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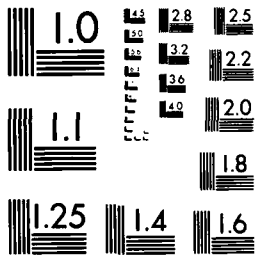
OCCUPATIONAL AND ENVIRONMENTAL HEALTH GUIDELINES FOR
THE EVALUATION AND C. (U) ARMY ENVIRONMENTAL HYGIENE
AGENCY ABERDEEN PROVING GROUND MD H TUGGLE JUL 86
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**UNITED STATES ARMY
ENVIRONMENTAL HYGIENE
AGENCY**

ABERDEEN PROVING GROUND, MD 21010-5422

OCCUPATIONAL AND ENVIRONMENTAL HEALTH
GUIDELINES FOR THE EVALUATION AND CONTROL
OF ASBESTOS EXPOSURE

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DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010-6422

HSHB-MO-I

July 1986*

USAEHA TECHNICAL GUIDE NO. 148

OCCUPATIONAL AND ENVIRONMENTAL HEALTH

GUIDELINES FOR THE EVALUATION AND CONTROL OF ASBESTOS EXPOSURE

1. PURPOSE. This publication--

a. Provides preventive medicine information and guidance about controlling asbestos exposure.

b. Applies to military and civilian personnel and on-post dependents worldwide who are occupationally or nonoccupationally exposed to asbestos.

c. Includes guidance on implementing the Occupational Safety and Health Administration's asbestos standard affecting sections 1910.1001 and 1926.58, title 29, Code of Federal Regulations (CFR).

2. REFERENCES. Required and related publications are listed in the Appendix A.

3. EXPLANATION OF ABBREVIATIONS AND TERMS. Abbreviations and special terms used in this publication are explained in the glossary.

4. RESPONSIBILITIES.

a. Installation commanders will establish the installation asbestos management program per AR 11-AA.

b. Preventive medicine personnel will--

(1) Perform medical surveillance (para 7).

(2) Measure individual exposures and workplace air concentrations (para 8).

(3) Participate in the assessment process (para 10).

*This technical guide supersedes TG 148, May 1986. This revision addresses the new asbestos standards published in 51 Federal Register 22612, 20 June 1986.

(4) Perform cleanup sampling when not conducted as part of a cleanup contract (para 12).

(5) Advise about the types of personal protective equipment needed (para 13).

(6) Maintain all records per paragraph 14.

(7) Coordinate with safety and Directorate of Engineering and Housing (DEH) personnel to provide assistance in the areas of exposure control and work practices.

c. The DEH personnel will administer the asbestos control program for real property per AR 11-AA and TM 5-XXX.

5. TECHNICAL ASSISTANCE.

a. Continental United States. Requests will be forwarded through command channels to the Commander, US Army Environmental Hygiene Agency, Aberdeen Proving Ground, MD 21010-5422, with a copy furnished to the Commander, US Army Health Services Command, ATTN: HSCL-P, Fort Sam Houston, TX 78234-6000.

b. Outside Continental United States. Requests from the--

(1) US Army Europe and Seventh Army areas of responsibility will be forwarded through command channels to the Commander, 7th Medical Command, ATTN: AEMPS-PM, APO New York 09102.

(2) US Army Western Command, US Army Japan, and Eighth US Army areas of responsibility will be forwarded through command channels to Commander, US Army Pacific Environmental Health Engineering Agency-Sagami, APO San Francisco 96343-0079.

(3) US Southern Command areas of responsibility will be forwarded through command channels to the Commander, US Southern Command, ATTN: SCSG, APO Miami 34003.

(4) Installation medical support in Panama will be forwarded through Commander, US Army Medical Department Activity Panama to the Commander, US Army Environmental Hygiene Agency, Aberdeen Proving Ground, MD 21010-5422 with a copy furnished to the Commander, US Army Health Services Command, ATTN: HSCL-P, Fort Sam Houston, TX 78234-6000 and Commander, US Southern Command, ATTN: SCSG, APO Miami 34003.

