of asbestos workers and established positive correlations between persons who had been exposed to extraordinarily high asbestos air concentrations and specific diseases such as: 1) asbestiosis, a non-malignant scarring of the lungs; 2) bronchogenic carcinoma, a malignancy of the lungs; 3) mesothelioma, a malignancy of the lining of the abdomen or chest cavity, and 4) cancer of the gastrointestinal tract (esophagus, stomach, colon or rectum). By the early 1970's, medical researchers at the National Cancer Institute demonstrated in laboratory experimentation that malignancies "comparable to those resulting from asbestos exposure in man, can be induced rapidly in the rat and hamster by direct intrapleural application of asbestos. Such experiments attest to the carcinogenity of asbestos and offer an excellent means of investigating those carcinogenic mechanisms involved," these studies concluded.[8]

Government has responded in various ways. Since 1970, the Occupational Safety and Health Administration (OSHA) has regulated working conditions in the asbestos industry. In 1973, the United States Environmental Protection Agency prohibited the spraying of asbestos materials for fireproofing and insulation. Five years later, the ban was extended to all forms of sprayed asbestos, including decorative applications. Agencies of government promulgated regulations to control the industrial discharge of asbestos materials into the air and water. The sale of spackling compounds containing asbestos and the use of asbestos in insulation fireplaces was halted. Placing asbestos on the list of hazardous materials is under consideration. In all sections of the country, monitoring and informational programs have been initiated by federal, state and local authorities.[9]

Efforts have also been made to verify the effects of asbestos in non-occupational settings, but here the information has been imprecise. Abnormally-high disease rates have been linked to people who live near asbestos mines and factories. Among the families of asbestos workers, diseases have been traced to the minute particles brought into homes of the workers' clothing, Nevertheless, attempts to define standards that would be applicable outside of industrial settings have been opposed by an unexpected source. Scientists who have worked in this field appear unwilling or unable to provide definitive answers to the question of what represents a "safe" level of exposure to asbestos over a given period of time. Researchers are currently unprepared to support publicly or privately an accepted standard such as nanograms of asbestos per cubic meter of air nor are they willing to risk their reputations or the health of the public by categorically stating that the presence of asbestos below certain levels is tolerable. In the opinion of many reputable scientists, there is no way to compromise with a carcinogenic substance.[10]

Asbestos fibers, which are neither chemically nor biologically degradable, are virtually indestructable. Once the particles have been released into the environment, the slightest turbulence disturbs those that have already settled. People are constantly exposed to asbestos in the air they breathe, in the water they drink and in the food they eat. Processed asbestos fibers are more hazardous than the natural mineral. The thin strands which are by-products of the manufacturing process are easily inhaled or ingested. Asbestos fills the urban environment as a result of incessant braking of motor vehicles, building construction and demolition projects, and the incineration of certain plastic products. In suburban and rural areas, asbestos exposure is most likely to stem from mines, mills, manufacturing plants and waste disposal sites.[11]

Although asbestos permeates the environment in various settings, outdoors the moving air currents disperse the particles to reduce the levels of concentration. Indoors, the presence of asbestos poses a special hazard. Architects have designed many structures with inoperable windows. At one time, planners even specified windowless schools for blighted urban neighborhoods. Within such enclosed ventilation systems, asbestos particles are continually recycled throughout these buildings.[12]

Most educational officials have not kept adequate records to deal with asbestos in their schools. State and local authorities never examined the building specifica-

tions to check for the presence of asbestos. Even when plans were reviewed by state agencies in order to determine eligibility for building aid, officials simply looked at the adequacy of the space in relation to the educational program. After a few years, those plans that had been filed with the school districts were routinely discarded in some states in order to "save space." As a result of a new wave of concern about asbestos in the schools, state and local educational authorities may be compelled to reassemble information which was once available to them when the schools were originally constructed or remodeled.[13]

Progress in this field has been painfully slow. By the late 1970's, only 27 states and the District of Columbia were known to have conducted any asbestos inspections. Approximately 15 states had looked at more than a few schools. Of these, New Jersey, Massachusetts New York had each inspected more than 1,000 s facilities, while Indiana, Rhode Island, Michiga Vermont had each examined more than 100 buil California and New Mexico had simply reported "many" inspections. Rhode Island, the only state which had presumably inspected all of its buildings identified asbestos in 19 locations. Seventeen states, primarily in the South, the Middle West and the Far West, had not reported any school asbestos inspections. In other states, the extent of the testing remained uncertain. Individual school districts undertook limited inquiries, but approximately forty per cent of the states in the nation had no asbestos programs at all. Nationally, no agency of the United States Government could provide reliable information as to how many schools had asbestos problems.[14]

Two principal methods exist for determining whether asbestos is present in a school — visual inspection and laboratory testing. The most common method of detecting asbestos in a friable or crumbling condition involves direct observation. Unfortunately, visual inspections can be quite subjective and deceptive. What appears to be asbestos to the naked eye may prove under a microscope to be some other material. On the other hand, asbestos may be concealed in unconventional forms. Laboratory analysis of air samples offers more reliable identification. However, the levels of asbestos may fluctuate dramatically from place to place within the same facility and vary from day to day, depending on how much activity preceded the collection of the sample.[15]

Funding poses another problem. Optical laboratory tests may cost $30 to $50 per air sample. To be accurate, multiple tests may be necessary; different locations within a building may have to be sampled at different times. Electron microscopic analysis may cost ten times as much as optical testing and finding competent laboratories is sometimes difficult. A Connecticut laboratory incorrectly labelled cellulose as asbestos. The error was not detected until the ceiling had been removed, at considerable cost to the local school district.[16]

Policymakers, the educational community and the public are caught in a cruel dilemma. There should be no danger to the life, health or safety of any child or adult in any school. On the other hand, the educational process cannot grind to a halt. Creating a sense of public panic or uncertainty is not the answer. Neither is indifference to the problem. What is needed is an immediate, responsible nationwide plan for school asbestos indentification and control. The commitment to act must involve lawmakers, boards of education and school administrators throughout the United States.

First, those entrusted with responsibility for the schools must become familiar with the fact that asbestos materials appear in various forms under different names such as chrysotile, amosite, crocidolite, tremolite, anthrophyllite and actinolite. Often, more than one form of asbestos is present and the fibers are frequently combined with other products.

While it would be desirable to deal with all types of asbestos at once, fiscal constraints dictate a strategy that focuses on those forms and conditions which knowledgeable scientists agree are hazardous to human health. Accordingly, many authorities have suggested that school officials concentrate on asbestos which has been sprayed on structures or applied in the form of plaster or textured paints. In addition, the physical condition of the asbestos should be considered. As a general guideline, an imminent hazard is likely to exist where the asbestos material is flaking, dusting, or shows similar evidence of damage, deterioration or disturbance because of abuse, abrasion, water leakage or forced air circulation which results in dispersing asbestos fibers and particles in the school.[17]

School-by-school surveys can be mandated by state statute or by the rules and regulations promulgated by the chief state school officer or the state board of education. With scientific and technical information provided by the state, preferably the superintendent of public instruction or commissioner of education after consultation with the department of health or the environmental protection agency, the school districts can proceed with the inspections. In most instances, the custodian who works in the school building daily is in a position to know where asbestos may be present. Regional training programs may be desirable to enhance the skills of those who conduct the preliminary surveys. Materials suspected of containing asbestos can be sent to approved

public or private laboratories for analysis."

Once the asbestos has been identified and corrective action is required, there are three methods of dealing with the problem: 1) encapsulation, involving the use of a sealant which covers the original asbestos material and prevents further flaking; 2) structural containment, in which a permanent partition is installed between the asbestos area and the public and 3) removal of the asbestos.[19]

Each control method poses certain problems. A chemical sealant may be the easiest to apply and the least expensive technique, but it may not hold up for a long period of time. The very act of applying a chemical covering may damage some of the asbestos. Furthermore, in these days of mercurial changes in scientific data, there is no guarantee that a particular sealant itself may not subsequently stand accused as a hazard to health.

Structural containment is predicated upon the assumption that the area will not have to be accessible at a later date. Many school buildings have been designed to utilize the space between a ceiling and the floor above for electrical, plumbing, heating and ventilation installations. If a permanent partition is installed rather than a suspended ceiling made up of removable tiles, workmen may not be able to check faulty wiring, water leakage or a breakdown in the air circulation system. Also, although the asbestos will no longer be visible to the pupils and staff, asbestos particles may continue to be recycled through ventilation ducts after a new structural separation has been built.

Total removal is obviously the most comprehensive method. Nevertheless, substantial skill is required. The act of extricating the asbestos may pose a hazard for the occupants of the building and the workmen. Consequently, removal may have to take place during vacation periods. In most cases, work areas have to be sealed off from other sections of the building and care exercised to guarantee that asbestos particles do not become lodged in the air circulation system. Removal is also the most expensive program.[20]

Although not as dramatic, asbestos poses the same type of public health menace as the Three Mile Island nuclear reactor accident in Pennsylvania, the radiation near the desert testing sites of Utah and Nevada or seepage of toxic wastes from the Hooker Chemical Company in the Love Canal area of western New York. Public policymakers cannot risk having a whole generation of young adults discover 20 or 30 years from now that they have contracted lung cancer and other malignancies as a result of prolonged exposure to asbestos in the schools.

The United States Environmental Protection Agency is considering a plan for long-term surveillance of children exposed to asbestos in seriously contaminated schools. Unfortunately, the effort is fraught with complications. In an unpublished, in-house report, EPA acknowledges that the effects of asbestos exposure will not be evident for many years to come. "Medical examination of children now, whether to document exposure or to detect clinical disease, would be fruitless," the staff report concludes. "The psychological and monetary costs would be considerable. If a means were available to identify exposed school children so that they could be located years later, positive steps could be taken. As adults these persons could be informed of their childhood exposure and advised of the proper measures they personally could take." In the next breath, however, the agency has acknowledged the superficial, conscience-soothing nature of this recommendation, by admitting that "although no cures are currently known for asbestos-induced diseases, therapeutic research continues; it may be possible by then to apply *palliative* (emphasis added) measures. Without a means of identifying these children now almost nothing can be done to help them in the future." As a temporary expediency, some EPA officials have suggested issuing Social Security numbers to these children so that at a later date someone could open the sealed files and advise these people of their fates.[21]

The federal government, the states and local school districts should obviously pursue immediate programs of prevention and abatement instead of waiting to notify potential cancer victims that they have been needlessly exposed to an incurable disease. In the absence of an adequately-funded federal policy which would require appropriate corrective action throughout the country, the most promising approach seems to fall within the realm of the states. State legislation could establish goals and procedures which would:

1. Develop precise, scientific definitions of asbestos materials.

2. Identify the circumstances under which certain forms of asbestos pose hazards to human health.

3. Require the state commissioner of education — in consultation with state health or environmental officials — to: a) inform school authorities of the asbestos hazards; b) advise school districts of the methods of identifying, sampling and testing materials suspected of containing asbestos and constituting a health hazard; c) direct the school districts to undertake surveys of school buildings throughout the state; d) maintain current records regarding the condition of asbestos in the schools based upon periodic surveys by local school officials or inspections by the state education agency; e) provide scientific and technical assistance to the

school districts; f) require the districts to prepare and submit abatement plans; g) promulgate standards under which the containment or removal of asbestos shall proceed; h) establish regional training programs for contractors and supervisors engaged in eliminating asbestos hazards and i) monitor the implementation of these programs.

4. Establish timetables for abatement programs within state school asbestos legislation and create advisory councils of representatives from state education agencies; local school districts; medical, public health, architectural and engineering professionals; employers and employees in the construction industry; parents and the general public.[22]

Implementing such a state plan will inevitably be influenced by considerations of cost. New York City school officials estimated that the price of containing or removing all of the asbestos found in nearly 300 schools could easily range between $35 and $50 million. While construction costs are not uniform throughout the nation, an effective program in any state is certain to be expensive. In several New Jersey schools, expenditures for sealing ranged from $1 to $2 per square foot, while removal and replacement of asbestos ceilings varied between $2 and $5 per square foot. Without additional funding from federal or state government, real danger that school districts facing fiscal constraints, taxpayer revolt and declining enrollment may delay the implementation of asbestos identification and abatement.[23]

Asbestos control is not an ordinary building need. Surely in a health emergency, an overriding state or national obligation might be invoked. However, certain guarantees are required. A building treated for asbestos should not be one which is likely to be closed within the foreseeable future because of age or declining enrollment. The state must expect, and give, adequate assurances that there are no other facilities available to accommodate the students and that the building utilization rate is above a minimum percentage. The anticipated life of the structure should also be considered before asbestos funding is provided. School officials must be prepared to justify the continued occupancy of any building for which major asbestos abatement is ordered.

