

PLAINTIFF'S EXHIBIT

SWB-48

FIELD ADMINISTRATION ASBESTOS CONTROL PROGRAM

SNET CORPORATE SAFETY OFFICE

JUNE 1984

CONFIDENTIAL

005575

Field Administration

Asbestos Control Program

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I. General

- 1.01 - This practice contains the policies, responsibilities and procedures for Telephone Company employees working in areas with sprayed on asbestos.
- 1.02 - Whenever this section is reissued the reason for reissue will be listed in this paragraph.
- 1.03 - Field supervisors at times are faced with a need to know whether a material in the work place is asbestos and if it represents a health hazard. The following procedures will help make these determinations with minimal delay.

Customer Responsibilities

- 2.00 - All employers have an obligation under law to provide and maintain a safe healthful work place based on provisions of the Occupational Safety and Health Act (OSHA).
- 2.01 - When work is to be performed and where exposed asbestos is present, alternate ways of performing the work must be considered to avoid exposure.

If no alternative is acceptable, the customer will be responsible for:

a - Opening of ceiling tiles.

NOTE: See General Exchange Tariff Part II, Section 3, Sheet 1 & 4.

b - Vacuum the ceiling tiles along the general area of the intended cable/wire run. The customer should be reminded that special High Efficiency Particulate Air (HEPA) filter vacuums should be used when cleaning up asbestos.

NOTE: A HEPA filter has a retention efficiency to absolute standards of 99.97% at 0.3 microns.

c - Closing of ceiling tiles.

d - Clean up of the work area (fallen debris from hung ceilings) etc.

e - The customer has an obligation to its employees under the (OSHA) act to protect them or remove them from the area that the Telephone Company will be working.

- 2.02 - Customer has the option of:

- . Customer Provided Premise Wire

- Customer Time and Material plus Premium Over Time (POT) if job has to be worked beyond normal hours.

Note

If non-acceptance or compliance of these responsibilities by a customer is encountered, refer to your asbestos coordinator within your Staff Methods group, who in turn will call the Corporate Safety Office if necessary, for assistance. The Supervisor of the Technician must notify the Control Supervisor of the non-acceptance and that the due date may be in jeopardy.

Field Responsibilities/Procedures

- 3.00 - If work is to be performed where exposed asbestos is present, the following procedures must be followed.
- 3.01 - A presurvey should be made of the route of the planned cable/wire run(s). Prepare Job Field Survey or Field Job Plan Report (Attachment 1). Use the Environmental or Safety section to evaluate environmental hazards. Alternate ways of performing the work must be considered.
- 3.02 - Where sprayed-on insulating substance is present, contact the building owner or his agent, (this includes company owned or leased buildings or facilities) and determine if the substance is asbestos. If it is not asbestos, work can be performed following standard safety precautions.
- 3.03 - When the substance is unknown, the supervisor or the technician is responsible for obtaining a "bulk" sample for analysis by Safety department (see Attachment 2). The "bulk" sample and a copy of the Job Field Survey or Field Job Plan Report shall be sent to the Corporate Safety Office. The Supervisor or technician will notify the Dispatch or Control Supervisor of the job status.
- 3.04 - Prior to starting the job, the supervisor of the technician should determine whether the sprayed-on material has fallen onto the hung ceiling along the planned wire/cable route.
- 3.05 - Work can be performed by following the steps outlined below while waiting for results of the analysis.
- 3.06 - If the sprayed on substance is asbestos or unknown the cable/wire should be placed in the following manner.
- 3.07 - Certain small areas, such as places where a beam clamp must be placed, may be worked safely if the insulating material is sprayed with water.
- 3.08 - When spraying near electrical wiring or equipment non-conductive liquid will be required. Contact Corporate Safety Office if non-conductive liquid is required.

- 3.09 - When the space from the hung ceiling to the sprayed-on substance is less than 18 inches, a non-metallic snake shall be used to place drag wire and or cables. In ceilings where the clearance is 18 inches and over, other methods may be used and the sprayed-on substance should not be disturbed.
- 3.10 - If material has fallen alternate routes should be considered so as to avoid the fallen material. If this is not possible and the material is determined to be asbestos, the customer shall be asked to vacuum the tiles along the route of the intended wire/cable run designated by a field supervisor or technician. The customer shall be reminded that special high efficiency filter vacuums should be used when cleaning up asbestos.
- 3.11 - WHEN WIRE/CABLE IS TO BE PLACED AND THERE IS A STRONG POSSIBILITY THAT THE SUBSTANCE MAY BE DISTURBED, THE SAFETY STAFF SHALL BE CONSULTED. THE SAFETY SPECIALIST WILL ARRANGE FOR PERSONAL AND/OR ENVIRONMENTAL MONITORING (AIR SAMPLES TO BE TAKEN - SEE ATTACHMENT 3) AND WILL DISCUSS PROPER WORK PROCEDURES AND THE USE OF PERSONNEL PROTECTIVE EQUIPMENT.
- 3.12 - Care must be taken to ensure that telephone work operations do not cause the customer employees to be exposed to airborne asbestos fibers.
- 3.13 - Contact Marketing or Service Representative if the service order due date is in jeopardy.

ASBESTOS

4.00 I. POLICY

The SNET Industrial Hygiene Program is to protect our employees' health through the control of the work environment.

II. PURPOSE

To establish requirements and procedures that will minimize the risk of permanent and/or serious health conditions from exposures to hazardous level of chemicals and/or physical agents in places of SNET employment or customer premises.

ASBESTOS STANDARD (29 CFR 1910-1001)

Synopsis - (Complete Asbestos Standard attached - See Attachment 4)

* "Asbestos Fibers" - Asbestos Fibers longer than 5 micrometers

Permissible Exposure Limit (PEL) - 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 (fibers/cc).

Ceiling Concentration (CL) - 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 fibers.

Action Level (AL) - Medical Surveillance - Employees who are exposed to concentrations of asbestos fibers to a minimum of 0.1 fibers longer than 5 micrometers per cubic centimeter of air (fibers/cc) for any seven-to-eight hour time-weighted average.

Proposed Standard - Reduce the PEL to 0.5 fibers/cc.

* OSHA EMERGENCY TEMPORARY STANDARD REDUCING THE
PERMISSIBLE ASBESTOS EXPOSURE LIMIT
EFFECTIVE NOVEMBER 4, 1983

(THE STANDARD REMAINS IN EFFECT FOR SIX MONTHS)

Synopsis - (Complete Amendment to Standard attached (See Attachment 5). All other provisions of 1910.1001 remain in effect).

II. PURPOSE (cont.)

Permissible Exposure Limit - The 8-hour time-weighted average airborne concentration of asbestos fibers, to which any employee may be exposed, shall not exceed one-half (0.5) fiber, longer than 5 micrometers per cubic centimeter of air.

- * All fibers which have a physical dimension longer than 5 micrometers (um) and a length to diameter ratio of 3 to 1 or greater are counted.
- ** The U.S. Court of Appeals for the Fifth Circuit has granted a stay of OSHA's Emergency Temporary Standard on asbestos pending a judicial review.

Methods of Compliance - The reduced exposure limit of 0.5 fibers/cc shall be achieved by a feasible combination of engineering controls, work practices, and personal protective equipment and devices.