6. BACKGROUND.

a. Inhaling asbestos fibers can cause asbestosis, a serious fibrotic lung disease, and an increased risk of cancer. A latency period on the order of 20 years between first exposure to asbestos and the appearance of the disease may be anticipated.

b. Since a synergistic effect occurs between asbestos exposure and cigarette smoking, smokers who work with asbestos have a much higher potential of developing lung cancer than do nonsmokers. However, available data indicate that those who stop smoking will gradually reduce this risk to a level no greater than that of nonsmoking asbestos workers.

c. Asbestos is found not only in the workplace but in housing, schools, hospitals, and recreational and administrative buildings.

(1) Asbestos has been used for high temperature insulation, fireproofing, brake shoes and clutch linings, cementitious products, floor tiles, roofing shingles, various gasket materials, and other miscellaneous products. Other forms of asbestos are the woven fiber types such as hot mitts, fire blankets, and welding curtains.

(2) Typical work tasks involving asbestos have included--

(a) Installing, repairing, or removing asbestos insulation on furnaces, boilers, pipes, and other heating distribution systems.

(b) Spraying or troweling asbestos materials on walls and ceilings for fireproofing, sound reduction, and decorative purposes.

(c) Sawing, sanding, or grinding fire retardant building materials.

(d) Replacing or removing brake shoes and clutch linings.

(e) Demolishing or renovating buildings.

7. MEDICAL SURVEILLANCE.

a. Preplacement examinations. Before being assigned to an occupation with exposure to airborne concentrations of asbestos at or above the action level (see glossary) or to an area where respirators are worn, employees will receive a preplacement medical evaluation to include--

(1) Comprehensive medical and work histories to elicit symptomatology of respiratory disease, smoking history, and any past exposure to asbestos.

(2) A physical examination with emphasis on respiratory, cardiovascular, and gastrointestinal systems.

(3) Clinical laboratory studies. Specifically--

(a) Chest x-ray, 14 x 17 inches, posterior-anterior. Note: Interpretation and classification will only be performed by a B-reader, a board eligible/certified radiologist, or an experienced physician with known expertise in pneumoconioses. All interpreters will have a set of the ILO-U/C International Classification of Radiographs for Pneumoconioses, 1980, immediately available for reference.

(b) Pulmonary function tests to include measurement of forced vital capacity and forced expiratory volume at one second. (See TB MED 509.)

(4) Completion of respiratory disease standardized questionnaire which appears as part 1 in Appendix B.

b. Annual examinations.

(1) The medical evaluation will be performed annually for those employees exposed at or above the action level. Construction/demolition workers who are not exposed consistently will be examined within 10 working days of their thirtieth day of exposure at or above the action level during 1 year. Examinations will be conducted on such workers annually thereafter.

(2) Content of annual examinations will be as discussed in paragraph a above, except:

(a) Chest x-ray evaluations will be conducted at the discretion of the physician for construction and demolition workers.

(b) Chest x-ray evaluations for all other workers will be conducted every 5 years until the elapsed time since first exposure reaches 10 years or greater. At such time, the frequency of chest x-ray evaluation will be every 2 years for workers between 35 and 45 years of age, and yearly for those workers who have attained the age of 45 years or greater.

(c) All employees will complete the abbreviated respiratory disease standardized questionnaire which appears as Part 2 in Appendix B.

c. Termination of employment examinations.

(1) The medical evaluation listed in paragraph b above will be made available to any employee who has been exposed to asbestos at or above the action level. This examination will be performed within 30 calendar days before or after termination of employment.

(2) No examination is required if the employee has undergone an examination specified in paragraphs a or b above within the past year.

d. Physician's statement.

(1) The examining physician will include a written signed statement in the employee's medical record stating--

(a) The results of the examination.

(b) Information as to whether the employee has any medical condition which would place the employee at increased risk of health impairment subsequent to asbestos exposure.

(c) Recommended limitation on use of personal protective equipment by the employee.

(d) A statement that the employee has been appraised of the examination results and of any conditions which may be related to asbestos exposure.

(2) Per 51 FR 22738, the employer will obtain the written signed statement from the examining physician and provide a copy to the affected employee within 30 days from its receipt.

8. OCCUPATIONAL EXPOSURE.

a. The following provisions are adopted in their entirety:

(1) Section 1910.1001, title 29, Code of Federal Regulations (CFR) (29 CFR 1910.1001), as amended by 51 FR 22733, and

(2) Section 1926.58, title 29, CFR, as added by 51 FR 22756.

b. These provisions will be superseded by any more stringent provisions set by the Occupational Safety and Health Administration or adopted by the American Conference of Governmental Industrial Hygienists.