What is the federal role in the detection, containment or removal of asbestos? In 1980, a year after the enactment of the New York State Asbestos Safety Control Act, parallel legislation was approved by Congress and signed into law by President Carter. However, there is no certainty that the United States Asbestos School Hazard Detection and Control Act will provide immediate and adequate relief for school systems that are concerned with asbestos problems. Although the legislation set up a fund for testing and evaluating potential hazards and ostensibly created a loan program to assist in the containment or removal of asbestos, the program is presently unfunded. The future of this program is further complicated by the results of the 1980 presidential election and the apparent unwillingness of the Reagan administration to implement new federal regulations for school asbestos control.[24]

There are public policy lessons to be derived from the school asbestos experience. Initially, lay decision makers feel unqualified to judge public health issues. Eventually, they may recognize that there is uncertainty even within the scientific community, that potential victims have not been warned of imminent life-threatening hazards and that a chasm exists between research and public policy. Practitioners in medicine and public health, producers and distributors of asbestos as well as the construction industry neglected to subject the mineral to ample, long-range testing before using it. Tragic and unforeseen mistakes were made by architects and engineers who specified the incorporation of asbestos in building plans and by the educational authorities who approved and then destroyed the working drawings which would have illuminated its use and the extent of the present predicament. Finally, state and local governments nationwide incorporated the use of asbestos in building codes and issued certificates of occupancy attesting to the safety of the structures.

Nevertheless, the search for villains is pointless. Decisions do not wait for convenient time or circumstances, nor pause for optimum technical nor fiscal resources. Policy makers who are presently confronted with urgent crises may not have created the original condition which they are called upon to correct. Furthermore, some problems defy government's best available solutions.

The decision making process has been compared to a multiple choice examination. In approaching the school asbestos issue, public officials could adopt a wait and see attitude or appoint a study commission. In this situation, such a choice would be deadly, for it would endanger the lives of a whole generation of students and educators who would be needlessly exposed to a known carcinogenic substance.

A second alternative would be to raise the level of public consciousness, to alert the teachers and parents of school-age children that asbestos, in various forms, pervades the educational system. In so doing, the alarmists would create a climate of fear, making it impossible for instructional programs to continue until all questions have been answered. However, a third more realistic option is to undertake an immediate

investigation of the scope and nature of the problem and use every available federal, state and local resource to finance corrective action.

Sensing the complexity of the legal picture, reviewing the available scientific data, assessing the impact of each option, accepting responsibility and, ultimately, deciding upon the most propitious policy are essential ingredients for dealing intelligently with the school asbestos issue. However, any course of action may establish new conditions for which the ramifications are unknown or unanticipated. Beyond the schools, there are libraries and museums, community centers and civic auditoriums, as well as other public buildings and quasi-public facilities which contain asbestos. The legal and ethical principles inherent in the doctrine of implied warranty will not stop at the schoolhouse door. Future legislation and litigation will expand the boundaries.[23]

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4. *McKinney's Consolidated Laws of New York*, Book 49, *Real Property Law*, §235-b, notes 2, 11. Tenants' reliance upon implied warranties of habitability is discussed in John M. Strikor and Andrew D. Shapiro *New York City Tenant Handbook* (New York, 1978); *McKinney's Consolidated Laws of New York*, Book 30, *Labor Law*, §470, Book 17½, *Environmental Conservation Law*, §19-0107; Book 44, *Public Health Law*, §225.

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12. Nicholson, "Ibid.," pp. 12, 54; Architectural Research Laboratory, University of Michigan, *The Effect of Windowless Classrooms on Elementary School Children* (Ann Arbor, Michigan, 1965).

13. New York State Assembly Education Committee, Asbestos Conference, Albany, New York, February 6, 1979.

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16. Levin, "Asbestos in Schools," p. 31; New York City, Board of Education, "Investigation and Testing of Various Methods," passim; Nicholson, "Control," pp. 18-22; New Jersey, "Guidance Document," pp. 6-7.

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By Kathleen McCormick

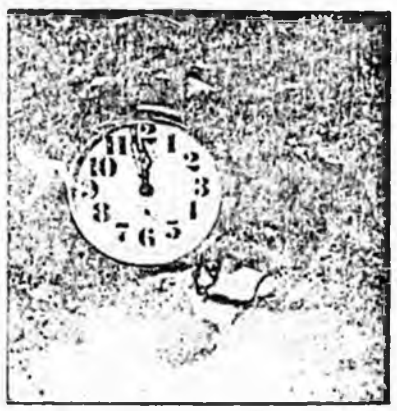
ALL TALK AND no action: That's the way the asbestos-in-schools game has been played in the past several years by the federal government and thousands of U.S. school systems. It's time—past time—to respond to the potentially-fatal hazards of asbestos in our schools. The ante has been raised in recent months, and from the look of things, school boards that haven't complied yet with federal regulations concerning inspection, notification, and record keeping could be in for a rough time. And even if you *have* made the inspections, posted the required notices, and notified parents and staff of potential health risks in your schools, you still might be the target of a lawsuit should a student or staff member become ill or die because of an asbestos-related disease.

That's not exactly reassuring news, but you can take some steps to meet federal regulations and protect your students and staff. Prudent school leaders would do well to consider carefully some of the recent developments in medical research, federal enforcement, and legal actions. Read on:

The medical risks

As far back as the 1930s, manufacturers of asbestos knew the substance was a killer. But the American public first became aware of the hazard when the Environmental Protection Agency (E.P.A.) banned some uses of sprayed-on asbestos in 1973, after research concluded that thousands of shipyard workers who had handled the substance during World War II were dying (or had died) of asbestos-related diseases. Five years later, an award-winning article in this magazine broke the disconcerting news to school

Kathleen McCormick is assistant editor of the JOURNAL.



The asbestos ante has been raised in recent months, and boards that don't respond could be in for trouble

leaders that U.S. schoolchildren faced imminent danger from asbestos. In schools built between 1946 and 1973, tens of thousands of tons of asbestos products were used for fireproofing, soundproofing, and insulating ceilings, walls, pipes, and boilers. As friable (loose or flaking) asbestos materials age, they release tiny particles into the air; if enough particles are inhaled, they can cause cancer and a variety of respiratory ailments. And if these materials get wet (say, from a roof that leaks) or are disturbed (perhaps by maintenance workers who fix electrical wiring in the ceiling), countless particles are dispersed, presenting an even greater health hazard.

What are the risks? Cancer, for starters: The most common form of asbestos-related cancer is lung cancer. Next is mesothelioma, a rare and fatal tumor of the membrane linings in the chest or abdominal cavities; its only known cause is asbestos. Exposure to the deadly mineral filaments released by asbestos also has been proved to cause cancers of the colon, rectum, stomach, esophagus, kidney, larynx, and pharynx. An associated disease is asbestosis, a scarring of the lungs that progressively robs the victim of breath and sometimes of life. The effects of asbestos are pervasive even among people who don't work directly with the stuff: Research has shown that among the immediate families of asbestos workers, 1 percent of the family members died from an asbestos-related cancer, and one-third were afflicted with asbestosis.

The number of airborne asbestos particles in your schools, of course, is considerably smaller than what asbestos workers once were exposed to on a daily basis. But that doesn't reduce the overall risk—nor does it absolve you from the responsibility of dealing with the problem. Dr. Edwin C. Holstein, clinical assistant professor at the Environmental Science Laboratories of Mount Sinai School of Medicine in New York, explains: "All scientific evidence suggests there is no safe dose of asbestos. Any exposure, no matter how small, will increase the risk of cancer." Dr. Holstein and his colleagues at Mt. Sinai, the preeminent U.S. institution for medical research on asbestos, have concluded the substance is a public health problem that must be remedied as soon as possible.

"For any one person, the risk is low," says Dr. Holstein. "But for a school system, sheer numbers tell you that you have a problem. It's like the half-full/half-empty glass of water," he notes. "The optimists say the health risks of asbestos are tiny; the pessimists—including public health authorities—know some people are going to die from exposure to asbestos."

OPINIONS EXPRESSED BY THE JOURNAL OR ANY OF ITS AUTHORS DO NOT NECESSARILY REFLECT POSITIONS OF THE NATIONAL SCHOOL BOARDS ASSOCIATION

And they'd like to see schools help prevent those deaths—no matter how few—by removing the risk.

It could be many years before we're able to draw conclusions on the effects of asbestos exposure in schools. The risks vary, of course, depending on individual people, the condition and location of asbestos materials in school buildings, and the amount and duration of exposure. The appalling truth, according to Dr. Holstein: "It's false reassurance if no one is sick [now], because they might be sick by 1990 and dead by 1992." But despite the tendency for people to personalize this kind of highly emotional, life-and-death issue, he says, school board members and administrators should assure concerned parents that "there's no need to get hysterical; it's a problem that can be remedied."

The remedy

At the very least, you already should have complied with all federal regulations pertaining to asbestos in schools. Three sets of regulations have been issued. First, Department of Education (ED) regulations specify *how* states must distribute information on asbestos to schools, according to the Asbestos School Hazard Detection and Control Act of 1980. Second, Occupational Safety and Health Administration regulations detail procedures for the protection and decontamination of asbestos abatement workers and for measuring airborne asbestos. Schools engaged in containing and removing the friable fibers must comply with these procedures. Third—and more to the point—are the E.P.A. regulations: As of June 1983, you're responsible for having met the requirements of Section 6(a) of the Toxic Substances Control Act (T.S.C.A.), which were specified in "Friable Asbestos-Containing Materials in Schools; Identification and Notification Rule" (47 *Federal Register* 23360, May 27, 1982).

E.P.A. issued this rule because its Technical Assistance Program (TAP), launched in 1978, had limited success in getting schools to comply voluntarily with previous E.P.A. inspection and record-keeping guidelines. The T.S.C.A. rule applies to all elementary and secondary schools, except those built after December 31, 1978, and those that can document they already have checked buildings and either found no friable asbestos or satisfactorily dealt with the material. Schools were given one year to comply with the requirements.

(1) *Inspection.* You must inspect each building for friable materials.

(2) *Sampling.* If you find friable materials, you must take samples, following E.P.A. instructions.

(3) *Analysis.* A qualified laboratory must perform an analysis using polarized light microscopy, a sophisticated (and expensive) technique for measuring the amount of asbestos fibers in asbestos-containing materials.

(4) *Warnings and notifications.* You must post warning signs wherever you find friable asbestos-containing materials in schools—and send written notification to the staff and the P.T.O. of each school involved, specifying where the hazardous materials are located.

Note that the T.S.C.A. rule does *not* require you to remove, cover, or encapsulate the asbestos; it's up to individual school systems to decide how to dispense with the offending material. The rule also doesn't require you to report your findings to E.P.A., although you *do* need to keep complete and detailed records documenting your compliance with the T.S.C.A. rule.

Once you've found asbestos in your schools, you have a choice of four acceptable ways to resolve the problem: (1) removing the material altogether; (2) enclosing the areas containing asbestos to prevent fibers from escaping; (3) encapsulating completely the area that contains or is coated with asbestos; and (4) observing and maintaining the affected surfaces to avoid any damage that could cause the release of more fibers. Experts say removal is the only surefire way to rid your schools finally and completely of asbestos hazards. But the removal process itself is an extremely dangerous undertaking; a faulty or incomplete removal job could present even greater health hazards to your students and staff, as well as to asbestos abatement workers. So before you contract for any asbestos containment or removal work, refer to the technical advice presented in the E.P.A. document, "Guidance for Controlling Friable Asbestos-Containing Materials in Buildings," published in March 1983. And even though other measures might work in some schools, many school systems have found that public pressure is brought to bear on the school board to remove asbestos completely—regardless of expense.

The cost

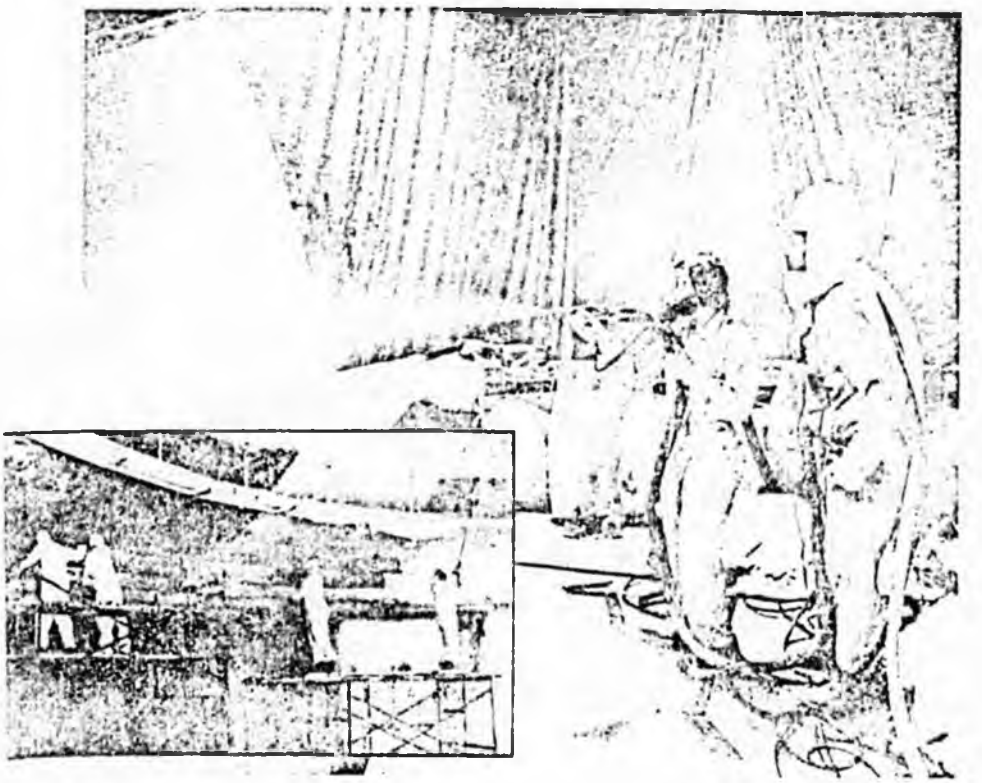
E.P.A. estimates that as many as 14,000 U.S. schools might contain dangerous friable material composed of more than 1 percent asbestos—which means more than 3 million students and 250,000 staff members are at risk right now. The agency estimates the total cost of asbestos abatement at $1.4 billion nationwide, or $100,000 per school building. Some school systems already have spent millions. According to Dwight Brown, formerly asbestos coordinator for E.P.A. Region IV in Atlanta, schools can expect to pay between $3 and $10 per square foot for asbestos removal—and the price can go as high as $28 per square foot. What drives the cost so high is the need for sophisticated analysis equipment and clothing to protect workers, Brown explains. Analysis of asbestos samples using an electron microscope goes for between $200 and $500 per sample—and you might need scores of samples to determine the hazard level in only one school.