Employee Information and Training - Not later than thirty (30) days from the effective date of this temporary standard, the employer shall institute a training program for all employees exposed to airborne concentrations of asbestos in excess of 0.5 Fibers/cc. Training to include:

1. Health effects associated with asbestos exposure. (See Attachment 6)
2. Relationship between asbestos and smoking in producing lung cancer.
3. The nature of operations which could result in exposure to asbestos and necessary protective steps to minimize exposure.
4. The purpose, proper use, fitting instructions and limitations of respirators permitted by the standard, and;
5. A review of all the provisions contained in 1910.1001.
6. Respiratory protection during the Emergency Temporary Standard (ETS) shall be selected in accordance with Table 1 of the attached revision.

III. RESPONSIBILITY

- A. Safety Department - The safety Department shall implement, coordinate and audit the Asbestos Program. This shall include adequacy of procedures, adherence to regulatory requirements, personal/environmental monitoring and recordkeeping.
- B. Medical Department - The Medical Department shall offer medical exams to employees identified by the Safety Department and maintain appropriate records as outlined in Appendix (j) of the attached Asbestos Standard. They shall also provide a medical review of an employee's medical history to determine if there is any pre-existing medical condition that would limit the employee's ability to wear a respirator in work assignments requiring the use of a respirator.
- C. Departmental Supervisors - Supervisors shall ensure that their affected employees are trained prior to or at the time of initial assignment and at least annually thereafter in the following areas:

- 1. Asbestos Awareness
- 2. Departmental Procedures
- 3. Requirements of Respiratory Protection

Supervisors shall document employee Asbestos Awareness training on ENVIRONMENTAL HEALTH TRAINING document, Form 12696. The documentation of the Requirements of Respiratory Protection shall be recorded on Form 12472, RESPIRATOR PROTECTION TRAINING.

Supervisors shall monitor compliance with the aforementioned Departmental Procedures.

- D. Employees - Personal Hygiene and Protective Clothing

Good personal hygiene habits shall be practiced whenever employees may work in the vicinity of asbestos and asbestos-containing materials whether or not there is an actual exposure situation.

If employees will be assigned to tasks where the Permissible Exposure Level (PEL) may be exceeded or when Corporate Policy dictates, protective clothing, respiratory protection, and adherence to good personal hygiene become mandatory. Appropriate hygiene practices include the following:

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III. RESPONSIBILITY (cont.)

1. Prohibition of eating, drinking and smoking in the exposure area.
2. No food, beverages or smoking materials shall be stored in the exposure area.
3. Hands, face and forearms shall be washed prior to eating, drinking or smoking.
4. Practice good on-the-job housekeeping.

In situations where protective clothing is provided for employees, they should be instructed on the procedures for proper handling of contaminated clothing at the end of the work shift. (See Disposal of Asbestos Contaminated Equipment/Material Procedure - Section 9)

IV. PROCEDURES

If the presence of asbestos is known or suspected in the work place, the supervisor, prior to beginning a job, shall:

1. Review Departmental asbestos Safety Procedures.
2. If procedures cannot be followed, contact the Corporate Safety Office.
3. Identify employees who may be exposed to asbestos fibers in the course of their job assignment.
4. Provide training for affected employees in:
 - a. Asbestos Awareness (contact Corporate Safety Office Library, extension 7306, for appropriate training program).
 - b. Departmental Procedures.
 - c. Respirator Protection (see Section 5:00 or contact Corporate Safety Office for further assistance.)

RESPIRATORY PROTECTION

5.00 I. POLICY

The SNET Industrial Hygiene Program is to protect our employees' health through the control of the work environment.

II. PURPOSE

To establish requirements and procedures that will minimize the risk of permanent and/or serious health conditions from exposures to hazardous level of chemicals and/or physical agents in places of SNET employment or customer premises.

RESPIRATOR PROTECTION STANDAND (29 CFR 1910-134)

A. Synopsis - (Complete Respiratory Protection Standard attached - See Attachment 7)

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 by qualified instructors.
4. Where practical, the respirator 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 days 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 convenient, clean and sanitary locations.
7. Respirators used routinely shall be inspected during cleaning. Worn or deteriorated parts shall be replaced.
8. Appropriate surveillance of work area conditions and degree of employee exposure to stress shall be maintained.

II. PURPOSE (cont.)

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 Medical Department shall be contacted for a review of the employee's medical history.
11. Approved or accepted respirators shall be used.

B. Precautions-

1. Respiratory protective masks have distinct limitations. The most prominent being:
 - a. They do nothing to reduce the hazard in the atmosphere.
 - b. If the device fails to provide adequate protection, there may be an immediate exposure to the hazard.
2. Respirators shall not be worn when conditions prevent a good face seal. Such conditions may be a growth of beard, sideburns, or temple pieces on glasses which project under the facepiece.
3. Providing respiratory protection for individuals wearing corrective glasses is a serious problem. A proper seal cannot be established if the temple bars of the eyeglasses 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. Most manufacturers provide a spectacle kit for use with their facepieces.
4. Wearing of contact lenses in contaminated atmospheres with a respirator shall not be allowed.
5. The absence of one or both dentures can seriously affect the fit of a facepiece.

III. RESPONSIBILITY

- A. Safety Department - The District Staff Manager - Safety/Environmental Health is responsible for establishing, administering and coordinating the Company's respiratory program. Specific responsibilities include:

III. RESPONSIBILITY (cont.)

1. Reviewing those situations where there is a possibility of exposing employees to harmful airborne contaminants and determining requirements for the use of respiratory protection.
 2. Conducting periodic surveys of work areas to assure that appropriate respirators are used, when and if required.
 3. Initiate respirator training program.
- B. Medical Department - The Medical Department shall upon request from field supervisors provide a review of the employee's medical history to determine if there is anything in his/her medical history that would indicate a need for caution in assigning work requiring the use of a respirator. If there is any data in the medical records relating to a history of pulmonary disorders, such as asthma, bronchitis, tuberculosis, etc. the nurse will indicate to the supervisor that the employee should be restricted from such work until a medical clearance can be obtained. If there are no indications in the employee's medical records to indicate the need for a restriction, the nurse will provide the supervisor with instructions to follow for clearing the employee to perform work requiring the use of a respirator or dust mask.
- C. Departmental Supervisors - Prior to assigning an employee to any task in which he or she will be required in the supervisor's judgment to use a respirator, including a dust/mist mask type respirator, the supervisors shall contact the SNET Safety Department. The purpose of this call is to describe to the Staff Safety Department the situation in which the respirator is going to be used. If there is any indication that the degree of toxicity involved constitutes an industrial hygiene exposure, the District Staff Manager - Safety/Environmental Health will arrange for an investigation of the job site and conditions, personal protective requirement (including type of respirator) and, if necessary, recommend alternative means of accomplishing the work.

The appropriate Medical Department Unit shall be contacted prior to assigning any employee any work that requires the use of a respirator (See Section B of this procedure).

1. Supervisors before contacting the Medical Department shall also ask the assigned employee(s) the following questions:
 - a. Do you now have any problems related to your breathing?
 - b. Have you ever had asthma, chronic bronchitis or tuberculosis or other problems related to your breathing?

III. RESPONSIBILITY (cont.)

- c. Have you ever experienced any difficulty in wearing a respirator or face mask?