9. NONOCCUPATIONAL EXPOSURE.

a. Likely Locations. Nonoccupational exposures to asbestos fibers are most likely in those locations which do contain asbestos and--

(1) Have a high activity or traffic level such as halls and laboratories.

(2) Have a high potential for disturbance of the asbestos material such as recreational areas (gymnasiums).

(3) Have highly exposed surface areas such as auditorium and hallway walls and ceilings.

b. Exposure Limit. Soldiers, employees, and family members will not be nonoccupationally exposed to airborne concentrations of asbestos exceeding the greater of the outdoor ambient concentration or the minimum level detectable by the method specified in 51 FR 22739. This exposure limit is necessary until such time as a nationally recognized nonoccupational asbestos exposure standard is established.

10. ASSESSING THE NEED FOR CORRECTIVE ACTION.

a. The potential for exposure to asbestos fibers from structural sources in both the nonoccupational and occupational settings is determined by an assessment process which includes:

(1) Bulk sampling to determine the presence of asbestos.

(2) Evaluation of factors which influence asbestos fiber release and transport, and the potential for personal exposures to asbestos.

b. The factors to be evaluated include:

(1) Factors relating to current conditions that have evidence of--

- (a) Deterioration or delamination from substrate.
- (b) Physical damage.
- (c) Water damage.

(2) Factors relating to potential for future damage, disturbance, or erosion which have--

- (a) Proximity to air plenum or direct airstream.
- (b) Accessibility to building occupants and maintenance personnel.
- (c) Frequency of normal use and required maintenance in the area.
- (d) Activity and vibration likely to cause fiber release.
- (e) Life-cycle projection for the building: planned change in use, renovation, or demolition.

(3) Other factors--

- (a) Inherent friability of asbestos-containing material.
- (b) Percent asbestos content.
- (c) Number of usual occupants and duration of occupancy.

c. Apply simple, qualitative "present/absent" or "high/low" ratings to the factors in paragraphs b(1) and b(2) above. Refer to the US Environmental Protection Agency (EPA) Publication No. 560/5-85-024 for more details on these factors. Avoid the use of elaborate schemes which apply numerical ratings to each factor and then combine scores into an overall "exposure index."

d. The assessment process may be supplemented, where appropriate, by air samples. However, a negative (none detected) air sample result is not sufficient evidence to discount the possibility of asbestos exposure at other times and under other circumstances.

e. By determining the likelihood of asbestos fiber release, this assessment process determines if corrective actions are needed and how urgently (when) corrective actions are needed. The decision on which corrective action to take must consider the nature and location of asbestos-containing materials, as well as other factors. Details on this selection process are contained in TM 5-XXX.

11. CONTROL ACTIONS.

a. Based on the results of the assessment (paragraph 10) and on other professional judgmental considerations, DEH will take action to control exposure to asbestos (AR 11-AA and TM 5-XXX).

b. The decision upon a control action will be preceded by, and supported by, the assessment. In particular, asbestos-containing materials should not be removed for the sole purpose of eliminating asbestos.

c. Ultimate control of asbestos exposure will be incorporated into the installation abatement program (AR 11-AA and TM 5-XXX).

d. Guidelines for the disposal of asbestos will be included in AR 11-AA and TM 5-XXX.

12. CLEANUP AIR MONITORING AND SAMPLING. Cleanup air monitoring is required in addition to the sampling required by 51 FR 22757. The cleanup air concentration level should not be regarded as a nonoccupational exposure limit or be used to determine when abatement action should be initiated.

a. Prior to initiating removal action, take three general area air samples to determine an airborne concentration baseline.

b. Within 48 hours after the removal action has been completed, take three general air samples. If the concentration is greater than the baseline or greater than 0.01 fiber (longer than 5 micrometers) per cubic centimeter of air, the area should be recleaned and resampled.

c. After completion of the removal action, perform a complete visual inspection to ensure that dust-free conditions exist. If this is not the case, the area should be recleaned and reinspected.

d. Before resuming normal operations, the level of cleanliness measured against the criteria in paragraphs b and c must be met.

e. Cleanup air samples (para a and b above) can be analyzed by optical (phase contrast) or electron microscopy. Samples to be analyzed by optical microscopy should be collected at a flow rate of 2 to 12 liters per minute on 37 mm diameter open face, 0.8 micrometer pore, cellulose ester filters (1 to 5 liters per minute if 25 mm diameter filters are used). To ensure a detection limit of 0.01 fiber per cubic centimeter, a minimum volume of

approximately 3000 liters should be sampled through 37 mm diameter filters (1300 liters through 25 mm diameter filters). Samples to be analyzed by electron microscopy will require smaller air volumes.