Without a doubt, asbestos is a financial burden for school systems. At President Reagan's behest, Congress repeatedly has refused to provide funds to accompany the federal regulations it requires schools to obey. Part of the Asbestos School Hazard Detection and Control Act of 1980, for example, called for $700 million in grants and interest-free loans to help state and local education agencies identify and correct asbestos hazards in schools; no appropriations were made. Don't count on E.P.A. for changes in the funding situation, either: Officials there say they have no plans to request or provide money for school systems to deal with asbestos problems.

School systems in several states are fortunate to be reimbursed for expenses they incur in removing asbestos. In the past four years, for example, New York has given more than $12 million in grants and state building aid to help local asbestos removal programs. And in the same period, Florida has appropriated $10.5 million for asbestos removal. These are notable exceptions, however. Most school leaders have to dig into general operating budgets to come up with the funds. Such cost considerations, along with federal regulations that are at once technical and vague, have caused many school leaders to avoid the issue of asbestos altogether. But ducking the issue can only bring harm to your schools.

The consequences

Forewarned is forearmed: E.P.A. is stepping up its monitoring of schools' compliance. Although the agency has no conclusive statistics, E.P.A. officials say the rate of noncompliance by schools is high. Proferred proof: An E.P.A. staff



Space-age procedures are needed to eliminate asbestos from schools. Here, abatement workers wet down and remove the substance from a school gymnasium.

memorandum in August 1983 indicated that 80 percent of a sample of 167 schools were in violation of the E.P.A. inspection rule. And, according to E.P.A.'s compliance monitoring office, inspections conducted in 275 school systems since June 1983 show that 190—nearly 70 percent—had not complied with E.P.A. regulations on obtaining asbestos samples, notifying parents, keeping records, and so forth. The 275 school systems inspected include approximately 80 of the 100 largest school systems in the U.S.

Now something is being done about that kind of slackness: In fact, E.P.A. inspectors could come knocking on your door any day, asking to see your records. You could be cited for violations of T.S.C.A. on these grounds: failure to inspect schools; failure to sample friable materials; failure to analyze asbestos samples; failure to notify parents and staff; and failure to keep records.

Depending on the number and type of violations, your schools could be fined as much as *$25,000 per day per violation*—an amount that quickly could snowball into an outrageous sum. Here's how the fine system works: If E.P.A. finds you haven't complied with T.S.C.A., your central office will be given 30 days to certify compliance in writing. If certification isn't received within 30 days, E.P.A. files a civil complaint against your schools. Agency officials then will ask to see a compliance schedule as a demonstration of your good intentions. If these negotiations fail—if you don't cooperate—E.P.A. will attempt to collect the fines it has levied against your schools.

If you think the E.P.A. is making idle threats, think again: Under the direction of old/new Director William Ruckleshaus, E.P.A. has become more vigilant and is going after asbestos in schools as one of its Top Ten priority items. E.P.A.'s design in these aggressive actions is to force schools into compliance through pressure from the community, according to Connie DeRocco, a specialist in E.P.A.'s asbestos enforcement program. It stands to reason that school board members and administrators would tend to choose compliance over the chance that a concerned parent might blow the whistle on the schools' negligence.

Other signs that E.P.A. means business: The agency is doubling its monitoring staff for fiscal year 1985. And then there's the Philadelphia case: E.P.A. has threatened to set a precedent by filing a civil complaint for noncompliance against the Philadelphia schools, to the tune of $378,000 in fines ($6,000 for each of 63 nursery and day care centers housed in buildings leased by the school system that weren't inspected for asbestos). School officials are trying to head off the complaint by inspecting the buildings; E.P.A. officials say they are willing to negotiate as long as the Philadelphia schools can show they mean to comply fully with E.P.A. regulations.

But public pressure also is mounting on E.P.A. itself to issue more stringent and specific regulations on asbestos in schools. In response to a petition filed last November by the Service Employees International Union—prompted by the asbestos-related death of a school custodian—E.P.A.'s Ruckleshaus announced in late February that the agency will set formal standards for schools to remove or seal crumbling asbestos materials.

The legal ramifications

Before you make any decisions about asbestos in your schools, consult your school attorney. Advice from Dwight Brown, who has conducted seminars on asbestos in schools for the past five years: Devise a three-part legal action plan with your attorney concerning cost recovery, tort claim defense, and the process of administering contracts for removing and disposing of asbestos.

One legal question on everyone's mind: Can you recover costs of removing asbestos from the manufacturers of the material? "The Attorney General's Asbestos Liability Report to the Congress," published in September 1981, says schools should have a good chance of recovery in court. The bankruptcy last year of a major asbestos producer, Johns Manville Co., cast a pallor over what some school attorneys had held were excellent chances to recover costs. But in February, Lexington County School District No. 5 in South Carolina brought suit against U.S. Gypsum Co. to recover approximately $300,000—the cost of removing asbestos from Irmo High School. (The potentially precedent-setting case was about to come to trial as the JOURNAL went to press.) The school system is being represented by Daniel A. Speights of Hampton, S.C. Speights anticipates having filed as many as 30 asbestos-related lawsuits against U.S. Gypsum Co., National Gypsum Co., and W.R. Grace & Co. by July on behalf of school systems in Florida, Alabama, Mississippi, New Hampshire, and other states. He says these cases stand a "good chance" of winning. The Lexington suit, then, could open the floodgates for thousands of lawsuits against asbestos manufacturers.

Other legal issues you should be aware

Asbestos-control funds sought from legislatures

The Environmental Protection Agency is threatening to require schools to eliminate asbestos or face closure.

In autumn 1982, the U.S. House of Representatives voted to appropriate $50 million to provide school districts with interest-free loans to help defray the cost of removing or controlling asbestos in school buildings. But the measure, authorized under the Asbestos School Hazard Detection and Control Act that was passed in 1980 but never funded, failed to win the support of the Senate. When a conference committee also decided against asbestos-control funds, the chances that Washington would provide money for removal became remote.

The defeat of the funding measure is likely to mean that state legislatures will feel increased pressure from school officials to come up with asbestos-control funds. Some states — New York and Alabama, for example — already have provided such funds. Alabama uses a $75-million fund drawn from oil and gas revenues. In Mississippi, state education officials planned to go to the Legislature to ask for funds to offset the estimated $20 million it will cost to remove asbestos from schools, schools.

The continued absence of federal funding comes at a time when public pressure to deal with asbestos in the schools is increasing in many areas, in part because the Environmental Protection Agency may now issue a press release announcing which schools have not met the requirements of its regulation. Under the EPA regulation, all public and private schools were required to inspect for friable (crumbling) asbestos by June 28, 1983. If they found asbestos but took no action, the schools were required to notify parents and staff members. Although there is no federal requirement that asbestos be removed from the schools, the belief was that knowledge of its presence would generate enough public pressure to force action.



What this strategy of the EPA did not take into account, however, is that many school districts lack the money to pay for the often costly abatement procedures, and would instead simply fail to notify anyone of the presence of crumbling asbestos. As of last fall, an EPA survey outlined in an internal memorandum found that about 66 percent of all schools had not complied with some component of the regulation. The most common violation, the survey found, was failure to notify.

Although more school districts are belatedly complying with the regulation, according to EPA officials, the problem of funding remains serious for some. A report prepared for the Senate Appropriations Committee by the U.S. Department of Education estimated the cost of removing asbestos from schools nationwide at $1.4 billion. Under the loan program authorized in the 1980 legislation, the federal share of this would be $700 million. Acknowledging that there are no firm data to support this estimate, the report places the number of schools with an asbestos problem at 14,000. The estimated cost of removal is $100,000 per school, according to the draft report. That figure is dramatically higher in some areas: Jackson, Miss., faces a $6-million bill, and in Philadelphia, school officials estimated the cost at $17 million. Others, of course, will require much less money because their asbestos situation is less dire.

A growing concern that they will be held liable for any asbestos-related illness — cancer, for example — contracted by students or staff is also prompting some school officials to step up the removal process and accelerate their quest for outside funding. Lawyers who handle asbestos litigation argue that, although no school suit of this type has been filed, school officials who do not remove a substance known to be hazardous will indeed be legally liable.

Some school districts — about 35 as of last fall — have filed suits of their own against asbestos manufacturers. Should one of these cases be decided in favor of a school district, more suits may follow, and favorable rulings would allow districts to recoup the cost of removal. Until then — barring the possibility of federal funding — districts have few places to turn and state legislators may find themselves the recipients of pleas from school officials.

— *Susan Walton*

States help employees buy out failing firms

Since the mid-1970s, more than 6,000 businesses across the nation have become, wholly or in part, owned by their employees. In most cases, employees have simply purchased stock through Employee Stock Ownership Plans (ESOPs), and there has been little state involvement.

When the number of plant shutdowns and relocations rose during the recent recession, however, legislators in several states sought ways to encourage "buyouts" of ailing firms by employees to save their jobs.

At least 12 states — California, Delaware, Illinois, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, Ohio, Oregon, and West Virginia — have laws concerning worker ownership. Although some of these laws simply direct that state agencies study the issue, others, such as in California, Illinois, Michigan, and New York, have broader provisions that provide venture capital, technical assistance, and other help to workers attempting a buyout.

Maryland and Wisconsin also have strong legislation pending, while an attempt to add to New Jersey's law was vetoed last year by Governor Thomas H. Kean.

Essentially, there are two types of employee buyouts. The first is the most widely publicized — but least frequent — when, in a last-ditch attempt, employees try to save their jobs by buying a failing or unprofitable plant in danger of being closed. Weirton Steel in West Virginia is a recent example. This kind of buyout, however, constitutes "only about 1 percent of the total," according to Corey Rosen, director of the Center for Employee Ownership in Washington, D.C.

Far more common are ESOPs. In a typical plan, workers are simply offered company stock at market value rates.

Workers of firms that offer ESOPs typically own from 15 to 30 percent of the stock, although often the stock offered is nonvoting. ESOPs are encouraged by various federal tax incentives, and little state legislation has been enacted.

Instead, some state lawmakers have designed their efforts specifically to help employees purchase failing firms, particularly in already hard-hit urban areas. For example, in Illinois, Democratic state Representative Wyvetter H. Younge, hoping to "subsidize employment rather than unemployment," sponsored a bill that passed and was sign-

TARGET VOL. 13/APRIL-MAY '84/NO. 5

Asbestos: Still a danger in schools

by Elaine S. Knapp

For Phyllis Adams and Ann Gibbs the last year has been a frustrating one—trying to get their local school board to remove asbestos from the school their children attend.

"It's frustrating, our children are being poisoned and there's not anything we can do," Mrs. Gibbs declared. What the Lexington, Kentucky, housewife has done is work through the PTA, form a group of concerned parents, go door-to-door telling parents of the danger, gather hundreds of signatures on petitions, read volumes on asbestos, call and write federal agencies and confront the school administrator and board.

After a year of parental pressure being applied and at least a decade after school authorities knew of the asbestos hazard, Mrs. Gibbs said, "We don't think anything will be done until the government makes them (the school board)." School authorities maintain the asbestos will be cleaned up if money is available for renovation next year.

Ironically, the major government effort to control asbestos lies in Mrs. Gibbs and others like her. Telling parents and teachers that their school has asbestos and relying on them to ressure local action is the heart of the U.S. Environmental rotection Agency's (EPA) strategy to rectify the nationwide problem of asbestos in schools.

No effective federal program exists to protect schoolchildren from asbestos, state efforts vary widely and local schools often ignore the danger due to the cost of cleanup.

Asbestos dangers

Any exposure to asbestos involves some health risk, according to the Congress, the EPA and the scientific community. Children are especially vulnerable, according to the EPA guidance document on asbestos sent to schools. Their remaining life expectancy provides the 20 to 40 years it takes for disabling and fatal asbestos-related diseases to develop. Large numbers of children may be exposed in a contaminated school and exposure is continuous during the school year. Children are active and breathe more frequently than adults, possibly inhaling more asbestos fibers. Smoking can increase the cancer risk due to asbestos exposure.