If the employee reports any problems or history of lung/breathing problems or difficulty wearing a respirator or face mask, refer him or her to medical for further evaluation before assigning to any work requiring the use of a respirator.

Instruct respirator users in the safe use of the respirator. Training should include, but not limited to the following:

1. Instruction in the nature of the hazard, whether acute, chronic or both, and an appraisal of what may happen if the respirators not used.
2. A discussion of why this is the proper type of respirator for the particular purpose.
3. Thoroughly review the capabilities of the respirator, its construction, operating principles and limitations.
4. Instruction in the care of the respirator, cleaning methods, inspection prior to use, changing canisters and filters, and proper storage.
5. Instruction and training in actual use of the respirator and close and frequent supervision to assure that it continues to be properly used.
6. Recognizing and handling emergencies.
7. Observe the employee wearing the respirator and breathing through it to ensure that he or she will be able to function normally.

The trainee is to be provided with an opportunity to handle the respirator, have it fitted properly, test its facepiece-to-face seal, wear it in normal air, and wear it in a test atmosphere.

All training courses should be fully documented as to the dates of training, information covered, names of trainees, names of instructor and medical review date. The RESPIRATOR PROTECTION TRAINING document, Form 12472 has been provided to meet these requirements. Ordering of this form is to be made via Printed Forms Requisition, Form 2209A.

Respirator training information for employee training purposes (e.g., Respirator Training Fitting Instructions - 3M 8710 Dust Mask Respirator) is available either through your department or by contacting the Corporate Safety Office Library, Extension 7306.

III. RESPONSIBILITY (cont.)

Specific inspection, cleaning, repair, maintenance and storage requirements for various types of respirators, including documentation of same when required, is indicated in the attached Respiratory Protection Standard (29 CFR 1910-134).

Additional training information if required, on Nature of Possible Hazard (e.g. asbestos, lead, copper, etc.) can be obtained by contacting the Corporate Safety Office.

- D. Employee Responsibility - Proper supervision of respirator use should ensure that each employee understands that he or she has the following responsibilities. He or she shall:
- a. Use the respirator as instructed.
 - b. Guard against damaging the respirator.
 - c. Go immediately to an area having respirable air if the respirator fails to provide proper protection.
 - d. Report any respirator malfunction to supervision.

DUST/MIST RESPIRATOR 8710

1. The 3M Dust/Mit Respirator 8710 is NIOSH/MSHA approved protection against dusts and mists with a PEL (Permissible Exposure Level) not less than 0.05 milligrams per cubic meter of air ($.05 \text{ mg/m}^3$).
2. The 3M Dust/Mist Respirator is:
 - a. Maintenance-free (DISPOSABLE).
 - b. Lightweight.
 - c. Easy to talk through.
 - d. NIOSH/MSHA approved and meets OSHA criteria where dust/mist half face respirators are appropriate or specified in a standard.
 - e. In compliance with OSHA guidelines for use in concentrations up to 10 X PEL.
2. Fitting Instructions for 3M 8710 Respirators:
 - a. Before wearing, pre-stretch each strap by grasping and pulling the strap between both hands at 1-2 inch intervals around the entire length of the strap.
 - b. Cup respirator in hand, with nosepiece at fingertips allowing headbands to hang freely below hand.
 - c. Cup respirator under chin with nosepiece up.
 - d. Pull top band over head and position at top back of head. Pull bottom band over head and position around neck below ears.
 - e. Using both hands, mold metal nosepiece to shape of nose.
 - f. To check fit, cup both hands over respirator and exhale vigorously. If air flows around nose, tighten nosepiece. If air leaks at respirator edges, work straps back along the sides of the head.
3. Precaution:
 - a. This respirator removes only dusts and mists from the air. It is NOT designed to be used for protection against fumes, gases, vapors, paint spray operations or in atmospheres containing less than 19.5 percent oxygen.
 - b. Do not use when concentrations of contaminants are immediately hazardous to life or health.
 - c. Discard and replace respirator if it becomes damaged or breathing resistance becomes excessive.
 - d. Leave the contaminated area immediately if breathing becomes difficult or if dizziness or other distress occurs.
 - e. Never alter or modify this device.

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ASBESTOS CAUTION SIGNS

SNET requires the use of Asbestos Caution Sign (s) during work operations where asbestos may be disturbed.

The sign(s) shall be posted to alert all personnel to the potential hazard, so that precautionary measures may be taken.

The sign shall read: (In accordance with Section 1910.1001 of the Occupational Safety and Health Administration (OSHA) Regulations.)

"Asbestos
Dust Hazard
Wear Assigned Protective Equipment
Do Not Remain in Area Unless Your
Work Requires It
Breathing Asbestos Dust May Be
Hazardous To Your Health"

7.00 PERSONAL HYGIENE AND PROTECTIVE CLOTHING

Good personal hygiene habits shall be practiced whenever employees may work in the vicinity of asbestos and asbestos-containing materials whether or not there is an actual exposure situation.

If employees will be assigned to tasks where the Permissible Exposure Level (PEL) may be exceeded or when Corporate Policy dictates, protective clothing, respiratory protection, and adherence to good personal hygiene become mandatory. Appropriate hygiene practices include the following:

1. Prohibition of eating, drinking and smoking in the exposure area.
2. No food, beverages or smoking materials shall be stored in the exposure area.
3. Hands, face and forearms shall be washed prior to eating, drinking or smoking.
4. Practice good on-the-job housekeeping.

In situations where protective clothing is provided for employees, they should be instructed on the procedures for proper handling of contaminated clothing at the end of the work shift. (See DISPOSAL OF ASBESTOS CONTAMINATED EQUIPMENT/MATERIAL PROCEDURE - Section 9).

8.00 Personal Protective Equipment is available and should be used under direction of the Safety Specialist.

1 Personal Protective Equipment and Materials and Equipment.

Ordering information

<u>Item</u>	<u>Ordering Procedure</u>
A. Asbestos Work Kit Contents Include: 2 pair disposable goggles 2 pair disposable gloves 2 pair disposable coveralls/ with booties 2 3M Brand 8710 Dust/Mist respirators - disposable 2 Asbestos disposal bags (plastic)	OIP
B. Spray Bottle (22 oz.)	Form 470
C. Non-Conductive Liquid	
D. Respirators - Dust 8710, 3M Brand	Form 7451
E. Coveralls - Disposable Size - Small Size - Medium Size - Large Size - X-Large	Form 470 Form 470 OIP-336-4869 OIP-336-4885
F. Asbestos Caution Signs Double Sign - Porcelain 20" X 14"	Form 470

9.00 DISPOSAL OF ASBESTOS CONTAMINATED EQUIPMENT/MATERIAL

Following the completion of an asbestos related work operation:

- All asbestos waste scrap, debris, disposable clothing and respirators are to be placed in the provided and approved plastic bags bearing Asbestos Caution Labels. The label shall state:

CAUTION

Contains Asbestos Fibers
Avoid Creating Dust
Breathing Asbestos Dust May Cause
Serious Bodily Harm

- The top layer of the asbestos contaminated equipment, clothing and material, etc., shall be wet down (sprayed with water) prior to the sealing of the approved plastic bags.

NOTE: The respirator is not to be removed until the completion of this wetting down procedure. It is then removed from your face and placed in the approved plastic bag prior to the sealing of the bag.