13. PERSONAL PROTECTIVE EQUIPMENT. The local preventive medicine or industrial hygiene authority should make specific recommendations on personal protective equipment and work practices to be used during asbestos operations.

14. RECORDKEEPING. Recordkeeping requirements are outlined in AR 40-5, paragraph 5-17, and TB MED 503, paragraph 3-2f.

APPENDIX A

References

Section I
Required Publications

AR 11-AA	(Installation Asbestos Management Program) (to be published). Cited in paragraphs 4 and 11.
AR 40-5	(Preventive Medicine). Cited in paragraph 14.
TB MED 503	(The Army Industrial Hygiene Program). Cited in paragraph 14.
29 CFR 1910.1001	(Title 29, CFR, Part 1910.1001, Asbestos). Cited in paragraphs 1 and 8.
51 FR 22733	(Asbestos, tremolite, anthophyllite, and actinolite, 51 Federal Register (FR) 22733, 20 June 1986). Cited in paragraphs 8 and 9.
51 FR 22756	(Asbestos, tremolite, anthophyllite, and actinolite, 51 FR 22756, 20 June 1986). Cited in paragraphs 8 and 12.

Section II
Related Publications

A related publication is merely a source of additional information. The user does not have to read it to understand this publication.

AR 11-XX	(Respiratory Protection Program) (to be published)
TM 5-XXX	(Asbestos Control) (to be published)
TB MED 502	(Respiratory Protection Program)
TB MED 509	(Pulmonary Function Testing in Occupational Health Surveillance) (in press)
EPA Publication No. 560/5-85-024	(Guidance for Controlling Asbestos-Containing Materials in Buildings). (Copies of this publication may be obtained from the Superintendent of Documents, US Government Printing Office Washington, DC 20402)

APPENDIX B

Medical Questionnaires

This appendix is extracted from 51 FR 22747. It contains the medical questionnaire that will be administered to all employees who are exposed to asbestos, tremolite, anthophyllite, actinolite, or a combination of these minerals above the action level, and who will therefore be included in the medical surveillance program. Part 1 of the appendix contains the initial medical questionnaire which will be obtained for all new employees who will be covered by the medical surveillance requirements. Part 2 includes the abbreviated periodic medical questionnaire which will be administered to all employees who are provided periodic medical examinations under the medical surveillance provisions of this publication.

Part 1
INITIAL MEDICAL QUESTIONNAIRE

1. NAME _____
2. SOCIAL SECURITY # 1 2 3 4 5 6 7 8 9
3. CLOCK NUMBER 10 11 12 13 14 15
4. PRESENT OCCUPATION _____
5. PLANT _____
6. ADDRESS _____
7. _____ (Zip Code)
8. TELEPHONE NUMBER _____
9. INTERVIEWER _____
10. DATE _____ 16 17 18 19 20 21
11. Date of Birth 1 2 3 4 5 6 7 8 9
 Month Day Year 22 23 24 25 26 27
12. Place of Birth _____
13. Sex 1. Male ___
 2. Female ___
14. What is your marital status: 1. Single ___ 4. Separated/
 2. Married ___ Divorced ___
 3. Widowed ___
15. Race 1. White ___ 4. Hispanic ___
 2. Black ___ 5. Indian ___
 3. Asian ___ 6. Other ___
16. What is the highest grade completed in school?
(For example 12 years is completion of high school)

OCCUPATIONAL HISTORY

- 17A. Have you ever worked full time (30 hours per week or more) for 6 months or more? 1. Yes ___ 2. No ___

IF YES TO 17A:

- B. Have you ever worked for a year or more in any dusty job? 1. Yes ___ 2. No ___
3. Does Not Apply ___

Specify job/industry _____ Total Years Worked ___

Was dust exposure: 1. Mild ___ 2. Moderate ___ 3. Severe ___

- C. Have you ever been exposed to gas or chemical fumes in your work? 1. Yes ___ 2. No ___

Specify job/industry _____ Total Years Worked ___

Was exposure: 1. Mild ___ 2. Moderate ___ 3. Severe ___

- D. What has been your usual occupation or job--the one you have worked at the longest?