Most hazardous is friable asbestos that can be crumbled. It sends deadly fibers into the air which may lodge in the lungs indefinitely, according to EPA's guidance document. Asbestos workers often develop a chronic and debilitating lung disease called asbestosis. Lower and shorter exposure can result in death many years later.

Asbestos diseases include: 1) asbestosis, a disease in which asbestos clogs the lungs, 2) pleural calcification, a deposit of alcium salts in the lung lining, 3) malignant tumors of the lung, 4) mesothelioma, a rapid and fatal cancer of the lung and 5) intestinal and uterine cancers.

This is a reprint of a portion of an article appearing in State Government News, *March 1984. It is authored by and printed with permission of Elaine S. Knapp, its editor.*

Hot potato

Asbestos in the schools has been a "hot potato" tossed among various levels of government and federal agencies. One reason is that removal of asbestos can be quite expensive, especially if large areas of buildings are affected. Funding is basically up to local schools as is asbestos detection and control. No federal funds are available and state aid varies.

The U.S. EPA requires schools to inspect for asbestos and notify parents and [school] employees of asbestos hazards. The EPA doesn't require removal or abatement. "The theory is that PTAs and employees would pressure local districts to take remedial action," said Terrell Hunt, assistant to EPA Deputy Administrator Alvin Alm.

However, a recent internal EPA report found that many schools did not meet EPA's June 1983 deadline for asbestos detection, record keeping and notification.

No federal funds

Federal funds of $172 million authorized by the Asbestos School Hazard Detection and Control Act of 1980 were never appropriated. Grants were promised for schools to identify asbestos hazards and loans for mitigation of asbestos hazards. But funds were never requested by the Department of Education, reported John Bennett, aide to U.S. Representative George Miller, D-Calif., who sponsored the act. In 1983, a $50 million recommendation by the House was omitted in a House-Senate conference.

The U.S. Department of Education had a task force which set standards for state grants in 1980, according to W. Stanley Kruger, deputy director for state and local programs. However, when the program wasn't funded, the department "deferred to EPA," Kruger said.

Under pressure from Congress, the department reactivated its task force in October 1983 and is gathering information on asbestos to send to chief state school officials, Kruger said. The department also reactivated its requirement that states file plans for asbestos in the schools' programs and report on their progress every six months. All but two states have filed.

EPA's program

The federal effort has largely been a requirement by the EPA that schools inspect for asbestos hazards, sample and analyze material to determine if asbestos is present, keep records of the inspection, post notices, and notify parents and employees if asbestos is found. Although schools were to comply with the rule by June 1983, the EPA doesn't know how many did. It does not require schools to report to it and must send federal inspectors to schools to check their records. EPA staff said when the EPA regulation was written that the administration op-

posed imposing a data reporting requirement. The EPA recently doubled its field force of inspectors by adding 16 people through a contract with the American Association of Retired Persons, Hunt said. These include retired architects and engineers. Primarily, EPA staff look at school records and physically inspect some schools. However, there are not enough inspectors to cover but a small portion of the nation's schools.

In providing technical advice, EPA can help schools determine the best strategy for evaluating the risk and responding to asbestos, Hunt said. He said that anything short of removal is considered a short-term solution.

Connie Derocco, environmental protection specialist with EPA, said that out of 1,527 schools inspected in 468 districts, some 60 percent did not comply with EPA rules. Most failed to notify and warn PTAs and employees of asbestos materials [manufacturers]. Schools know they will be pressured once the word is out, and they are hesitant to deal with the asbestos problem, Derocco explained. After receiving a notice of noncompliance, schools have 30 days to act before the EPA files a civil complaint.

Labor union concern

An estimated 3.24 million schoolchildren and 648,000 school employees are potentially exposed to asbestos, according to Kitty Conlan, research analyst with the Service Employees International Union (SEIU).

The SEIU is lobbying Congress to fund the 1980 act for grants and loans to schools. Schools don't have the money to clean up on their own, Conlan said. "It's a nationwide problem which affects the health of millions of people."

SEIU is suing the EPA to require schools to clean up flaking asbestos. "Schools say if EPA thinks asbestos is so bad, then EPA would require them to get rid of it," Conlan commented.

EPA does give schools good technical advice on how to get rid of asbestos, Conlan noted. But some schools accept the lowest bid rather than follow EPA guidelines. If the cleanup is not done right, the asbestos danger can be worsened.

Conlan said SEIU doesn't think suing asbestos' manufacturers is worthwhile, citing lack of action on suits filed by asbestos workers. "We're hesitant to have our members litigate themselves to death," she said.

Conlan added that school districts can also be held responsible for asbestos. "They can face a big liability," she commented.

Lawsuits filed

A number of lawsuits on behalf of school boards and building owners in Kentucky, Mississippi, New Hampshire, Florida, South Carolina, Alabama and Tennessee have been filed by a South Carolina law firm.

Daniel Speights (a school board attorney) noted that legal theories available to school boards against manufacturers of asbestos include: contract (the products were not fit for the use intended), negligence (the manufacturers were negligent in informing users of the risks associated with the products), strict liability (manufacturers should be strictly liable for failing to warn of asbestos hazards), and restitution (manufacturers have a duty to abate the hazard).

A civil action filed on behalf of the Barnwell, South Carolina, school district notes that school districts and public officials could be held liable for failing to abate a health hazard.

A September 1981 report by the U.S. attorney general to Congress recommended that school authorities seek to recover asbestos abatement expenses from asbestos manufacturers. The report said federal litigation would be ineffective unless Congress imposed liability on asbestos manufacturers.

Asbestos manufacturers are being sued by at least 20,000 people on the grounds that the companies knew of asbestos hazards and covered them up, according to a September article in the *National Journal*.

A 1983 report from the Rand Institute says that asbestos litigation and compensation has cost an estimated $1 billion over the past decade. Only 37 cents of every dollar went for actual compensation to plaintiffs. Estimates of the number of deaths due to asbestos over the next 30 years range from 74,000 to 265,000.

What you should do about asbestos in your school

Given current asbestos rules and regulations, PTAs should check on the following:

1. Was each school in your district inspected for friable asbestos? If not, request this action immediately.
2. Was an analysis of asbestos samples, using polarized light microscopy, conducted?
3. Are records of the asbestos inspection on file in the school district?
4. Does the PTA have a copy of the report in its records?

In schools where asbestos was found, has the school complied with the following:

1. Did the school district notify the children's parents, either directly or through the PTA?
2. Were school employees notified of the location of the materials?
3. Did the school post a standard form in administrative and custodial areas?
4. Are measures being taken, if not already completed, to remove asbestos in the school?
5. Did the school district provide maintenance and custodial employees with instructions for reducing exposure to asbestos?

If asbestos was found in your school, but corrective measures are not being taken, the following steps should be pursued:

1. The PTA should work with the school to affect removal or abatement. Invite parents, teachers, employees of the building, the school principal, and the superintendent to a PTA meeting. Request information about the degree of the asbestos problem and what plans are being developed for cleanup.

2. If plans are not under way or seem unsatisfactory, contact the school board to inform it of your concern. If informal discussions do not produce results, get the issue on the agenda of the next school board meeting. Be prepared to provide the facts, including the inspection reports and the cost of abatement, to school board members.

3. Meanwhile, inform your state legislature and the U.S. Congress about the problems and the degree of difficulty there is in terms of cleanup.

4. If the school board is unable or unwilling to ameliorate the problem, one resort would be a lawsuit. Be sure that you have tried every alternative before taking this step.

Ombudsman

John B. Chenoweth

State of Alaska

Reply to:

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Fairbanks, Alaska 99707
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January 17, 1985

Representative Max Gruenberg, Jr.
Alaska House of Representatives
Pouch V
Juneau, Alaska 99811-3100

RE: House Bill 5

Dear Representative Gruenberg:

The legislation which you have offered is directed at asbestos abatement in school buildings within the state.

Presently, I am investigating a complaint regarding asbestos levels in a correctional institution. Though I am prohibited by statute from discussing details of that investigation until it has been completed and I have received the agency's response, based on my work may I respectfully suggest that you consider extending the asbestos abatement program proposed in the legislation to include other institutions for which the state has a direct operating responsibility. I am asking that you consider extending the program to include, by name, Pioneers' Homes, correctional facilities, and institutions for juveniles and the mentally handicapped and developmentally disabled. I cannot give you an estimate of the incremental cost for the inclusion of these facilities, though the institutions' superintendents or OSHA inspectors (Division of Labor Standards and Safety) may be able to advise you with respect to exposure, need for abatement, and cost.

Sincerely,

John B. Chenoweth
Ombudsman

JBC:jdt

RESOLUTION: 84-10

ASBESTOS ABATEMENT IN ALASKA SCHOOLS

The Alaska Public Health Association,

Believing that friable asbestos, similar to that which was discovered in schools in the Anchorage School District, exists in numerous other schools in school districts throughout the State; and

Knowing that an Asbestos Technical Panel, convened in Anchorage by the Anchorage School Board, reviewed thoroughly health hazards associated with asbestos in Anchorage schools; and, as a result, recommended that friable asbestos be removed from Anchorage schools as an unacceptable health hazard[1]; and

Believing that many Alaskan school children in school districts other than Anchorage may be exposed to health hazards from asbestos that are preventable; therefor

Urges passage of Senate Bills 373 and 374; and

Urges the Governor to form a special task force with representatives of Department of Health and Social Services, Department of Labor, Department of Education, Department of Transportation & Public Facilities, Department of Environmental Conservation, parents of school children, and teachers to implement an asbestos abatement program in all Alaskan schools in accordance with recognized standards for asbestos abatement[2]; and

Urges implementation of an asbestos abatement program which will include the following tasks:

1. Implement and insure completion of a comprehensive survey to identify and categorize asbestos in all Alaskan schools.
2. Evaluate health hazards associated with any asbestos (friable asbestos and asbestos in other forms) discovered in the survey and make recommendations for appropriate medical surveillance of students, teachers and workers exposed to asbestos.
3. Insure notification of teachers, parents, and students of the presence of friable asbestos identified in Alaskan schools in accordance with guidelines established by the EPA.
4. Recommend a plan for removal of friable asbestos, where necessary, and develop appropriate bid specifications and guidelines so that school districts can be assured that asbestos will be removed according to established standards which protect workers, students, parents and teachers during the removal process as well as insure that asbestos is removed totally and is adequately disposed of in approved sites.
5. Increase awareness of the health hazards associated with asbestos and protect against future problems by making sure that asbestos containing materials are not used in new construction.

---

1. Asbestos Technical Advisory Panel Recommendations, ASD Memorandum #534(82-83), Anchorage School District, Anchorage, Alaska, May 23, 1983.
2. Asbestos-Containing Materials in School Buildings: A Guidance Document, Part 1 and 2. U.S. EPA, Office of Toxic Substances, Washington, D.C., March 1979.

ALASKA FEDERATION OF NATIVES, INC.
1984 ANNUAL CONVENTION

RESOLUTION NO. 84-32

TITLE: ASBESTOS ABATEMENT IN ALASKA SCHOOLS

WHEREAS, Believing that friable asbestos, similar to that which was discovered in schools in the Anchorage School District, exists in numerous other schools in school districts throughout the State; and

WHEREAS, Knowing that an Asbestos Technical Panel, convened in Anchorage by the Anchorage School Board, reviewed thoroughly health hazards associated with asbestos in Anchorage schools; and as a result, recommended that friable asbestos be removed from Anchorage schools as an unacceptable health hazard; and

WHEREAS, Believing that many Alaskan school children in school districts other than Anchorage may be exposed to health hazards from asbestos that are preventable,

NOW THEREFORE BE IT RESOLVED that the Alaska Federation of Natives urges the Governor to form a special task force with representatives of the Department of Health and Social Services, Department of Labor, Department of Education, Department of Transportation and Public Facilities, Department of Environmental Conservation, appropriate federal agencies, parents of school children, and teachers to implement an asbestos abatement program in all Alaska schools, including those under Bureau of Indian Affairs jurisdiction, in accordance with recognized standard for asbestos abatement and

BE IT FURTHER RESOLVED that the Alaska Federation of Natives urges implementation of an asbestos abatement program which will include the following tasks:

1. Implement and insure completion of a comprehensive survey to identify and categorize asbestos in all Alaska schools.

2. Evaluate health hazards associated with any asbestos (friable asbestos and asbestos in other forms) discovered in the survey and make recommendations for appropriate medical surveillance of students, teachers and workers exposed to asbestos.

NEA-ALASKA

AFFILIATED WITH THE NATIONAL EDUCATION ASSOCIATION

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January 22, 1985

TO: Co-Chairman, Representative Niilo Koponen and Max Gruenberg
Members, House HESS Committee

RE: HB 57 "An Act making special appropriations for an asbestos health hazard abatement program; and providing for an effective date.

NEA-Alaska strongly supports and encourages expeditious attention to this extremely serious matter.

We further encourage that the suppliers and producers be held accountable for their products and services.