The bagged contaminated equipment, clothing and material shall be returned to the garage area where scrap wire is collected. there will be a 55 gallon drum marked "Asbestos".

- Employees are responsible for placing the plastic bags into the collection drum intact.
- Do not throw trash into the asbestos drums. These are for collection of bagged asbestos items only.
- When the drum is full, the supply attendant will secure the cover and fill out a Form 647, Auto Delivery Receipt, indicating the drum should be shipped to the Salvage Center, 50 Fulton Terrace, New Haven. A copy of the 647 should be taped to the drum. The supply driver will transport the drum on his/her regular route.
- The supply attendant will notify the Supervisor Material Usage (SMU) (Don Bresh, x7228) when a drum has been shipped and the SMU will arrange transportation for an empty, marked drum to replace it.
- Asbestos bags shall not be included in the red bag or red box routine.

10.00

SPRAYED-ON INSULATION

NON-SNET LOCATIONS

ASBESTOS/NON-ASBESTOS

THE CORPORATE SAFETY STAFF HAS ESTABLISHED A MASTER FILE OF SUBSCRIBER LOCATIONS THAT THROUGH BULK SAMPLING ANALYSIS, VIA FIELD REQUEST, HAVE BEEN IDENTIFIED AS TO SPRAYED-ON INSULATION BEING ASBESTOS OR NON-ASBESTOS.

FIELD FORCES ARE, THEREFORE, REQUESTED TO CONTACT THE SAFETY OFFICE, NEW HAVEN EXTENSION 2416, WHEN DURING A PRE-SURVEY OR PRIOR TO STARTING A WORK OPERATION WHERE SPRAYED-ON INSULATION HAS BEEN NOTED.

FIELD JOB PLAN REPORT

CMC:	EST ORDER:
SUPERVISOR:	LOCATION:
CENTRAL OFFICE:	REMOVAL:
DATES	CONTACT
SURVEY:	JOB TO BE DONE AS ENGINEERED NO YES
RETURN:	SAFETY PRECAUTIONS SPEC STD
SERVICE:	COORDINATION PERMITS: YES NO
COMPLETE:	UTILITY LOCATIONS: YES NO
DURATION:	TRANSFER SHEETS: YES NO
START:	OTHER: YES NO

EXPLANATIONS

NAMEDATE

SUBMITTED:

APPROVED:

<u>ACTIV-</u>			<u>ACCT</u>		<u>NO</u>	<u>NO</u>	<u>CBJ</u>	<u>EST</u>
<u>ITY</u>	<u>PT</u>	<u>LOCA</u>	<u>CODE</u>	<u>DESCRIPTION</u>	<u>WRK</u>	<u>VIS</u>	<u>HRS</u>	<u>WU</u>

ADDL REMARKS:

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66 SKETCH OR COMMENTS ON REVERSE SIDE

**BULK ASBESTOS SAMPLE COLLECTION
FRIABLE MATERIALS**

- A. **FRIABLE MATERIALS** - Friable materials are those which can be crumbled, pulverized or reduced to powder in the hand-readily releasing fibers with minimal mechanical disturbance. Most insulating materials sprayed or troweled onto surfaces are friable.

I. Friable material can have the following characteristics:

1. Fluffy or spongy appearance (always applied by spraying).
2. Irregular, soft surface (usually applied by spraying).
3. Textured, dense, fairly firm surface (usually applied by troweling).

If friable material has been damaged or is deteriorating, the material may be flaking or pieces may be hanging from the surface of the material.

II. Location - Commonly found on:

- a. Overhead surface and steel support beams and columns.
- b. Ceilings.
- c. Above suspended ceilings - applied to the original ceiling, steel beams and other surfaces above the suspended ceiling.

III. Necessity for sampling and analysis of friable material

Friable material should always be sampled and analyzed for asbestos. Neither visual inspection nor checking building records establish the presence of asbestos in friable material.

B. **BULK ASBESTOS SAMPLE COLLECTION**

1. Use a small sealable glass or plastic-capped container, such as a plastic 35mm film canister or a small wide-mounted glass jar with a screw-on lid. The container should be dry and clean.
2. Hold the container as far as possible from the face.
3. Gently twist the open end of the container into the material penetrating the surface. A core of the material should fall into the container. A sample can also be taken by using a knife to cut out or scrape off a small piece of material and then placing it into the container.
4. Tightly close the sample container; wipe the exterior of the container with damp cloth to remove any material which may have adhered to it during sampling.

ATTACHMENT 2 (cont.)

5. Tape the container lid to prevent the accidental opening of the container during shipment or handling.
6. Label the sample container. Labeling should include building identification, address, sample source location, date of sample, and name, title and department of the sampler.

The "bulk" sample and a copy of the JOB FIELD SURVEY or FIELD JOB PLAN REPORT shall be sent to the Corporate Safety Office.

C. PRECAUTIONS DURING SAMPLING

To avoid causing unnecessary exposure to asbestos fibers, the following precautions should be taken during sampling.

1. The material should be sampled when the area is not in use.
2. Only those persons needed for the sampling should be present.
3. The sample container should be held away from the face during actual sampling.
4. Do not disturb the material any more than necessary.
5. The material shall be sprayed with a light mist of water to prevent fiber release during sampling.
6. It is strongly recommended that the sampler wear an approved respirator.
7. Personal hygiene habits shall also be practiced. These include:
 - a. Prohibition of eating, drinking and smoking in the exposure area.
 - b. Hands, face and forearms shall be washed immediately following the taking of the sample.

AIR SAMPLING

PERSONAL AND ENVIRONMENTAL (AREA)

Collection Method - Analytical Results

- Air Drawn through a membrane filter by means of a battery powered sampling pump.
- Sample analysis is sent to accredited laboratory to assess exposure.
- Fibers are sized and counted using a phase-contrast microscope at 400-450x magnification.
- Airborne Fiber Concentration is calculated by dividing the number of fibers on the filter by the volume of air pulled through the pump.

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October 2011

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[Table 2-2. ~~Continued~~ : ~~continued on~~ ~~the~~ ~~FR 2021, June 19, 2021~~]

Topic 2 1-4 notes! Due:

[illegible][illegible]

Amounts due to the Government	Personnel Payroll
1941 - 1942	1941 - 1942
1942 - 1943	1942 - 1943
1943 - 1944	1943 - 1944
1944 - 1945	1944 - 1945
1945 - 1946	1945 - 1946
1946 - 1947	1946 - 1947
1947 - 1948	1947 - 1948
1948 - 1949	1948 - 1949
1949 - 1950	1949 - 1950
1950 - 1951	1950 - 1951
1951 - 1952	1951 - 1952
1952 - 1953	1952 - 1953
1953 - 1954	1953 - 1954
1954 - 1955	1954 - 1955
1955 - 1956	1955 - 1956
1956 - 1957	1956 - 1957
1957 - 1958	1957 - 1958
1958 - 1959	1958 - 1959
1959 - 1960	1959 - 1960
1960 - 1961	1960 - 1961
1961 - 1962	1961 - 1962
1962 - 1963	1962 - 1963
1963 - 1964	1963 - 1964
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The measurements of the ratio $\sigma_{\text{tot}}/\sigma_{\text{el}}^2$ in the π^+p system at $\sqrt{s} = 1.96$ TeV are shown in Fig. 1. The ratio is constant at ≈ 0.15 for $\sqrt{s} < 1.96$ TeV and increases to ≈ 0.25 at $\sqrt{s} = 1.96$ TeV. The ratio is constant at ≈ 0.15 for $\sqrt{s} < 1.96$ TeV and increases to ≈ 0.25 at $\sqrt{s} = 1.96$ TeV.