1. Job occupation _____

2. Number of years employed in this occupation _____

3. Position/job title _____

4. Business, field or industry _____

(Record on lines the years in which you have worked in any of these industries, e.g. 1960-1969)

Have you ever worked:	YES	NO
E. In a mine?	___	___
F. In a quarry?	___	___
G. In a foundry?	___	___
H. In a pottery?	___	___
I. In a cotton, flax or hemp mill?	___	___
J. With asbestos?	___	___

18. PAST MEDICAL HISTORY

- A. Do you consider yourself to be in good health?

If "NO" state reason _____

- B. Have you any defect of vision?

If "YES" state nature of defect _____

- C. Have you any hearing defect?

If "YES" state nature of defect _____

- | | | |
|---|-----|-----|
| D. Are you suffering from or have you ever suffered from: | YES | NO |
| a. Epilepsy (or fits, seizures, convulsions)? | ___ | ___ |
| b. Rheumatic fever? | ___ | ___ |
| c. Kidney disease? | ___ | ___ |
| d. Bladder disease? | ___ | ___ |
| e. Diabetes? | ___ | ___ |
| f. Jaundice? | ___ | ___ |

19. CHEST COLDS AND CHEST ILLNESSES

- 19A. If you get a cold, does it usually go to your chest? (Usually means more than 1/2 the time) 1. Yes ___ 2. No ___
 3. Don't get colds ___

- 20A. During the past 3 years, have you had any chest illnesses that have kept you off work, indoors at home, or in bed? 1. Yes ___ 2. No ___

IF YES TO 20A:

- B. Did you produce phlegm with any of these chest illnesses? 1. Yes ___ 2. No ___
 3. Does not apply ___

- C. In the last 3 years, how many such illness with (increased) phlegm did you have which lasted a week or more? Number of illnesses ___
 No such illness ___

21. Did you have any lung trouble before the age of 16? 1. Yes ___ 2. No ___

22. Have you ever had any of the following?

- 1A. Attacks of bronchitis? 1. Yes ___ 2. No ___

IF YES TO 1A:

- B. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
 3. Does NOT Apply ___

- C. At what age was your first attack? Age in Years ___
 Does Not Apply ___

- 2A. Pneumonia (include bronchopneumonia)? 1. Yes ___ 2. No ___

IF YES TO 2A:

- B. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
 3. Does Not Apply ___
- C. At what age did you first have it? Age in Years ___
 Does Not Apply ___
- 3A. Hay Fever? 1. Yes ___ 2. No ___

IF YES TO 3A:

- B. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
 3. Does Not Apply ___
- C. At what age did it start? Age in Years ___
 Does Not Apply ___

- 23A. Have you ever had chronic bronchitis? 1. Yes ___ 2. No ___

IF YES TO 23A:

- B. Do you still have it? 1. Yes ___ 2. No ___
 3. Does Not Apply ___
- C. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
 3. Does Not Apply ___
- D. At what age did it start? Age in Years ___
 Does Not Apply ___

- 24A. Have you ever had emphysema? 1. Yes ___ 2. No ___

IF YES TO 24A:

- B. Do you still have it? 1. Yes ___ 2. No ___
 3. Does Not Apply ___
- C. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
 3. Does Not Apply ___
- D. At what age did it start? Age in Years ___
 Does Not Apply ___

- 25A. Have you ever had asthma? 1. Yes ___ 2. No ___

IF YES TO 25A:

- B. Do you still have it? 1. Yes ___ 2. No ___
 3. Does Not Apply ___

- C. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
 3. Does Not Apply ___
- D. At what age did it start? Age in Years ___
 Does Not Apply ___
- E. If you no longer have it, at what age did it stop? Age stopped ___
 Does Not Apply ___
26. Have you ever had:
- A. Any other chest illness? 1. Yes ___ 2. No ___
 If yes, please specify _____
- B. Any chest operations? 1. Yes ___ 2. No ___
 If yes, please specify _____
- C. Any chest injuries? 1. Yes ___ 2. No ___
 If yes, please specify _____
- 27A. Has a doctor ever told you that you had heart trouble? 1. Yes ___ 2. No ___
- IF YES TO 27A:
- B. Have you ever had treatment for heart trouble in the past 10 years? 1. Yes ___ 2. No ___
 3. Does Not Apply ___
- 28A. Has a doctor ever told you that you had high blood pressure? 1. Yes ___ 2. No ___
- IF YES TO 28A:
- B. Have you ever had any treatment for high blood pressure (hypertension) in the past 10 years? 1. Yes ___ 2. No ___
 3. Does Not Apply ___
29. When did you last have your chest X-rayed? (Years) _____
 25 26 27 28
30. Where did you last have your chest X-rayed (if known)? _____
 What was the outcome? _____