With this memorandum, supplemental information is being provided for the Committee.

Respectfully submitted:

Robert Manners
Executive Secretary

L85:03



Alaska Health Project

417 West Eighth Avenue — P.O. Box 10-1037, Anchorage, Alaska 99510 — (907) 276-2864

Excerpted from Asbestos: Its Hazards and How to Fight Them by Molly Coye, Oil,Chemical and Atomic Workers International Union, 1978.

What is Asbestos? Who is Exposed to Asbestos?

Millions of American workers are handling asbestos on their job site, and medical experts estimate that because of this, 400,000 workers will die of cancer during the next half century.

Many workers who handle asbestos do not even know they are exposed because the asbestos is not labeled. Asbestos is a mineral, widely used for its heat and acid resistant properties. When separated from rock, it is fluffy and fibrous, and can be inhaled by workers--and by family members exposed to their clothing. Although asbestos is often bonded or woven for industrial uses, the mats and sheets wear down over time, releasing fibers into the air. Welders, for example, use asbestos "protective" blankets, which protect them from flying sparks, but at the same time surround them with flying asbestos fibers as the blanket is cracked and worn with use. Office workers are exposed because ventilation systems lined with asbestos release fibers into the air system. Pipe fitters are exposed because most piping is protected with asbestos. The list of exposed workers is very long, but the largest number of exposed workers include:

Air filtration systems workers
Asbestos cement pipe makers
Asbestos cement sheet makers
Asbestos cement shingle makers
Asbestos shingle and board makers
Asbestos textile makers
Automobile mechanics
Barge builders
Building construction workers
Burial vault builders
Cement insulation makers
Cement insulation workers
Cement makers
Cement pipemakers
Cement workers
Chemical workers
Concrete runway builders
Dam builders
Drain tile makers
Fireproofers
Heat insulation makers
Oil refinery workers
Oil well builders
Paint makers
Pier builders
Pipe and furnace fitters
Post makers
Pump packers
Reservoir builders
Road construction workers
Sidewalk builders
Silo builders
Smokestack builders
Sound insulation makers
Stadium builders
Storage tank builders
Swimming pool builders
Tunnel builders
Vinyl asbestos tile makers
Water pipe makers
Welders

Three-quarters of the asbestos used in the United States each year is used in the construction industry, but as this list shows, many workers who are exposed would not consider themselves part of the construction industry. For example, it has been estimated that 40,000 field insulation workers in the United States are exposed, but that the activities of these workers cause secondary exposures to 3 - 5 million other workers. You may be exposed to asbestos on almost any job, and you should never assume there is not asbestos exposure on your job.

How Do I Know if I am Exposed to Asbestos?

You may be able to recognize asbestos-made or asbestos-containing materials in your workplace, or recognize your job on the list in the last question. But you should never assume that you are not exposed to asbestos. To find out what you are working with - whether it is asbestos or some other toxic substance - your local union can use a letter of information like the one included in the back of this packet. This letter asks for important information about exposures in the workplace and about worker health and safety records, under the responsibility of union representatives in collective bargaining. These rights are implicit in the collective bargaining agreement. Further information on how to proceed should be obtained through your International Union.

Are Some Kinds of Asbestos Safe?

No. Every kind of asbestos causes cancer, and every kind of asbestos causes asbestosis.

Asbestos itself is a mineral, divided into five major types:

1-chrysotile (white asbestos) - more than 95% of the asbestos used in the world is chrysotile. It is mined in the U.S. and Canada as well as processed and used industrially.

2-crocidolite (blue asbestos) - approximately 3% of the asbestos used in the world is crocidolite. It is used for ship-building because of its resistance to acids and sea water, and is also mixed with chrysotile to accelerate the production of asbestos pressure pipes and sheeting.

3-amosite - bonds well with plastics and is used for floor tiles, fireproof boards in ships and for spraying insulation.

4-anthrophyllite and 5-tremolite - are talc-like forms, used as industrial talcs and in paper-making.

Most asbestos used is a mix of two or more of these types, usually of chrysotile with either crocidolite or amosite. Ninety-two percent of the asbestos used in the construction industry is bonded - "locked in" to such products as floor tiles, asbestos cements, roofing felts and shingles. The other 8% is friable or in powder form, in insulation materials, asbestos cement powders, and accoustical products. Because fibers are easily released from even the bonded forms, a minor remodeling job may release large amounts of fibers into a home or office.

All of these kinds of asbestos cause asbestosis, and all of them cause cancer. There is no safe kind of asbestos.

Why Does Asbestos Make You Sick? What is Asbestosis?

Asbestos fibers float in the air and you inhale them. When they lodge in the lung, these fibers - even fibers so small that they are invisible - irritate the lung. The irritation sets up a reaction, an inflammation (like a



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sore when you cut your finger) in the small air tubes and sacs of the lung. As the inflammation heals, it leaves scar tissue, called fibrosis. (Asbestos fibers which work their way into the skin cause a similar process, and the heaped-up fibrosis or scar tissue forms "asbestos corns" or "warts".) In the lung, this fibrosis causes two things:

1) it thickens the lining of the air sacs (alveoli) so that it is hard for oxygen to pass from the air into your bloodstream. Slowly, as the scarring progresses, the worker begins to suffocate - even though he can breathe air in, it doesn't get into his blood.
2) The lack of oxygen and hard breathing puts a strain on the heart, so a worker suffering from asbestos may either die of suffocation or of a weak heart leading to heart failure.

The entire process is the disease called "asbestosis." (Asbestosis is not the same thing as cancer, although both asbestosis and cancer are caused by asbestos exposure.) Once the process of fibrosis or scarring starts in asbestosis, it is irreversible. There is no treatment which can make the lung as healthy as it was before. The fibrosis is progressive, and will continue to develop; if it is already in an advanced stage, it may continue to develop even if you completely remove yourself from further exposure to asbestos. The disease asbestosis is incurable. Once the lungs are scarred, there is no way to get the oxygen across them and into the bloodstream. The only known treatment for asbestosis is to prevent it in the first place.

What Are the First Signs of Asbestosis?

A worker suffering from asbestosis will begin to notice that he is short of breath, having trouble doing what he used to do without breathing hard. He may have a dry cough, and sometimes there is pain in the upper chest or back. As the ability to breathe is limited, his fingers and toes become "clubbed" - rounded, with flattened nails. This is one of the signs of decreased oxygen reaching the blood. Because these are such vague symptoms, it is easy for doctors to blame them on other causes instead of asbestos exposure. The symptoms may go on for a long time, while the disease progresses, without other symptoms or a correct diagnosis.

How Can You Test for Asbestosis?

There are a number of ways of finding out if you have asbestosis, but the only sure way is a combination of these tests, recommended by the government:

1) personal/work history - to determine whether you have been exposed to asbestos and for how long.
2) physical examination - with special attention to the sound of the lungs, to thickening and rounding of the finger tips (called clubbing), and other signs of effects on the lungs and heart.
3) chest x-ray - to look for the thickening and scarring which results from asbestosis, or for early evidence of cancer.
4) pulmonary function tests - to find out how much air your lungs can hold (vital capacity) and how fast you can empty your lungs (FEV: forced expiratory volume in one second). These tests are done by having you breathe into a mouthpiece connected to a machine measuring the volume of air.

What Kind of Medical Testing Should Asbestos Workers Have?

All asbestos workers exposed to asbestos, must have a regular program of medical testing under the new OSHA Asbestos Standard. This testing is not intended to protect against asbestos exposure in the workplace today, or in the future - that must be done with engineering controls. Medical testing is intended to identify workers who have already developed or are developing asbestos-caused diseases. The required medical surveillance program for all asbestos workers is: 1) personal/work history, 2) physical examination, 3) chest x-rays, and 4) pulmonary function tests (see the last question for an explanation of these). The chest x-rays and pulmonary function tests must be performed at least every year for workers exposed to asbestos. Medical examinations are also required at the time of hiring and of leaving a job. The employer is required to provide all these forms of medical testing, and he must have begun providing them from January 31, 1973 on a yearly basis.

However, the worker is not required to take these tests, and often he or she would be better off refusing company-run tests. For, as things stand now, th law does not provide economic job protection for the worker who is transferred to a safer work area on the basis of medical tests. So, unless your collective bargaining agreement guarantees rate retention, seniority and all future wage increa that would accrue to the position left, you do face the threat of economic discri nation from company medical testing programs.

What Kind of Cancer Does Asbestos Cause?

Asbestos exposure causes an increased death rate from many kinds of cancer, including cancer of the stomach, esophagus (tube to the stomach) and bowel, in addition to two kinds of cancer which are very strongly related to asbestos, lung cancer and mesothelioma.

Lung Cancer caused by asbestos exposure is the same as lung cancer caused by smoking. It is hard to diagnose early, it often spreads rapidly and can rarely be cured. Most people who are found to have lung cancer live only six to nine months after it is discovered.

Mesothelioma is an extremely rare kind of cancer, almost always caused by exposure to asbestos. The exposure to asbestos can be very small; in some cases, a family member has been exposed for only a month or two, and then twenty years later develops mesothelioma. Mesothelioma is a cancer of the lining of the lung (the pleural membrane) and of the lining of the abdomen (the peritonealarea). This cancer is incurable; it kills you within 6 months to 2 years, and there is no treatment - drugs, x-rays or surgery - which can help you.

Gastrointestinal Cancer is a general term for several different kinds of cancer of the digestive system. It includes cancers of the esophagus, stomach, colon (large bowel) and rectum. Surgery has been successful in removing tumors and preventing recurrences in some bowel and rectal cancers, but cancer of the esophagus and stomach is rarely detected in time for such success.

What Are My Chances of Getting Cancer If I Work with Asbestos?

If you work with asbestos, your chance of getting cancer is three times higher than the chance for someone not working with asbestos. As you saw on

page 7 of the slide show script, forty-five percent of all asbestos workers will die from some form of cancer. The death rates vary for each particular kind of cancer. For lung cancer the average survival time after diagnosis is 6 to 9 months. Only one in five people with lung cancer will live more than a year. Cancer of the stomach, colon and rectum is three times as common a cause of death for asbestos workers as for other people. Mesothelioma is an extremely rare kind of cancer, so rare that cases of this kind can almost always be traced back to some sort of asbestos exposure; yet, in some studies of asbestos workers, more than 10% of the deaths are due to mesothelioma.

Why Do Only Some People Exposed to Asbestos Get Cancer?

No one really knows how certain toxic substances, like asbestos, cause cancer - and because of this, we don't know why one worker exposed to asbestos may get cancer while the worker next to him does not. Two factors are known to increase the risk of developing cancer from asbestos: length of exposure, and smoking. But anyone exposed to asbestos may get cancer--there is no way to play it safe.

Can I Get Asbestos-Caused Cancer Even if I Don't Smoke?

Asbestos causes cancer in workers, whether or not they smoke. But the chance of getting one kind of cancer - lung cancer - from asbestos exposure is increased up to 7 times if the worker also smokes. This "cooperation" between asbestos and cigarette smoke in causing lung cancer is called "synergism." It is clear, however, that while smoking further increases your risk of cancer, asbestos exposure alone can cause lung cancer, mesothelioma and many other kinds of cancer. Smoking is not known to play a role in any kind of cancer caused by asbestos except lung cancer. Why smoking does increase your risk of asbestos-induced lung cancer is not known. But remember, you can get cancer from asbestos even if you don't smoke.

What If I Only Work with Asbestos for a Short Time?

Even is you are only exposed to asbestos for a very short time, you are still in danger. One study showed that just one month of working with asbestos can double your chances of getting cancer. Another study reported x-ray findings of asbestosis among workers who were exposed to asbestos for only one day. There is no safe amount of exposure or safe amount of time for work with asbestos.

How Long Does it Take to Get Sick from Asbestos Exposure?

Asbestosis - scarring of the lungs - develops more rapidly in workplaces with higher concentrations of asbestos in the air. With moderately heavy exposures, asbestosis may develop within 10 - 15 years; by the time a group of workers have been exposed for 20 years, as many as 40% of them may have

asbestosis. Cancer usually takes at least 20 years, and sometimes as long as 25 to 30 years, to develop from asbestos exposure. The exposure to asbestos must be over a long time period to produce asbestosis or lung cancer, but may be very short in the case of mesothelioma, as short as one or two months.

Can I Get Cancer If I Don't Have Asbestosis?

Yes. Studies have found asbestos-induced cancers among asbestos workers and people living near asbestos mines and plants who did not have asbestosis. Because mesotheliomas can be caused by as little as a month's exposure, mesotheliomas are frequently found in workers who were not exposed long enough to develop asbestosis.

How Can You Test for Cancer Caused by Asbestos? Is there Any Cure?

Unfortunately most of the cancers caused by asbestos are difficult to diagnose early, before they have become untreatable. Most of the cases are found because a worker complains of weakness, loss of weight, or pain; an x-ray is taken which indicates that there is a tumor. In some cases an operation will remove enough of the tumor to allow the patient to live a little longer, but these cancers are almost never curable. This is why it is so important to protect against asbestos exposure in the first place.

Is My Family in Danger if I Work with Asbestos?