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(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 asbestos fibers**—(1) **concentrations of asbestos fibers**—(i) **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 (c) 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 (c) of this section.

(3) **Crilling 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.

(2) 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 Z9-1971, which is incorporated by reference herein.

(b) See 1980-8 concerning the availability of AFSS 202-1971, and the maintenance of a historic file in connection therewith. The address of the American National Standards Institute is given in 1980-106.

(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, scrapers, abrasive wheels, and grinds, shall be provided with local exhaust ventilation systems in accordance with subdivision (1) 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.

(11) **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 encased, 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)(3)(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:

(1) During the time period necessary to install the engineering controls and to institute the work practices required by paragraph (c) of this section:

(ii) In work situations in which the methods prescribed in paragraph (c) of

TOXIC SUBSTANCES

this section are either technically just feasible or unable to an extent insufficient to reduce the airborne concentrations of asbestos fibers below the limits prescribed by paragraph (b) of this section; or

(iii) In emergencies.

(iv) Where both respirators and personal rotation are allowed by subdivisions (i), (ii), or (iii) of this subparagraph, and both are practicable, personal rotation shall be preferred and used.

(3) Where a respirator is permitted by subparagraph (i) of this paragraph, 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. 6244, Mar. 28, 1972), and shall be used in accordance with subdivisions (i), (ii), (iii), and (iv) of this subparagraph.

(i) Air purifying respirators. A reusable or single use air purifying respirator, or a respirator described in subdivision (ii) or (iii) of this subparagraph, shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in paragraph (b) of this section, 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.

(ii) Powered air purifying respirators. A full facepiece powered air purifying respirator, or a powered air purifying respirator, or a respirator described in subdivision (iii) of this subparagraph, shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in paragraph (b) of this section, 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.

(iii) 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 paragraph (b) of this section, when the ceiling or the 8-hour time-weighted average airborne concentrations of asbestos fibers are reasonably expected to exceed 100 times those limits.

(iv) Establishment of a respirator program. (a) The employer shall establish a respirator program in accordance with the requirements of the American National Standards Practices for Respiratory Protection, ANSI Z89.2-1969, which is incorporated by reference herein.

b. See § 1910.166 concerning the availability of ANSI Z89.2-1969 and the maintenance of an historic file in connection therewith. The address of the American National Standards Institute is given in § 1910.166.

(c) No employee shall be assigned to tasks requiring the use of respirators if, based upon his most recent examination, an 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 referred to another job or given the opportunity to transfer to a different position where duties he is able to perform with the same employer, in the same geographical area and with the same similarity, 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 paragraph (b) of this section.

(4) Change rooms: (i) At any fixed place of employment exposed to airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section, the employer shall provide change rooms for employees working regularly at the place.

(ii) Clothes lockers: The employer shall provide two separate lockers or compartments for each employee, as separated or isolated as to prevent contamination of the employee's street clothes from his work clothes.

(iii) 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.

(d) Method of measurement: All determinations of airborne concentrations of asbestos fibers shall be made by the membrane filter method at 400-600 X (magnification) (4 millimeter objective) with phase contrast illumination.

(5) Monitoring—(i) 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.

(3) Personal monitoring—(i) Sampling shall be collected from within the breathing zone of the employee, on membrane filters of 0.5 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 pattern. After the initial determinations required by subparagraph (i) 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—Samples shall be collected from areas (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 0.5 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 pattern. After the initial determinations required by subparagraph (i) 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 or 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. (i) Caution signs. (1) 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.

(2) Sign specifications. The warning signs required by subdivision (i) of this subparagraph shall conform to the requirements of 20" x 14" vertical format signs specified in § 1910.145(d)(4), and to this subdivision. The signs shall display the following legend in the lower panel, with letter size and style of a visibility at least equal to that specified in this subdivision.

Legend	Position
Asbestos _____	7' Base Unit
	Caution of
	Mask
Do Not Enter _____	4' Base Unit
	Caution of
	Mask
Avoid Breathing Dust...	4' Caution
Wear Assigned Protective	4' Caution
Equipment	
Do Not Remove or Alter	4' Caution
Unless Your Work Re-	
quires It	

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Legend
Breathing Asbestos Dust May be Hazardous To Your Health
14 point Gothic

Spelling: Between lines shall be at least equal to the height of the upper of any two lines.

(3) Caution labels—(i) 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 paragraph (b) of this section will be released.

(ii) Label specifications. The caution labels required by subdivision (i) of this subparagraph 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 Health Harm

(b) 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 paragraph (b) of this section shall be collected and disposed of in sealed impermeable bags, or other closed, impermeable containers.

(c) Recordkeeping—(1) Exposure records. Every employer shall maintain records of any personal or environmental monitoring required by this section. Records shall be maintained for a period of at least 30 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.

[1910.1001(i)(1) amended at 41 FR 11505, March 19, 1976]

(2) Access. Employee exposure records required by this paragraph shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.20 (a)-(e) and (g)-(i).

[Section 1910.1001(i)(2) amended at 45 FR 35212, May 23, 1980, effective August 1, 1980]

(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 paragraph (b) of this section shall be notifi-

ed in writing of the exposure as soon as practicable but not later than 5 days of the finding. The employee shall also be timely notified of the corrective action being taken.

(4) Written notification—(i) General. The employer shall provide or make available at his cost, medical examinations relative to exposure to asbestos required by this paragraph.

(ii) Preplacement. The employer shall provide or make available to each of his employees, within 90 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 1 second (FEV₁).

(iii) Annual examinations. On or before January 31, 1978, and at least once yearly 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 1 second (FEV₁).

(iv) Termination of employment. The employer shall provide, or make available, within 90 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 1 second (FEV₁).

(v) Access to records. No employee notification is required of any employee, if adequate records show that the employee has been examined in accordance with this paragraph within the past 5-year period.

(vi) Medical records—(i) Retention. 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 30 years.

(ii) Access. Records of the medical examinations required by this paragraph shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.20(a)-(e) and (g)-(i). These records shall also be provided upon the request to the Director of NIOSH. 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 a po-

tential exposure to asbestos fibers.

[Section 1910.1001(i)(6)(ii) amended at 45 FR 25312, May 23, 1980, effective August 31, 1980, corrected by 45 FR 24333, August 15, 1980]

§ 1910.1002 Coal tar pitch volatiles; interpretation of term.

As used in § 1910.1000 (Table Z-1), coal tar pitch volatiles include the fused polycyclic hydrocarbons which volatilize from the distillation residues of coal petroleum (excluding asphalt), wood, and other organic matter. Asphalt (CAS 8052-42-4, and CAS 84742-43-4) is not covered under the "coal tar pitch volatiles" standard.

[Sec. 1910.1002 revised by 48 FR 2768, January 21, 1983]

§ 1910.1003 4-Nitrophenyl.

(a) Scope and application. (1) This section applies to any area in which 4-Nitrophenyl. Chemical Abstracts Service Registry Number 93-83 is manufactured, processed, repackaged, reloaded, handled, or stored, but shall not apply to transshipment to sealed containers, except for the labeling requirements under paragraphs (c) (3), (8), and (4) of this section.