FAMILY HISTORY

31. Were either of your natural parents ever told by a doctor that they had a chronic lung condition such as:
- | | | | | | |
|--------|-------|---------------|--------|-------|---------------|
| FATHER | | | MOTHER | | |
| 1. Yes | 2. No | 3. Don't Know | 1. Yes | 2. No | 3. Don't Know |

- A. Chronic Bronchitis? ___ ___ ___ ___ ___ ___
- B. Emphysema? ___ ___ ___ ___ ___ ___
- C. Asthma? ___ ___ ___ ___ ___ ___
- D. Lung Cancer? ___ ___ ___ ___ ___ ___
- E. Other Chest Conditions? ___ ___ ___ ___ ___ ___
- F. Is parent currently alive?
 ___ ___ ___ ___ ___ ___
- G. Please Specify ___ Age if Living ___ Age if Living
 ___ Age at Death ___ Age at Death
 ___ Don't Know ___ Don't Know
- H. Please specify cause of death

COUGH

- 32A. Do you usually have a cough? (Count a cough with first smoke or on first going out of doors. Exclude clearing of throat.) [If no, skip to question 32C.] 1. Yes ___ 2. No ___
- B. Do you usually cough as much a 4 to 6 times a day 4 or more days out of the week? 1. Yes ___ 2. No ___
- C. Do you usually cough at all on getting up or first thing in the morning? 1. Yes ___ 2. No ___
- D. Do you usually cough at all during the rest of the day or at night? 1. Yes ___ 2. No ___

IF YES TO ANY OF ABOVE (32A, B, C, or D), ANSWER THE FOLLOWING. IF NO TO ALL, CHECK DOES NOT APPLY AND SKIP TO NEXT PAGE

- E. Do you usually cough like this on most days for 3 consecutive months or more during the year? 1. Yes ___ 2. No ___
 3. Does not apply ___
- F. For how many years have you had the cough? Number of years ___
 Does not apply ___

- 33A. Do you usually bring up phlegm from your chest?
(Count phlegm with the first smoke or on first going out of doors. Exclude phlegm from the nose. Count swallowed phlegm.) (If no, skip to 33C) 1. Yes ___ 2. No ___
- B. Do you usually bring up phlegm like this as much as twice a day 4 or more days out of the week? 1. Yes ___ 2. No ___
- C. Do you usually bring up phlegm at all on getting up or first thing in the morning? 1. Yes ___ 2. No ___
- D. Do you usually bring up phlegm at all during the rest of the day or at night? 1. Yes ___ 2. No ___

IF YES TO ANY OF ABOVE (33A, B, C, or D), ANSWER THE FOLLOWING. IF NO TO ALL, CHECK DOES NOT APPLY AND SKIP TO 34A.

- E. Do you bring up phlegm like this on most days for 3 consecutive months or more during the year? 1. Yes ___ 2. No ___
3. Does not apply ___
- F. For how many years have you had trouble with phlegm? Number of years ___
Does not apply ___

EPISODES OF COUGH AND PHLEGM

- 34A. Have you had periods or episodes of (increased*) cough and phlegm lasting 3 weeks or more each year?
*(For persons who usually have cough and/or phlegm) 1. Yes ___ 2. No ___

IF YES TO 34A:

- B. For how long have you had at least 1 such episode per year? Number of years ___
Does not apply ___

WHEEZING

- 35A. Does your chest ever sound wheezy or whistling
1. When you have a cold? 1. Yes ___ 2. No ___
2. Occasionally apart from colds? 1. Yes ___ 2. No ___
3. Most days or nights? 1. Yes ___ 2. No ___