Yes. As the slide show script described family exposure on page 8, if you are bringing asbestos fibers home with you - on your clothes, in your hair, in your lunchbox - this endangers your family. In one study 1/3 of the asbestos workers' family members had abnormal chest x-rays from scarring and thickening of the chest lining (pleural membrane) 30 years after their exposure at home. Cases of mesothelioma are known to have happened after as little as 1 month's contact with a family member carrying asbestos fibers home with him. Your family is also in danger of asbestos-caused diseases if the mine or plant where you work is discharging asbestos fibers into the air of your community. Increased rates of asbestosis, lung cancer and mesothelioma have all been found in people living near mines and plants.

Is Asbestos a Danger to the Community?

The air of most cities now contains significant levels of asbestos, as a result of brake linings, construction sites and other urban uses. Concentrations high enough to threaten the health of the community are frequently found near asbestos mines and quarries - the air of Washington, D.C. was found to have dangerously high ashestos levels in 1976 because of a quarry located in Maryland. In addition to general air levels, members of the community may be endangered by asbestos used in construction sites or even brought home on a neighbor's work clothes and washed at the same laundromat.

How Long Have the Dangers of Asbestos Been Known?

Asbestos has been used in modern industry since about 1880. The first medical diagnosis of death from asbestosis was made in England only 20 years later, in 1900. The link between asbestos exposure and asbestosis, or lung scarring, was firmly established by 1930, and repeatedly confirmed in many studies after that. As early as 1918, American and Canadian insurance companies were no longer insuring asbestos workers because of the assumed health hazards of that industry. In 1935, researchers in both the United States and England reported a suspected association between asbestos exposure and lung cancer. By 1955, this association had been confirmed and the link to several other types of cancer had been made as well. The most important and valuable research in the United States has been done in the last two decades by Dr. Irving Selikoff and his team of investigators at Mt. Sinai Hospital in New York City. They determined the increased cancer rates for different kinds of cancer among asbestos workers, the amount of time which usually passes after exposure until the development of cancer, and the increased risk associated with longer or more intense exposure to asbestos. A copy of Dr. Selikoff's paper on cancer risk among insulation workers, presented at the Conference on Asbestos Disease, Rouen, France in 1975, is enclosed in this packet.

Why Wasn't I Told About the Danger from Asbestos Before?

Even though the dangers of asbestosis and cancer from working with asbestos have been known for more than fifty years, the asbestos industry refused to admit that there was a problem. For years they have attempted to obfuscate and confuse the issues, and the fact that there still is not enough research being done on asbestos-caused diseases has helped industry stall action on this dangerous cause of death and disease among workers. Although there is no longer any question about the fact that asbestos causes asbestosis and cancer, industry is continuing to fight enforcement of the legal standards.

Why is Asbestos Still Used if It is So Dangerous?

Most of the uses of asbestos depend on its heat and acid-resistant properties. For many purposes there is not yet a satisfactory substitute, and substitutes now being used, such as fiberglass, often present their own health and safety hazards. In addition, the asbestos-producing and processing industries are very strong; world-wide production of asbestos increased by 50% in the ten years from 1964 to 1974.

Is Fiberglass a Safe Substitute for Asbestos?

Fiberglass is not "safe." At present there is not enough research to clearly define the extent of the health hazard represented by exposure to

fiberglass. Fiberglass does cause both skin and eye irritation - in some cases severe. Animal experiments have suggested that fiberglass fibers - which closely resemble asbestos fibers - may cause the same fibrotic reaction in the lining of the lung (pleura) as asbestos fibers do, and that such fibers are tumorogenic (tumor-causing). Despite the lack of conclusive evidence, a symposium of experts in 1974 concluded that exposure to fiberglass should be carefully controlled. Again workers are going to bear the burden of proving the harmful effects of a toxic substance - fiberglass - and end up being the guinea pigs for industry as they were for asbestos.

Why Is Working with Talc Dangerous?

Talc itself causes pneumoconiosis, very much like asbestosis. In addition, almost all talc contains asbestos fibers, usually tremolite or anthophyllite. There is only one talc mine in the United States in which the talc is not contaminated with asbestos.

What about Public Employees?

Public employees are not covered by the OSHA Asbestos Standard; in effect, they do not have any protection other than that which they can win in bargaining agreements.

What about Workman's Compensation?

Workman's compensation provisions for asbestos-caused disease vary from state to state. You should take the appropriate steps to obtain workman's compensation in consultation with your local and international union.

How is Asbestos Measured in the Atmosphere?

Slide 28 showed asbestos fibers photographed through a microscope. The method used to measure asbestos in the air is a membrane filter to trap the fibers and a light microscope to count them. The sampling machine should be put near the nose and mouth of a worker in the exposed area (pinned to his collar, for example) to collect samples representative of the air he is breathing. After being counted, the total fibers collected are averaged out over the amount of air measured. This gives an average number of fibers for a volume of air. The OSHA Asbestos Standard limits the concentration of fibers longer than 5 micrometers to 2 fibers per cubic centimeter. This is the average concentration that cannot be exceeded for an eight-hour day. It is supposed to be a level that you can be exposed to for eight hours every working day without developing disease. This is not the case. Because you breathe in 4 to 8 million cubic centimeters of air during an eight-hour day, under the standard you could inhale 8 to 16 million fibers in a single work day. If enforced, the current standard will significantly improve many workplaces, but there is

considerable medical evidence that this standard will not eliminate lung scarring and cancer. In fact, the only exposure that doctors are certain is totally safe, is no exposure at all.

If My Employer Provides Me with a Respirator, Is That Enough Protection?

No. Under the OSHA Asbestos Standard, employers are required to use engineering controls instead of relying on personal protective equipment. Engineering controls are ways of designing the workplace and work process so that the toxic substance - in this case, asbestos - is separated from the worker or removed mechanically with ventilating and other kinds of housekeeping equipment. Examples of engineering controls for asbestos would include exhaust fans, non-spray application methods for insulating, and storing and disposing of asbestos in sealed containers. All employers should provide full body protective work clothing and hat, maintenance and laundering of the soiled protective clothing (vacuumed before removal), and separate lockers for work and street clothes. Respirators should be used only under these conditions: 1) during the period while engineering controls are being constructed; 2) when exposure is infrequent and for short time periods; or when 3) a work environment cannot meet the legal standard and has been granted a variance.

Is There Any Legal Protection against Asbestos Exposure on the Job?

Yes. In 1970, workers and their representatives won an important legal tool to help them in their fight for a safe and healthy workplace. Congress passed the Occupational Safety and Health Act and established OSHA, the Occupational Safety and Health Administration, to regulate the use of toxic substances in the workplace. One of these toxic substances is asbestos, and OSHA has set a standard with specific rules and regulations that must be followed wherever fibrous asbestos is present. Failure to follow them is a violation of the law. You should be familiar with these regulations so that you can recognize violations on your job and use the law to protect yourself. A copy of the asbestos standard is enclosed in this packet. The standard provides that:

ENGINEERING	Engineering methods such as isolation, enclosure, exhaust ventilation, and dust collection shall be the prime means of control.
TOOLS	Hand-operated and power-operated tools must have built-in controls.
HANDLING	As far as practicable, asbestos shall be handled wet.
SHIPPING	No asbestos products can be removed from shipping containers without being wetted, enclosed, or ventilated.

HOUSEKEEPING	All external surfaces must be kept free of accumulations of asbestos fibers.
RESPIRATORS	Restrictions are imposed on the use of respirators. No employee may be assigned to a task requiring a respirator if the physician determines that the employee will be unable to function normally when wearing a respirator or that the safety or health of the employee or his fellow employees will be impaired by his use of a respirator. Where respirators are used, the standard recommends "rotation of personnel."
CLOTHING	The employer must provide special clothing, change rooms, clothes lockers and laundering.
MONITORING	Monitoring means measuring the amount of asbestos fibers in the air. This is done with a dust sampler. Every employer using asbestos shall have initially monitored the exposure of his employees by December 7, 1972. Therefore, your workplace should have been monitored at least once. If the exposure is found to exceed the standard, the employer must then monitor at least once every six months.
ACCESS TO MONITORING DATA	Affected employees, or their representative, shall be given a reasonable opportunity to observe any monitoring required . . . and shall have access to the records thereof. <u>This point is important</u>. <u>Have you been given this opportunity</u>? If an employee is exposed to excessive concentrations, he must be told what corrective actions are being taken.
SIGNS	Caution signs must be posted in plants and labels attached to asbestos materials.
MEDICAL EXAMINATIONS	Physical examinations including a 14"x17" Chest X-Ray, pulmonary function tests, and a history, shall be given at preplacement, then each year, and at termination. These examinations shall be provided by the employer, and the physician who conducts the examination <u>must report</u> the results to the employer. Employees have access to this medical data only through their personal physician. (To obtain your medical, you can write the OCAW Citizenship-Legislative Office and we will arrange for a union physician to obtain your record and give it to you.)

TABLE I

Estimates of Lifetime Asbestosis Incidence Per 10,000 Asbestos Workers at Different Exposure Levels

Levels	
Asbestos Fiber Concentration Per Cubic Centimeter	Number of Asbestos Workers (per 10,000) Estimated To Get Asbestosis*
0.5	124
5.0	1,243

*Based on a study by Finkelstein of 201 workers at an asbestos-cement factory in Ontario. Adopted from: BNA Reporter, 11/10/83.

TABLE II

Lung Cancer Deaths Per 10,000 Asbestos Workers (and other workers) Over a 20 Year Period, by Occupational Exposure and Smoking History*

		History of Smoking	
		Yes	No
History of Asbestos Exposure	Yes	120	12
	No	25	2

*Study by Hammond et.al. Based on 8220 workers with 20 or more years exposure to asbestos. Adopted from BNA Weekly Reporter 11/10/83.

TABLE III

Estimated Asbestos Related Cancer Mortality Per 10,000 Asbestos Workers With 20 Years Exposure At Varying Levels of Exposure

Asbestos Fiber Concentration per Cubic Centimeter	CANCER			
	Lung	Mesothelioma	Gastrointestinal	Total
0.1	1	1	0	2
0.5	7	4	1	12
5.0	65	33	7	105

*Adopted from BNA Reporter 11/10/83.

ASBESTOS: What Is It and How Does It Affect Me?

Historically, asbestos remained a curiosity for centuries, with negligible production until the beginning of the 20th century when it was used as thermal insulation for steam engines. Worldwide production of the mineral now approaches 5 million tons annually, with chrysotile the principal fiber type. Annual United States consumption is approximately 900,000 tons, with more than 70 percent used in the construction industry.

It has been estimated that a majority (85 to 92 percent) of end-product uses have effectively immobilized the asbestos fibers by mixing them into a strong binding material; e.g., cement. Fibers are still liberated, however, during fabricating operations such as grinding, milling or cutting. The remaining 8 to 15 percent is in a form that will more readily permit fiber dissemination, such as friable insulation material or bagged fibers for mixing.

WHERE CAN ASBESTOS BE FOUND?

Of the many uses of asbestos, the technique of spraying fibers onto structural surfaces has been perhaps the most significant in causing asbestos exposure to construction workers during application and to the general population thereafter. Such material, in loosely bonded friable form, has been applied extensively to steelwork to retard structural collapse during fire, and to overhead surfaces for purposes of acoustic and thermal insulation, decoration, and condensation control.

Spray application of asbestos fireproofing and insulating material began in England in 1932. Spray application offered the advantage of rapidly covering large or irregular surfaces evenly and efficiently without the use of mechanical support or extensive surface preparation. Early spray applications in the U.S. were mainly for decorative use and acoustical insulation in ceiling material in clubs and restaurants. In 1950 more than half of all multistory buildings constructed in the U.S. used some form of sprayed mineral fiber fireproofing. In

1968 fireproofing alone accounted for 40,000 tons of sprayed material.

The health hazards of spray application of asbestos to spray operators, other construction workers, and the general public in the vicinity of such operations were recognized and documented. Because of these hazards, the New York City Council banned spray application in 1972. Other cities and states followed suit, and in 1973 the U.S. Environmental Protection Agency (EPA) banned spray application of insulating or fireproofing material containing more than 1 percent asbestos by weight. Decorative materials were not included in the ban, and this omission permitted some continuing application. One example involved all overhead surfaces in the large (1200 unit) condominium complex using a friable mixture of 30 percent asbestos.

On March 2, 1977, EPA proposed an amendment to the national emission standard for asbestos. These amendments would extend the spraying.

Although the spraying of friable asbestos-containing materials in construction has all but ceased, sprayed material within existing structures remains a potential widespread source of asbestos fiber exposure. Although exact figures are not available, if it is assumed that spray application was a common practice from 1958 to 1973, and that fireproofing was the major use of this material, a conservative order-of-magnitude estimate of the total amount of asbestos sprayed over this period would be 500,000 tons. It is indeed possible, therefore that sprayed asbestos material within buildings may become the most significant source of environmental asbestos contamination in the future.

Most of the hot water and steam pipes insulated between 1940 and 1979 have some form of asbestos. Nearly 100 percent of all of the cementious pipe wraps had 10-40 percent amosite. Much of the canvas wrapped glass fiber pipe wraps have between 6-16 percent chrysotile. The cardboard pipe wrap sold under the trade name Aircell has between 6-40 percent chrysotile. Be sure to take precautions before removing any old pipe wrap.

