



**Exempt Action
Final Regulation
Agency Background Document**

Agency name	Virginia Department of Labor and Industry/Safety and Health Codes Board
Virginia Administrative Code (VAC) citation(s)	16 VAC25-85-1904.10 16 VAC25-90-1910.6 16 VAC25-90-1910.1001 16 VAC25-90-1910.1018 16 VAC25-90-1910.1027 16 VAC25-90-1910.1029 16 VAC25-90-1910.1043 16 VAC25-90-1910.1045 16 VAC25-90-1910.1048 16 VAC25-90-1910.1052 16 VAC25-100-1915.5 16 VAC25-100-1915.80 16 VAC25-100-1915.1001 16 VAC25-175-1926.6 16 VAC 25-175-1926.50 16 VAC25-175-1926.55 16 VAC25-175.1926.64 16 VAC25-175.1926.104 16 VAC25-175.1926.200 16 VAC25-175.1926.201 16 VAC25-175.1926.203 16 VAC25-175.1926.250 16 VAC25-175.1926.800 16 VAC25-175.1926.1000 16 VAC25-175.1926.1001 16 VAC25-175.1926.1002 16 VAC25-175-1926.1003 16 VAC25-175-1926.1101 16 VAC25-175.1926.1127 16 VAC25-175.1926.1129

	16 VAC 25-60-130.D
Regulation title(s)	Standards Improvement Project
Action title	Standards Improvement Project—Phase IV, Final Rule
Final agency action date	September 17, 2019
Date this document prepared	September 18, 2019

While a regulatory action may be exempt from executive branch review pursuant to § 2.2-4002 or § 2.2-4006 of the *Code of Virginia*, the agency is still encouraged to provide information to the public on the Regulatory Town Hall using this form. However, the agency may still be required to comply with the Virginia Register Act, Executive Order 14 (as amended, July 16, 2018), the Regulations for Filing and Publishing Agency Regulations (1 VAC7-10), and the *Virginia Register Form, Style, and Procedure Manual for Publication of Virginia Regulations*.

Brief Summary

Please provide a brief summary (preferably no more than 2 or 3 paragraphs) of this regulatory change (i.e., new regulation, amendments to an existing regulation, or repeal of an existing regulation). Alert the reader to all substantive matters. If applicable, generally describe the existing regulation.

This action is necessary to meet the requirements of federal law and is therefore exempt from the requirements of the Administrative Process Act (APA) under §2.2-4006.A.4(c).

OSHA is making 14 revisions to existing standards in the recordkeeping, general industry, maritime and construction standards. The purpose of the Standards Improvement Project (SIP) is to remove or revise outdated, duplicative, unnecessary, and inconsistent requirements in OSHA’s safety and health standards, which will permit better compliance by employers and reduce costs and paperwork burdens when possible, without reducing employee protections.

The revisions include an update to the consensus standard incorporated by reference for signs and devices used to protect workers near automobile traffic, a revision to the requirements for roll-over protective structures to comply with current consensus standards, updates for storage of digital x-rays, and the method of calling emergency services to allow for use of current technology.

OSHA is also revising two standards to align with current medical practice: a reduction to the number of necessary employee X-rays and updates to requirements for pulmonary function testing. To protect employee privacy and prevent identity fraud, OSHA is also removing from the standards the requirements that employers include an employee’s social security number (SSN) on exposure monitoring, medical surveillance, and other records.

SIP-IV will:

1. Revise §1904.10(b)(6) of the Recordkeeping Regulation to assist employers to comply with requirements for recording hearing loss by adding a cross reference.

2. Make three revisions to Subpart Z of Parts 1910, 1915 and 1926—Toxic and Hazardous Substances, Asbestos in §1910.1001, Inorganic Arsenic in 1910.1018, Cadmium in §1910.27, Coke Oven Emissions in §1910.29, Acrylonitrile in §1910.1001, Asbestos in §1915.1001, Asbestos in §1926.1101, Cadmium in §1926.1127:
- Revision 1 - Remove the requirement in standards that employers provide periodic chest X-rays (CXR) to screen for lung cancer. The final rule removes the requirement from the following standards:
 - §1910.1018, Inorganic Arsenic,
 - §1910.1029, Coke Oven Emissions, and
 - §1910.1045, Acrylonitrile.