- IF YES TO 1, 2, or 3 in 35A
- B. For how many years has this been present? Number of years ____
Does not apply ____
- 36A. Have you ever had an attack of wheezing that has made you feel short of breath? 1. Yes ____ 2. No ____
- IF YES TO 36A:
- B. How old were you when you had your first such attack? Age in years ____
Does not apply ____
- C. Have you had 2 or more such episodes? 1. Yes ____ 2. No ____
3. Does not apply ____
- D. Have you ever required medicine or treatment for the(se) attack(s)? 1. Yes ____ 2. No ____
3. Does not apply ____

BREATHLESSNESS

37. If disabled from walking by any conditions other than heart or lung disease, please describe and proceed to question 39A.
Nature of condition(s) _____
- 38A. Are you troubled by shortness of breath when hurrying on the level or walking up a slight hill? 1. Yes ____ 2. No ____
- IF YES TO 38A:
- B. Do you have to walk slower than people your age on the level because of breathlessness? 1. Yes ____ 2. No ____
3. Does not apply ____
- C. Do you ever have to stop for breath when walking at your own pace on the level? 1. Yes ____ 2. No ____
3. Does not apply ____
- D. Do you ever have to stop for breath after walking about 100 yards (or after a few minutes) on the level? 1. Yes ____ 2. No ____
3. Does not apply ____
- E. Are you too breathless to leave the house or breathless on dressing or climbing one flight of stairs? 1. Yes ____ 2. No ____
3. Does not apply ____

TOBACCO SMOKING

- 39A. Have you ever smoked cigarettes? (No means less than 20 packs of cigarettes or 12 oz. of tobacco in a lifetime or less than 1 cigarette a day for 1 year.) 1. Yes ____ 2. No ____

IF YES TO 39A:

- B. Do you now smoke cigarettes (as of one month ago) 1. Yes ___ 2. No ___
 3. Does not apply ___
- C. How old were you when you first started regular cigarette smoking? Age in years ___
 Does not apply ___
- D. If you have stopped smoking cigarettes completely, how old were you when you stopped? Age stopped ___
 Check if still smoking ___
 Does not apply ___
- E. How many cigarettes do you smoke per day now? Cigarettes per day ___
 Does not apply ___
- F. On the average of the entire time you smoked, how many cigarettes did you smoke per day? Cigarettes per day ___
 Does not apply ___
- G. Do or did you inhale the cigarette smoke? 1. Does not apply ___
 2. Not at all ___
 3. Slightly ___
 4. Moderately ___
 5. Deeply ___
- 40A. Have you ever smoked a pipe regularly? 1. Yes ___ 2. No ___
 (Yes means more than 12 oz. of tobacco in a lifetime.)

IF YES TO 40A:

FOR PERSONS WHO HAVE EVER SMOKED A PIPE

- B. 1. How old were you when you started to smoke a pipe regularly? Age ___
2. If you have stopped smoking a pipe completely, how old were you when you stopped? Age stopped ___
 Check if still smoking pipe ___
 Does not apply ___
- C. On the average over the entire time you smoked a pipe, how much pipe tobacco did you smoke per week? ___ oz. per week (a standard pouch of tobacco contains 1 1/2 oz.)
 ___ Does not apply
- D. How much pipe tobacco are you smoking now? oz. per week ___
 Not currently smoking a pipe ___
- E. Do you or did you inhale the pipe smoke? 1. Never smoked ___
 2. Not at all ___
 3. Slightly ___
 4. Moderately ___
 5. Deeply ___

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41A. Have you ever smoked cigars regularly?
(Yes means more than 1 cigar a week of a
year.)

1. Yes ___ 2. No ___

IF YES TO 41A:
FOR PERSONS WHO HAVE EVER SMOKED CIGARS

B. 1. How old were you when you started
smoking cigars regularly?

Age ___

2. If you have stopped smoking cigars
completely, how old were you when you
stopped?

Age stopped ___
Check if still
smoking cigars ___
Does not apply ___

C. On the average over the entire time you
smoked cigars, how many cigars did you
smoke per week?

Cigars per week ___
Does not apply ___

D. How many cigars are you smoking per week
now?

Cigars per week ___
Check if not
smoking cigars
currently ___

E. Do or did you inhale the cigar smoke?

1. Never smoked ___
2. Not at all ___
3. Slightly ___
4. Moderately ___
5. Deeply ___

Signature _____

Date _____

Part 2
 PERIODIC MEDICAL QUESTIONNAIRE

1. NAME _____
2. SOCIAL SECURITY # _____

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---
3. CLOCK NUMBER

10	11	12	13	14	15
----	----	----	----	----	----
4. PRESENT OCCUPATION _____
5. PLANT _____
6. ADDRESS _____
7. _____
 (Zip Code)
8. TELEPHONE NUMBER _____
9. INTERVIEWER _____
10. DATE _____

16	17	18	19	20	21
----	----	----	----	----	----
11. What is your marital status?