(2) This section shall not apply to solids or liquid mixtures containing less than 0.1 percent by weight or volume of 4-Nitrophenyl.

(b) Definitions. For the purposes of this section: (1) "Absolute filter" is one capable of retaining 99.97 percent of a mono-disperse aerosol of 0.3 µm particles.

(2) "Authorized employee" means an employee whose duties require him to be in the regulated area and who has been specifically assigned by the employer.

(3) "Clean change room" means a room where employees put on clean clothing and/or protective equipment in an environment free of 4-Nitrophenyl. The clean change room shall be constructed to and have an entry from a shower room, when the shower room facilities are otherwise required in this section.

(4) "Closed system" means an operation involving 4-Nitrophenyl where containment prevents the release of 4-Nitrophenyl into regulated areas, non-regulated areas, or the external environment.

(5) "Decontamination" means the decontamination of 4-Nitrophenyl or its mixtures.

(6) "Director" means the Director, National Institute for Occupational Safety and Health, or any person designated by him or the Secretary of Health, Education, and Welfare to act for the Director.

(7) "Disposal" means the safe removal of 4-Nitrophenyl from the work environment.

(8) "Emergency" means an unforeseen circumstance or set of circumstances resulting in the release of 4-Nitrophenyl which may result in exposure to or contact with 4-Nitrophenyl.

(9) "External environment" means any environment external to regulated and nonregulated areas.

(10) "Isolated system" means a fully enclosed structure other than the vessel or containment of 4-Nitrophenyl.

respirators, and to assure that all such employees participate in the program and are informed of specified categories of information. OSHA considers this provision to be "necessary" within the meaning of section 6(c) of the Act. In reduce the grave danger faced by asbestos exposed employees. The absence of a training program requirement in the asbestos standard has been pointed out as one of the serious deficiencies of the current standard. OSHA believes that participation in an adequate training program is essential for the protection of employees because most protective provisions enlist the employee as an active participant. For example, many employees handling asbestos depend on effective work practices. Without training in applying these work practices, employee protection would be inadequate. Where the employee plays a more passive role in his protection such as where engineering controls are relied on, training is also essential, because the employee must know the sources of workplace asbestos contamination, and the health hazards of asbestos exposure, in order to assess his own exposure situation and to help recognize when engineering controls are not operating properly. Certainly where housekeeping plays an important role in control, instruction about housekeeping methods, for example, frequent vacuuming is essential. Perhaps most importantly, where employee protection depends upon respirator use, OSHA's experience shows that training employees in the use, fitting and limitations of respirators is critical in the effectiveness of respirator protection. Accordingly this requirement applies where airborne concentrations are reasonably expected to exceed 0.5 f/cc, even if employees use respirators to reduce breathing zone concentrations and thereby comply with the ETS.

As set forth in paragraph (k)(4) the employer must inform the employee of the health effects of asbestos exposure; the relationship between asbestos and smoking in producing lung cancer; the operations exposing employees to asbestos fibers and necessary protective steps to minimize exposure; the purpose, proper use, fitting instructions and limitations of respirators; and the contents of all the provisions of the Asbestos Standard at 29 CFR 1910.1001.

§ Paragraph (k)(5) *Respiratory protection during the ETS.* The ETS adds a new paragraph (k)(5) which includes a table which ties respirator selection to the 0.5 f/cc PEL. Under the ETS the concentration cut-offs for various kinds of respirators are

multiples of the reduced PEL of 0.5 f/cc, rather than multiples of the previous 2 f/cc permissible limit. For example, approved air purifying respirators may be used only where asbestos concentrations are not expected to exceed 5 f/cc (10 x the PEL). Before the ETS, because the PEL was 2 f/cc, such respirators could be used where asbestos concentrations would not have exceeded 20 f/cc (10 x the PEL of 2 f/cc).

Similarly, powered air purifying respirators may be used where asbestos concentrations do not exceed 100 times the PEL, which at the new level of 0.5 f/cc is 50 f/cc. Previously, employers could have used such respirators at concentrations up to 200 f/cc.

It is likely that the main impact of the reduced PEL on respirator choice will be in operations and industries where exposure levels are between 5 f/cc and 20 f/cc. Formerly, employees exposed in this range could use half-mask air purifying respirators; now they must be protected by a powered air purifying respirator or a full facepiece respirator, or they may use a supplied air respirator.

§ Paragraph (k)(6) *Warning signs during the ETS.* The ETS requires that legible signs warning of the health hazards of asbestos be displayed at locations where airborne concentrations of asbestos fibers exceed the reduced exposure limit of 0.5 f/cc. No specific legend is required signs for newly posted during the ETS. OSHA wishes to make as practicable as possible the rapid posting of signs, especially in workplaces where there has been previous non-compliance and in areas where asbestos concentrations were formerly below the 2.0 f/cc PEL.

XI. Public Participation

Interested persons are invited to submit written data, views and arguments with respect to the revisions to the asbestos standard made by the ETS. These comments must be postmarked on or before January 3, 1984 and sent to the Docket Officer, Docket No. H-033C, Occupational Safety & Health Administration, U.S. Department of Labor, 200 Constitution Avenue, NW., Room S-8212, Washington, D.C. 20210.

The data, views and arguments that are submitted will be available for public inspection and copying at the above address. All timely written submissions will be made a part of the record of the proceeding.

List of Subjects in 29 CFR Part 1910

Occupational safety and health
Asbestos, Health, Emergency temporary standard, Cancer.

Authenticity and Signature

This document was prepared under the direction of Thomas G. Anchier, Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210. Pursuant to Sections 6(b), 6(c), 6(e) and 6(g) of the Act, 29 CFR 1910.1001 is amended by adding a new paragraph (l) as set forth below.

(Etsa 6(b), 6(c), 6(e) and 6(g). Pub. L. 91-586 94 Stat. 3333, 1980, 1981, 1982, 29 U.S.C. 655 (Etsa Sec. 307, Pub. L. 91-584, 93 Stat. 65 (40 U.S.C. 333); 29 CFR Part 1911, Secretary of Labor's Order No. 9-83 (45 FR 25736))

Signed at Washington, D.C. the 2nd day November 1983

Thomas G. Anchier,
Assistant Secretary of Labor.

PART 1910—(AMENDED)

Section 1910.1001 of Part 1910 of Title 29 of the Code of Federal Regulations is hereby amended by adding a new paragraph (l) reading as follows:

§ 1910.1001 *Asbestos.*

(l) *Emergency temporary standard effective November 4, 1983.*—(1) *Scope.* This emergency temporary standard is issued pursuant to section 6(c) of the Act and applies to all workplaces where employees may be exposed to asbestos in all industries covered by the Act, including general industry, construction and maritime. Except to the extent modified by this emergency temporary standard all provisions of § 1910.1001 remain in effect.

(2) *Permissible levels of exposure.* The 8-hour time-weighted average airborne concentration of asbestos fibers to which any employee may be exposed shall not exceed one-half (0.5) fiber, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(3) *Methods of compliance with the emergency temporary standard.* Notwithstanding any other requirement of this section, compliance with the reduced exposure limit of 0.5 f/cc shall be achieved by any feasible combination of engineering controls, work practices, and personal protective equipment and devices.