A. Uses of Asbestos

1. Special Textiles
2. Fireproof Textiles
3. Woven Fabrics
4. Acid Resistant Materials
5. Packings
6. Brake and Clutch Linings
7. Electrical and Thermal Insulation
8. Asbestos Cement Pipes and Sheets
9. Gaskets
10. Paper Products
11. Rings
12. Welding Rod Coatings
13. Sound Insulation

B. Sources
Home

1. Roofing
2. Siding
3. Insulation Board
4. Sewage
5. Gas
6. Table and Ironing Board Pads
7. Water Supply
8. Ovens
9. Floor Tiles
10. Floor Tiles
11. Draperies
12. Rugs
13. Electrical Equipment
14. Acoustical Ceiling
15. Talc (Impurity)
16. Covering on Heating Ducts
17. Taping Compound
18. Dry Wall

Sources
Automobile

1. Spark Plugs
2. Brake Lining
3. Clutch Facings
4. Mufflers
5. Filler in Undercoating

"Asbestos," comes from the Greek word meaning inextinguishable or unquenchable, and is the generic term applied to a wide variety of mineral silicates which, when processed, separate into fibers. These fibers, when inhaled or swallowed, may be retained in the lungs, stomach or other parts of the body. They are virtually indestructable and will be found in body tissue for life, even though exposure ceased many years before.

TYPES OF ASBESTOS

I. INTRODUCTION

A. Naturally Occurring Fibrous Materials

Type	Source	Production
Chrysotile ($H_4Mg_3Si_2O_9$)	Canada, Rhodesia	93%
Crocidolite ($Na_6Fe_{10}Si_{16}O_{45}(OH)_2$)	South Africa	3.5%
Amosite ($(Fe\ Mg_7)Si_8C_{22}(OH)_2$)	South Africa	3.5%
Anthophyllite ($Mg_7Si_2O_{22}(OH)_2$)	Finland, U.S.A	0 5%

B. Chemical Composition

1. Major Constituents
   a. Aluminum
   b. Iron
   c. Magnesium
   d. Sodium
   e. Sodium as Na_2O
   f. Oxygen
   g. Silicon as SiO_2
   h. Free SiO_2

2. Minor Constituents
   a. Cobolt
   b. Chromium
   c. Manganese
   d. Nickel
   e. Antimony
   f. Scandium

Environmental Protection Agency
Toxic Substances
Washington, D.C. 20460
March 1979

Toxic Substances

EPA

Asbestos-Containing Materials in School Buildings:

Part 1

A Guidance Document

Alaska Health Project
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Acknowledgements

We gratefully acknowledge the assistance of the many individuals who contributed their time and efforts to the preparation of this manual.

This manual embodies the comments and input of State and local government officials, environmental and special interest groups, industry, and interested private citizens as well as staff in EPA Headquarters and Regional Offices. The assistance of the Department of Health, Education, and Welfare (DHEW), the Occupational Safety and Health Administration, the Consumer Product Safety Commission, and the Department of Interior is also gratefully acknowledged.

We are particularly grateful for the assistance and cooperation of DHEW's National Institute of Environmental Health Sciences (NIEHS) and the National Institute for Occupational Safety and Health. We appreciate the review and comments from the members of NIEHS's Subcommittee to Coordinate Asbestos Research of the Committee to Coordinate Toxicology and Related Programs.

We are indebted to Dr. Robert N. Sawyer of the Yale University School of Medicine. In his capacity as the principal technical consultant to the project, Dr. Sawyer provided his invaluable assistance to the development of the manual. Dr. Sawyer was also responsible for generating interest and comments from individuals who have had experience in dealing with the asbestos-containing material problem.

Preface

Recently there has been an increasing awareness of the significance of environmental factors in causing illness. The fibrous minerals known as asbestos, used in many different kinds of products and applications, have entered the environment in both occupational and non-occupational settings. The lung disease, asbestosis, and some cancers of the lung, abdomen, and other parts of the body have been clearly related to asbestos exposure.

The Environmental Protection Agency (EPA) is concerned with the disease-causing potential of intermittent, low-level exposures that can occur in some school buildings from certain asbestos-containing materials. EPA has established a guidance program to inform States and local school officials of the possible health hazards associated with asbestos. EPA will provide guidance to schools which undertake programs to identify and control exposure to these asbestos-containing materials. Although the EPA program is specifically directed to schools, information and assistance will also be available to contractors, workers, and any individuals who are concerned about exposure to asbestos in buildings.

EPA's guidance package contains two parts. This manual, which is Part 1 of the package, is written for school officials. Part 1 outlines steps that schools can take to conduct an asbestos control program. Part 2 contains more detailed information on asbestos identification and control methods. Part 2 will be particularly useful to school personnel, contractors, and others involved in actual asbestos inspection and control activities.

As the lead Agency for the school asbestos program, EPA will provide additional information and assistance to the States and school districts through the Agency's ten Regional Offices located throughout the country. Each Regional Office will have a Regional Asbestos Coordinator who will work with the States to assist in undertaking asbestos control programs.

Other Federal Agencies concerned with the asbestos problem will also participate in the program. The Occupational Safety and Health Administration (OSHA) and the Department of Health, Education, and Welfare through the National Institute for Occupational Safety and Health (NIOSH) and the Public Health Service will provide assistance particularly in the areas of occupational safety and health. This assistance will be made available through these Agencies' Regional Offices.

Questions about the information in these manuals or about the EPA school asbestos program should be referred to the EPA Regional Asbestos Coordinators listed on page 33.

Chapter 1: Introduction: The Concern

Exposure to asbestos was initially associated with a chronic and debilitating lung disease called asbestosis. More recently exposure to asbestos has been associated with lung cancer, a rare cancer of the chest and abdominal lining called mesothelioma, and cancers of the esophagus, stomach, colon, and other organs. Asbestos also acts as a potent cancer-causing agent in combination with cigarette smoking. In all asbestos-related diseases there is a latency or induction period of many years between initial exposure and appearance of the disease.

In most cases asbestosis has followed long exposure to high levels of asbestos fibers. Therefore, asbestosis is not as significant a concern in schools as cancer risk. The potential for increasing cancer risk may exist at much lower and shorter exposures than those for asbestosis.

Under certain conditions, exposure to fibers released from asbestos-containing materials in buildings can reach levels considered potentially hazardous. Some asbestos levels measured in school buildings have even been shown to briefly exceed the current Federal workplace exposure level standards.

Why is there so much concern now?

EPA is concerned in view of the increasing knowledge of the potential of asbestos as a cancer-inducing agent at low-level exposures and the asbestos contamination that has been found in some schools. Another very important concern is that cigarette smoking can enhance the disease potential of asbestos exposure.

Is there a safe level of exposure?

EPA and the scientific community believe that any exposure to asbestos involves some health risk. No safe level of exposure (or threshold exposure level) has been established. Further, it is impossible at this time to confidently estimate the exact degree of risk associated with low-level exposures.

What is considered the best or safest approach to asbestos exposure?

Where possible all exposure to asbestos should be eliminated or controlled.

Are there special concerns about asbestos in schools?

The school children population differs from other non-occupational populations in age, population density, and behavior.

The exposure of children and adolescents to asbestos in the school building occurs early in their life span. Their remaining life expectancy provides a long development period for asbestos-related diseases.

A large number of students can be exposed at one time to asbestos that is released from asbestos-containing materials present in the school building. The duration of exposure is of concern since school children attend school daily for most of the year.

The school population is very active. Certain asbestos-containing materials can be damaged during school activities and as a result of the capricious behavior of students. When the material is damaged, asbestos fibers are released and exposure can occur. Many cases of badly damaged asbestos-containing materials have been found in schools.

Are there any Federal laws or regulations that protect school children from asbestos exposure in school buildings?

There are currently no Federal laws or regulations that protect children in school buildings where asbestos-containing materials are already present.

Is a medical examination necessary for persons exposed to asbestos in school buildings?

Medical examinations are not recommended in school exposure situations. It is difficult to detect asbestos-related diseases in children due to the long induction period before the disease appears. Individuals who have been exposed to asbestos should avoid smoking; and, of course, medical advice should be obtained for any specific concerns or symptoms.

Chapter 2: Asbestos and Its Uses

What is asbestos?

Asbestos is a term for a group of naturally occurring minerals that separate into fibers. The mineral rock is mined and then milled for commercial use. Asbestos fibers are incombustible and have good thermal and electrical insulating properties. There are six asbestos minerals that are used commercially:

Chrysotile
Amosite (Cummingtonite-grunerite asbestos)
Crocidolite
Anthophyllite asbestos
Tremolite asbestos
Actinolite asbestos

Chrysotile and amosite are the most frequently found asbestos minerals in the asbestos-containing materials used in school buildings.

Why is asbestos a unique environmental contaminant?

The durability of asbestos fibers and their small size and fibrous shape make asbestos an unusual environmental contaminant.

Asbestos fibers cannot be easily destroyed or degraded. The size and shape of these fibers permit them to remain airborne for long periods of time. Asbestos fibers that are released from asbestos-containing materials enter the air and contaminate the building environment.

When the fibers have entered the air, individuals in the building can be exposed and inhale the fibers. Although most fibers will not remain in the lungs, those that are retained will stay indefinitely.

What are some uses of asbestos in school buildings?

Most asbestos products are used in building construction and many products containing asbestos are found in buildings. Asbestos has been used in cement products, plaster, fireproof textiles, vinyl floor tiles, thermal and acoustical insulation, and sprayed materials.

Asbestos also is used in automotive brake linings. In schools that have shops for automotive training, asbestos contamination can occur as a result of automotive brake servicing.

For more information on the uses of asbestos, see pages I–1–1 and I–1–3 of Part 2.

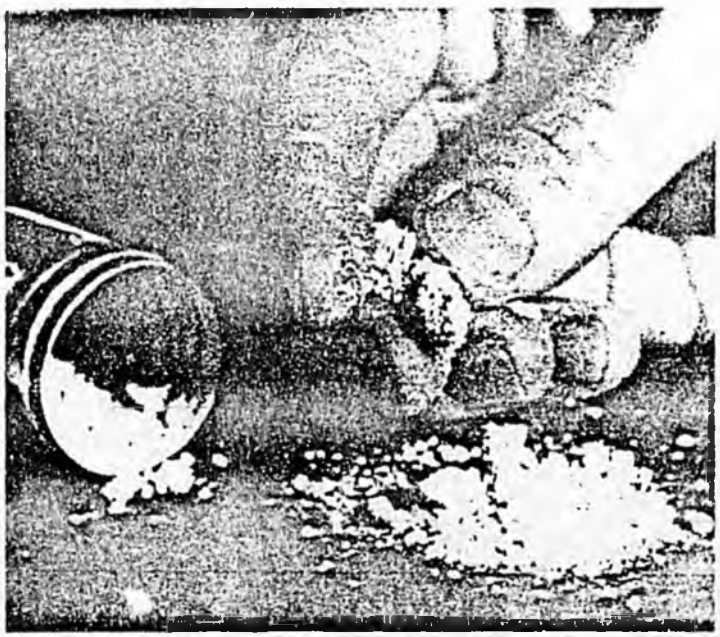
What asbestos-containing materials in school buildings can create an exposure problem?

Only certain kinds of asbestos-containing materials in school buildings are considered hazardous. The potential for release, contamination, and exposure depends on the condition of the asbestos-containing material (such as deterioration from age) and the probability that the material will be damaged.

Hard asbestos-containing materials such as vinyl floor tile do not generally create exposure problems. Asbestos fibers are firmly bound or encased in the material. Sanding, grinding, or cutting will cause



Raw Chrysotile Showing Fiber Structure



Sample of Friable Material

asbestos fibers to be released. Therefore, these hard materials should not be considered hazardous unless they are machined.

Soft or loosely bound (i.e., friable) asbestos-containing materials can release asbestos fibers following only minor disturbance to the material. It is these soft asbestos-containing materials that can cause contamination and exposure problems.

What is friable material?

Friable material is material that can be crumbled, pulverized, or reduced to powder in the hand. Friable material may be an asbestos-containing material or it may be a material that contains other fibers such as cellulose and glass fibers.

This manual is primarily concerned with identifying friable asbestos-containing materials in school buildings and recommending steps to reduce the exposure that they may cause.

What are friable asbestos-containing materials?