1. Single	_____	4. Separated/ Divorced	_____
2. Married	_____		
3. Widowed	_____		
12. OCCUPATIONAL HISTORY
 - 12A. In the past year, did you work full time (30 hours per week or more) for 6 months or more?

1. Yes	_____	2. No	_____
--------	-------	-------	-------

IF YES TO 12A:

B. In the past year, did you work in a dusty job?	1. Yes	_____	2. No	_____
	3. Does Not Apply	_____		

C. Was dust exposure:	1. Mild	_____	2. Moderate	_____	3. Severe	_____
-----------------------	---------	-------	-------------	-------	-----------	-------

D. In the past year, were you exposed to gas or chemical fumes in your work?	1. Yes	_____	2. No	_____
--	--------	-------	-------	-------

E. Was exposure:	1. Mild	_____	2. Moderate	_____	3. Severe	_____
------------------	---------	-------	-------------	-------	-----------	-------

F. In the past year, what was your:	1. Job/occupation?	_____
	2. Position/job title?	_____

13. RECENT MEDICAL HISTORY

A. Do you consider yourself to be in good health? Yes _____ No _____

If "NO" state reason _____

B. In the past year, have you developed:

	Yes	No
Epilepsy?	_____	_____
Rheumatic fever?	_____	_____
Kidney disease?	_____	_____
Bladder disease?	_____	_____
Diabetes?	_____	_____
Jaundice?	_____	_____
Cancer?	_____	_____

14. CHEST COLDS AND CHEST ILLNESSES

A. If you get a cold, does it usually go to your chest?
(Usually means more than 1/2 the time) 1. Yes _____ 2. No _____
3. Don't get colds _____

15A. During the past year, have you had any chest illnesses that have kept you off work, indoors at home, or in bed? 1. Yes _____ 2. No _____
3. Does not apply _____

IF YES TO 15A:

B. Did you produce phlegm with any of these chest illnesses? 1. Yes _____ 2. No _____
3. Does not apply _____

C. In the past year, how many such illnesses with (increased) phlegm did you have which lasted a week or more? Number of illnesses _____
No such illnesses _____

16. RESPIRATORY SYSTEM

In the past year have you had:

	<u>Yes or No</u>	<u>Further Comment on Positive Answers</u>
Asthma	_____	
Bronchitis	_____	
Hay Fever	_____	
Other Allergies	_____	

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	<u>Yes or No</u>	<u>Further Comment on Positive Answers</u>
Pneumonia	_____	
Tuberculosis	_____	
Chest Surgery	_____	
Other Lung Problems	_____	
Heart Disease	_____	
Do you have:		

	<u>Yes or No</u>	<u>Further Comment on Positive Answers</u>
Frequent colds	_____	
Chronic cough	_____	
Shortness of breath when walking or climbing one flight or stairs	_____	
Do you:		
Wheeze	_____	
Cough up phlegm	_____	
Smoke cigarettes	_____	Packs per day _____ How many years _____

Date _____ Signature _____

Glossary

Section I
Abbreviations

CFR	Code of Federal Regulations
DEH	Directorate of Engineering and Housing
EPA	US Environmental Protection Agency
FR	Federal Register
TWA	time-weighted average

Section II
Terms

Action level

A workplace concentration of airborne asbestos fibers greater than or equal to 0.1 fiber, longer than 5 micrometers, per cubic centimeter of air, averaged over a 7 or 8 hour work shift.

Approved

Respiratory protection equipment tested and listed as satisfactory according to standards established by a competent authority (such as the National Institute for Occupational Safety and Health or the Mine Safety and Health Administration) to provide respiratory protection against the hazard for which it is designed. (The approval authority may be specified by law.)

Asbestos

General term used to describe six distinctive varieties of fibrous mineral silicates--chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

Nonoccupational exposure

Exposure to asbestos fibers that is not occupational as defined herein.

Occupational exposure

Exposure to asbestos fibers that occurs as a result of employment in an area containing asbestos materials or working with asbestos material as part of an occupational task.

END

DATE
FILMED

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