(4) *Employee information and training.*—(i) As soon as possible, but not later than thirty (30) days from the effective date of this emergency temporary standard, the employer shall institute a training program for all employees exposed to airborne concentrations of asbestos in excess of

0.5 f/cc, without regard to the use of respirators and shall assure their participation in the program during the effective period of this emergency temporary standard.

(ii) The employer shall assure that each such employee is informed of the following:

(A) The health effects associated with asbestos exposure;

(B) The relationship between asbestos and smoking in producing lung cancer;

(C) The nature of operations which could result in exposure to asbestos and necessary protective steps to minimize exposure including, as applicable, engineering controls, work practices, respirators, housekeeping and protective clothing;

(D) The purpose, proper use, fitting instructions and limitations of respirators permitted by the standard; and

(E) A review of all the provisions contained in 1910.1001.

(5) *Respiratory protection during the ETS.* Notwithstanding any other requirement of this section, where respirators are used to achieve the permissible exposure limit of 0.5 f/cc they shall be selected according to Table 1.

(6) *Warning signs during the ETS.* In addition to the requirements of

paragraph (g)(1) of this section, legible signs warning of the health hazards of asbestos shall be provided and

displayed at each location where airborne concentrations of asbestos fibers may exceed 0.5 f/cc.

TABLE 1

Respiratory Protection

For Airborne Concentrations of Asbestos

Airborne Concentration of Asbestos (TMA)	Required Respirator ¹
Not in excess of 5 f/cc (10 x PEL)	Reusable or single use air purifying respirator
Not in excess of 50 f/cc (100 x PEL)	Full facepiece air purifying respirator, or a powered air purifying respirator
Greater than 50 f/cc	A type "C" continuous flow or pressure demand, supplied air respirator.

¹ Respirators specified for high concentrations may be used at lower concentrations of asbestos.

(Secs 6(b), 6(c), 6(e) and 8(g) Pub. L. 91-596, 94 Stat. 1583, 1596, 1599, 1600; 29 U.S.C. 653, 657; Sec. 157, Pub. L. 91-64, 83 Stat. 95 (40

U.S.C. 333); 29 CFR Part 1911, Secretary of Labor's Order No. 9-83 (48 FR 33736))
(FR Doc. 83-20072 Filed 11-3-83; 1:45 pm)

ASBESTOS - EFFECTS OF EXPOSURE

"Asbestos" is the name for a family of minerals which occur naturally as masses of fibers. These fibers have a tendency to break easily into a dust of tiny particles that can float in the air, stick to clothes and may be easily inhaled or swallowed.

Exposure

Asbestos fibers may be present to a significant extent in some indoor environments. Most of the concern in recent years has centered on schools and offices, where asbestos was sprayed on the steel beams, columns and ceilings as an insulating and fire-retardant layer. If the material is exposed, maintenance and repair work, as well as general human activity, can dislodge some of the fibers and render it airborne. Continuous exposure can also result from resuspension of loose fibers by moving airstreams directed along exposed surfaces.

Incidence of Disease

It is estimated that 1.5 million workers have potential exposure to asbestos. However, the possibility of heavy exposure to asbestos among telephone company employees is minimal. A casual relationship between work exposure and diseases associated with asbestos has never been made. Exposure to asbestos may increase risk of four serious diseases:

1. Asbestosis - A chronic lung ailment which can produce shortness of breath and lung damage. The disease results from inhalation of asbestos dust.
2. Lung cancer - There is a close association between asbestos exposure and increased occurrence of lung cancer.
3. Mesothelioma - A cancer that involves the thin membrane lining the chest and abdomen. Most mesotheliomas can be traced to prior asbestos exposure.
4. Other cancers - Several studies have indicated a link between asbestos exposure and increased occurrence of cancers of the esophagus, stomach, colon and rectum.

Asbestosis

There are dose-response relationships for X-ray and physiologic evidence of diffuse pulmonary fibrosis (asbestosis). In most populations exposed to dust over the past 30 to 40 years, a minimum exposure of 10 years was usually required for development of asbestosis. Little is known concerning host factors, although they might explain why many heavily exposed workers do not develop lung fibrosis. It seems the overall prevalence of asbestosis varies with the source of exposure and is probably influenced by fiber type, but the prevalence is not known for the asbestos industry as a whole. (1)

Lung Cancer

The malignant effects of asbestos exposure also appear to be dose-related. The frequency of lung cancer is associated with minimum lapse to 15-20 years between first exposure and development of disease. Some studies have shown that lung cancer has caused up to 25 percent of all deaths in workers heavily exposed to asbestos in the past, compared to a lifetime lung cancer risk of 4 to 5 percent in the general population. (2)

In these same studies of death records of asbestos workers, some 7 percent died of asbestosis. Seven to 10 percent of such workers died of mesothelioma, and 4 percent of these asbestos - exposed individuals died of gastrointestinal cancers (stomach, colon, esophagus), compared to 2 percent in the general population. While asbestos by itself can increase the risk of lung cancer, asbestos and cigarette smoking together increase lung cancer risk five-fold over the already high risk due to smoking alone. Asbestos workers who also were cigarette smokers have been 30 to 90 times more likely to develop lung cancer than nonexposed, nonsmokers. There is also some evidence that quitting smoking will reduce risk among asbestos exposed workers, perhaps as much as half.

Mesotheliomas

Both pleural and peritoneal mesotheliomas, are also associated with asbestos exposure. In contrast to lung cancer there does not appear to be any association with smoking. Relatively short-term exposure of 1 to 2 years or less occurring some 20 to 25 years in the past have been associated with the development of mesotheliomas. Approximately 80 percent of mesotheliomas may be associated with asbestos exposure.

Signs and Symptoms of Asbestosis

The symptoms of an asbestos-related disease may not become apparent for years. If you have any of these symptoms, schedule an examination as soon as possible:

- Shortness of breath.
- A cough or change in cough pattern.
- Blood or sputum.
- Pain in the chest or abdomen.
- Difficulty in swallowing or prolonged hoarseness.
- Rapid large weight loss.

How Workers Can Protect Themselves

Use all protective equipment, work practices and safety procedures your employer provides. If you smoke cigarettes, stop. If you have any questions, check with the Safety Department or Medical Department.

REFERENCES

1. NIH Publication No. 81-2019 Oct. 1980
HE 20.3202: R 31/8
2. NIH Publication No. 78-1594 DHEW - NCI
3. Harrison Principles of Internal Medicine

OCCUPATIONAL SAFETY AND HEALTH STANDARDS SUBPART I — PERSONAL PROTECTIVE EQUIPMENT

(Code of Federal Regulations, Title 29, Chapter XVII, Part 1910, 36 FR 10466,
May 29, 1971; amended at 36 FR 15105, August 13, 1971; 37 FR 22231, October 18,
1972; republished at 39 FR 23502, June 27, 1974; standard provision revoked at 43 FR
49726, October 24, 1978)

Subpart I—Personal Protective Equipment

§ 1910.132 General requirements.

(a) **Application.** Protective equipment, including personal protective equipment for eyes, face, head, and extremities, 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 to 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.

(c) **Design.** All personal protective equipment shall be of safe design and construction for the work to be performed.

§ 1910.133 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 environmental 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.

(2) Protectors shall meet the following minimum requirements:

(i) They shall provide adequate protection against the particular hazards for which they are designed.