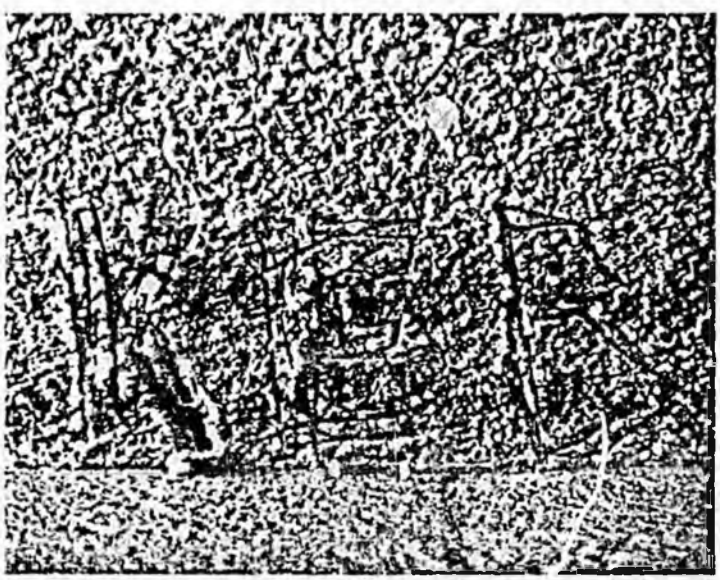
Friable asbestos-containing materials are materials that were used for fireproofing, thermal and acoustical insulation, or decoration in building construction and renovation. The asbestos content of these materials is usually found in the range of 5% to 50%. These materials were usually applied by spraying but have also been applied by troweling. They are friable in varying degrees depending on the components of the material, the amount of cement added, and the method of application. Sprayed material is usually soft. Cementitious material varies from soft to relatively hard.

Throughout this manual, both cementitious and sprayed asbestos-containing materials will be called asbestos materials.

What is sprayed asbestos material?

Sprayed asbestos material is a mixture of asbestos fibers, other fibers (cellulose, non-asbestos mineral fibers) and a binder which has been applied to ceilings, beams, and other surfaces by spraying. It has been widely used for fireproofing, thermal and acoustical insulation, and decoration. Most friable material in schools is sprayed material.

In 1973 EPA prohibited the spraying of asbestos material for fireproofing and insulation. EPA prohibited the application of sprayed asbestos material for nearly all purposes in 1978.



Friable Material That Has Been Scraped

Where are friable asbestos materials located?

Friable asbestos materials are usually found on overhead surfaces, steel beams, ceilings, and occasionally on walls and pipes.

Does all friable material contain asbestos?

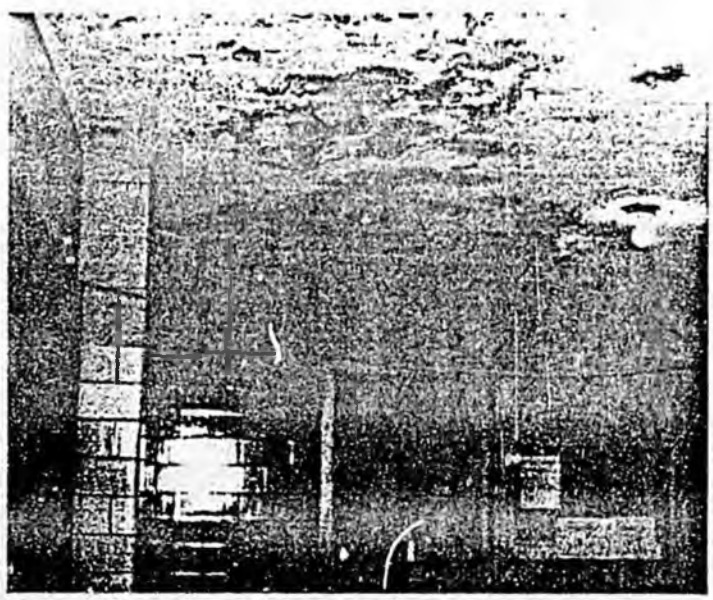
Many materials that look like friable asbestos material do not necessarily contain asbestos. Some friable material contains glass fibers, cellulose, or other non-asbestos fibers.

How are asbestos fibers released from friable asbestos material?

Fibers are released from friable material as a result of a breakdown in the integrity of the material due to deterioration or direct contact and damage.

As friable asbestos material ages, it can lose its cohesive strength and release fibers. Fallout of fibers from deteriorated material is usually low-level but continuous.

Fiber release by contact and damage depends on the accessibility of the material and the degree of disturbance. Contamination can be very high for brief periods of time during a disturbance and then gradually decrease as the fibers settle. Fiber release can occur



Friable Material Showing Water Damage

after only minor contact with friable material.

Direct contact or damage to asbestos materials can occur in a number of ways:

- *School Activities*—A ball hitting friable material on a gymnasium ceiling or wall. Hanging pictures or attaching displays to friable material will cause fiber release.
- *Maintenance Activities*—Any maintenance activity involving intentional or accidental contact with friable material.
- *Vandalism*—Material may be scraped, gouged, or hit.
- *Water Damage*—Water from roof or plumbing leaks will cause material deterioration and in some cases delamination (i.e., breaking away of layers of material from the underlying surface).
- *Vibration*—Building vibration from sources within or outside the building. For example, vibration from activities on the floor above or vibration from machinery can cause movement of the friable material and release fibers.

Fibers that have been released can remain suspended in the air for many hours. After the fibers settle, they can be resuspended in the air by disturbances created by student activities or custodial work such as dusting or sweeping. Resuspension of asbestos fibers in the air is called reentrainment. Reentrainment may cause repeated exposures after the fibers are released from the friable asbestos material.

For more information on asbestos contamination, see pages I–2–3 to I–2–11 of Part 2.

Is asbestos contamination permanent once it occurs?

Asbestos fibers tend to remain in the building that they contaminate but can be removed by cleaning. Wet mopping is recommended since water inhibits fiber movement, thus preventing reentrainment during the cleaning process. Dry dusting and sweeping will cause reentrainment and should be avoided. If wet cleaning is not feasible, a High Efficiency Particulate Absolute (HEPA) filtered vacuum should be used. Conventional vacuum cleaning equipment normally used in the school is not equipped with a filter size small enough to collect asbestos fibers and should not be used to clean in areas of asbestos contamination. If conventional vacuum cleaning equipment is used, fibers can be reentrained.

For more information on HEPA filtered vacuums, see page II–4–2 of Part 2.

When should school officials be concerned about asbestos material?

If friable asbestos material is present in the school building, an exposure problem may exist. Chapter 3 outlines the recommended steps to identify friable asbestos material and to undertake a control program to reduce exposure.

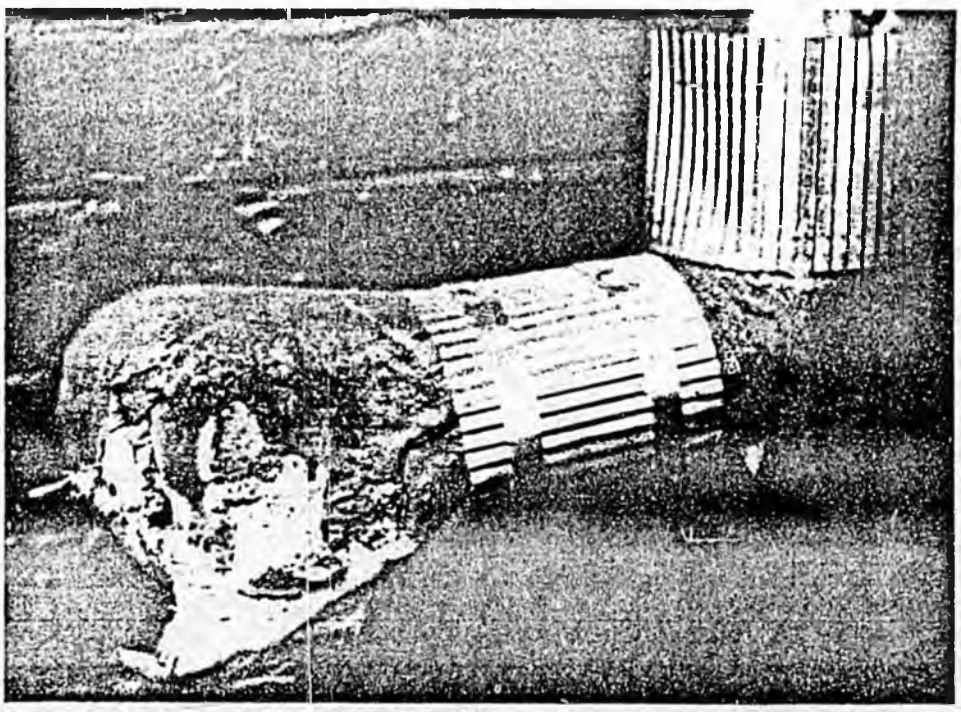
Is pipe covering and boiler lagging of concern?

Friable asbestos material was used for many years in pipe covering and boiler lagging until EPA prohibited its application in 1975. Pipe covering and boiler lagging do not create an exposure hazard unless the friable insulation material is exposed and damaged.

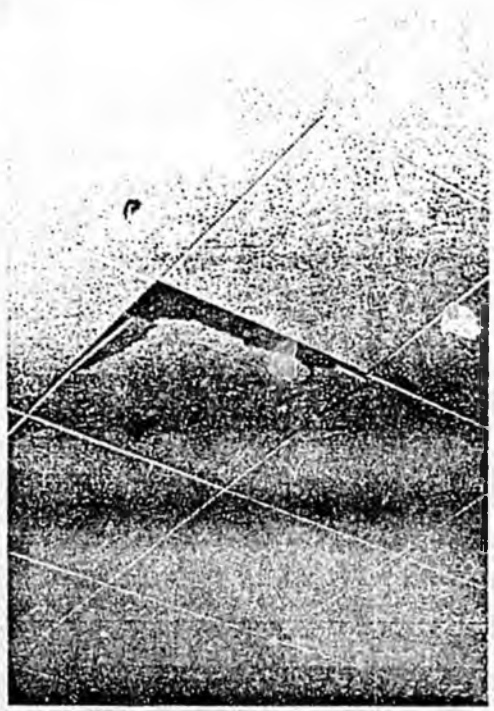
Pipe covering and boiler lagging should be routinely inspected. If the insulation material is exposed, retaping or covering the damaged area will prevent asbestos fiber release.

Is ceiling tile of concern?

Ceiling tiles are not friable and should be of no concern.



Damaged Pipe Covering Showing Friable Insulation Material



Ceiling Tile

ASBESTOS AND THE CONSUMER

A Report
Prepared by the:

Anchorage Air Pollution Control Agency
Department of Health and Environmental Protection
Pouch 6-650
Anchorage, AK 99502

Phone No. (907) 264-4713

(August 15, 1983)

Table 3

General Product Types that have Contained Asbestos

Floor Tile

Office floors
Commercial floors
Residence floors

Paints, Coatings and Sealants

Automotive/truck body coatings
Roof coatings and patching compounds

Asbestos Textiles

Packing components
Gasket components
Roofing materials
Commercial/industrial dryer felts
Heat/fire protective clothing
Clutch/transmission components
Electrical wire and pipe insulation
Theater curtains and fire-proof draperies

Gaskets and Packings

Valve components
Flange components
Pump components
Tank sealing components

Asbestos-Reinforced Plastics

Electric motor components
Molded product compounds for high-strength/weight uses

Asbestos Paper

Gas vapor ducts for corrosive compounds
Fireproof absorbent papers
Table pads and heat protective mats
Heat/fire protection components
Molten glass handling equipment
Insulation products
Gasket components
Underlayment for sheet flooring
Electric wire insulation
Filters for beverages
Appliance insulation
Roofing materials

Friction Products

Clutch/transmission components
Brake/components
Industrial friction materials

Asbestos Cement Pipe

Chemical process piping
Water supply piping
Conduits for electric wires

Asbestos Cement Sheet

Hoods, vents for corrosive chemicals
Chemical tanks and vessel manufacturing
Portable construction buildings
Electrical switchboards and components
Residential building materials
Molten metal handling equipment
Industrial building materials
Fire Protection
Insulation products
Small appliance components
Electric motor components
Laboratory furniture
Cooling tower components

* Information in Table 3 from Asbestos Information Association, North America

ASBESTOS IN SCHOOLS AND OTHER BUILDINGS

Indoor Air Conference
December 7-9, 1982

Peter A. Breysse, Associate Professor
Department of Environmental Health
University of Washington
Seattle, WA 98195

ASBESTOS

I. INTRODUCTION

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Anthophyllite ($Mg_7Si_2O_{22}(OH)_2$)	Finland, U.S.A.	0.5%

B. Chemical Composition

1. Major Constituents
   - a. Aluminum
   - b. Iron
   - c. Magnesium
   - d. Sodium
   - e. Sodium as Na_2O
   - f. Oxygen
   - g. Silicon as SiO_2
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   - e. Antimony
   - f. Scandium

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D. Sources

i. Home

a. Roofing
b. Siding
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e. Sewage
f. Gas
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o. Talc (Impurity)
p. Covering on Heating Ducts
q. Taping Compound
r. Dry Wall

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THE LEGISLATURE

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JUNEAU, ALASKA 99811
907-465-3800

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May, 1988

Copies of minutes listed below were originally included in this file. The minutes are available on the STAIRS database CMPR. In order to save space copies of minutes have not been left in the files.

Mary Van Nimwegen

H/HESS 5/24/84 5 p.m.

RECORDS

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I, the undersigned, an employee of the State of Alaska, do hereby certify that the microfilm images on this microform are accurate reproductions of the original records of the State of Alaska as accumulated during the regular course of business, and that it is the established policy and practice of this State to microfilm its records and to dispose of the original records after microfilm reproductions have been made.

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