(ii) They shall be reasonably comfortable when worn under the designated conditions.

(iii) They shall fit snugly and shall not unduly interfere with the movements of the wearer.

(iv) They shall be durable.

(v) They shall be capable of being disinfected.

(vi) They shall be easily cleanable.

(vii) Protectors should 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 or spectacles of one of the following types:

(i) Spectacles whose protective lenses provide optical correction.

(ii) Goggles that can be worn over corrective spectacles without disturbing the adjustment of the spectacles.

(iii) 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.

§ 1910.134 Respiratory protection.

(a) **Feasible practice.** (1) In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mist, 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 employer 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

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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 Z88.3-1969.

(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. Compressor 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 over-heating shall be installed 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 subparagraph (1) of this paragraph.

(3) Air line couplings shall be incompatible with outlets for other gas systems to prevent inadvertent servicing of air line respirators with nonrespirable 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, 1943. Air, Compressed for Breathing Purposes; or Interim Federal Specification GG-B-00675b, April 27, 1945. 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.

(i) 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.

(ii) 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.

(iii) 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 face-piece-to-face seal, wear it in normal air for a long familiarity period, and, finally, to wear it in a test atmosphere.

(i) 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 good face seal. Such conditions 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 seriously affect the fit of a facepiece. The worker's diligence in observing these factors shall be evaluated by periodic check. 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.

(ii) 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 smiling 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 atmospheres 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.

(iii) 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

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PERSONAL PROTECTIVE EQUIPMENT

more of respirators shall be adjusted to the type of plant, working conditions, and hazards involved, and shall include the following basic services:

- (i) Inspection for defects (including a leak check).
- (ii) Cleaning and disinfecting.
- (iii) Repair.
- (iv) Storage.

Equipment shall be properly maintained to retain its original effectiveness.

(2) (i) 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.

(ii) Self-contained breathing apparatus shall be inspected monthly. Air and oxygen cylinders shall be fully charged according to the manufacturer's instructions. It shall be determined that the regulator and warning devices function properly.

(iii) 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.

(iv) 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) (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 _____"

(Name of atmospheric contaminant)

(iii) [Revoked]

(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 diethyl phthalate (DEHP) 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 18 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 1-1. All colors used shall be such that they are clearly identifiable by the user and clearly distinguishable from one another. The color coding used shall offer a high degree of resistance to chipping, scaling, peeling, blistering, fading, and the effects of the ordinary atmosphere to which they may be exposed under normal conditions of storage and use. Appropriately colored pressure sensitive tape may be used for the stripes.

[Section 1910.134(g)(5)(ii) revoked at 43 FR 49726 October 24, 1978, effective November 24, 1978]

TABLE 1-1

Atmospheric contaminants to be protected against	Colors assigned*
Acid gases.....	White.
Hydrocyanic acid gas.....	White with 1/4-inch green stripe completely around the canister near the bottom.
Chlorine gas.....	White with 1/4-inch yellow stripe completely around the canister near the bottom.
Organic vapors.....	Black.
Ammonia gas.....	Green.
Acid gases and ammonia gas.....	Green with 1/4-inch white stripe completely around the canister near the bottom.
Carbon monoxide.....	Brown.
Acid gases and organic vapors.....	Yellow.
Hydrocyanic acid gas and chlorophosgene vapor.....	Yellow with 1/4-inch blue stripe completely around the canister near the bottom.
Acid gases, organic vapors, and ammonia gas.....	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 1/4-inch gray stripe completely around the canister near the top.
All of the above atmospheric contaminants.....	Red with 1/4-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.

Notes: 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.

[Sec. 1910.134(g)(5)]

ASBESTOS

REGULATORY ACTIONS

- 1972 - The U.S. banned use in clothing.
- 1973 - The U.S. banned use of spray-applied asbestos in buildings for insulating or fireproofing purposes.
- 1977 - The U.S. banned use in wallboard patching compounds and gas heaters.
- 1978 - The U.S. broadened ban to include spraying asbestos-containing materials to include decorative applications.
- 1979 - The use in electric hair dryers voluntarily withdrawn by manufacturers.

SNET BUILDINGS

SPRAYED - ON - ASBESTOS

Owned Buildings

1. Hartford - 5 West Service Road
 - Boiler room
 - Hung ceilings
2. Meriden - 1441 North Colony Road
 - Boiler room
 - Hung ceilings - Administrative offices - COIN
3. New Haven - 310 Orange Street (new addition)
 - Basement - York Room Ceiling

Leased

1. New Haven - 900 Chapel Street
 - Hung ceilings
 - Ceilings - Telephone Equipment Rooms
2. Westport - 55 West State Street
 - Hung ceilings

MEDICAL ASPECTS OF ASBESTOS

As was shown in the films, exposure to asbestos may increase the risk of 4 serious diseases:

1. Asbestosis
2. Lung Cancer
3. Mesothelioma
4. Other Cancers

Asbestosis is a chronic disease of the lungs. A minimum of 10 years of exposure is usually required for disease to develop. The type of asbestos fiber and the size is important, also the more exposure the greater the risk of developing disease. Mesotheliomas are tumors associated with asbestos exposure that affect the lining of the lungs or the abdomen. Development of this disease can occur from only 1-2 years or less of exposure, but the illness does not show up until 20-25 years after the exposure. There is no association with smoking.

Lung cancer risk is increased in the asbestos-exposed worker. There is a minimum of 15-20 years between first exposure and development of disease. If you work with asbestos and smoke you increase your risk 5 times more than if you just smoke. An exposed smoker is 30-90 times more likely to develop lung cancer than nonexposed, nonsmokers.

Studies also indicate a link between asbestos exposure and increased occurrence of cancers of esophagus, stomach, colon, and rectum.

The major methods of prevention of any of the above illnesses are:

1. To use all protective equipment, work practices, and safety procedures provided;
2. If you smoke cigarettes, stop;
3. Do not eat, drink, or smoke on the job where asbestos is present.

The Medical Department Surveillance Program provides for monitoring employees exposed to asbestos.

The components of the screening are chest X-rays, lung function test, medical questionnaire, and a review of all the above medical data.

Baseline screenings are offered for employees who may have or recently had exposure at work.

Termination screenings are done on employees in the program at the time they leave SNET.

Tests are also done anytime that an asbestos-related illness is suspected. The medical records of all individuals in the program are retained for 20 years following their termination from SNET.

If you have any questions related to the program, please feel free to call your local nurse.

FACTORS AFFECTING EXTENT OF ASBESTOS EXPOSURE

1. Percent asbestos
2. Friability of sprayed-on material
3. Proximity of work to material
4. Duration of work
5. Use of hung ceiling as return air plenum
6. Type of work being performed
7. Other work operations in area

DEPARTMENTAL ASBESTOS COORDINATORS

METHODS

CUSTOMER SERVICES

BIR/PBX

J. F. Shea
NH 497-5630

Public Services (Coin)

R. H. Talbot
Meriden 238-5647

Customer Fac. Maintenance
I/M & Cable Maintenance

L. M. Larrabee
NH 497-6716

DISTRIBUTION SERVICES

Dist. Fac. Provisioning
Const./Cable Splicing

H. E. Gilreath
NH 771-5900

D. Keating
NH 771-5981

SONECOR

E. F. Cremers
NH 497-2013

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