NOTE: OSHA is not removing the requirement for a baseline CXR in these, or any other, standards. OSHA is also not removing the CXR requirements in standards where CXR is used for purposes other than screening for lung cancer.
 - Revision 2 - Allow employers to use digital radiography and other reasonably-sized standard films for X-rays. The final rule allows, but does not require, use of digital “CXRs” in the medical surveillance provisions of the following standards:
 - Inorganic Arsenic (§1910.1018),
 - Coke Oven Emissions (§1910.1029),
 - Acrylonitrile (§1910.1045),
 - Asbestos (§§1910.1001, 1915.1001, 1926.1101), and
 - Cadmium (§§1910.1027 and 1926.1127).

NOTE: In addition, OSHA is allowing other reasonably-sized standard X-ray films, such as the 16 inch by 17 inch size, to be used in addition to the 14 inch by 17 inch film specified in some standards.
 - Revision 3 - update terminology and references to the International Labour Organization (ILO) guidelines included in its Asbestos Standards (81 FR 68504, 68507–68511):
 - Replace “roentgenogram” with “X-ray” to reflect current terminology
 - Eliminate references to semi-annual exams for certain employees in the Coke Oven Emissions appendices (§1910.1029, app. A(VI) and app. B(II)(A)), as these exams were eliminated in the second SIP rulemaking (70 FR 1112).
 - In appendix E of each of its three Asbestos Standards, OSHA is updating terminology and clarifying that classification must be in accordance with the ILO classification system according to the Guidelines for the use of the ILO International Classification of Radiographs of Pneumoconioses

(revised edition 2011).

- OSHA is also further specifying that only ILO standard digital chest radiographic images are to be used to classify digital CXRs, and that digital CXRs are not to be printed out as hard copies and then classified.
3. Make four revisions to update lung function testing requirements found in Subpart Z of Part 1910—Toxic and Hazardous Substances, Cotton Dust Standard in §1910.1043 including:
 - (h)(2)(iii) to require an evaluation of FEV1, FVC, and FEV1/FVC against the LLN and percent predicted values to fully characterize possible pulmonary impairment in exposed workers, which is consistent with generally accepted current practices and supported by NIOSH.
 - §1910.1043(n)(1). Since OSHA in this rulemaking is removing the old Knudson values from appendix C and reserving the appendix for future use, OSHA is modifying § 1910.1043(n)(1) to now specify that only appendices B and D are mandatory.
 - §1910.1043, appendix B—II, B, “Occupational History Table.” The table’s column titled “Tenure of Employment” contains boxes in which dates of employment are entered. The agency is changing the column’s two sub-headers to read as follows: “FROM (year)” and “TO (year.)”
 - §1910.1043, appendix D, sets standards for spirometric measurements of pulmonary function. OSHA is making changes to appendix D, to reflect the most recent spirometry recommendations from ATS/ ERS (Miller et al., 2005).
 4. Remove the term “feral cat” from the definition section of §1915.8.
 5. Revise §1926.50 to update the 911 service posting requirements consistent with the current status of land-line and wireless telephone technologies
 6. Make several minor clarifications to §1926.55—Changing the phrase “threshold limit values” (TLV) to “permissible exposure limits” (PELs), removing confusing phrases, fixing grammatical errors, etc.
 7. Replace the entire 31 pages of regulatory text for the Process Safety Management of Highly Hazardous Chemicals (PSM) Standard for Construction at §1926.64 with a cross reference to the identical general industry standard at §1910.119
 8. Revise the minimum breaking strength in the safety belts, lifelines, and lanyards standard, §1926.104(c) from 5,400 to 5,000 pounds to conform with the breaking-strength requirements in the Fall Protection Standard at §1926.502(d)(9).
 9. Revise Subpart G of Part 1926:
 - Revise Subpart G to update the incorporation by reference of Part 6 of the MUTCD to the November 4, 2009 MUTCD (“2009 Edition”), including Revision 1

and Revision 2, both dated May 2012. This version of the MUTCD aims to expedite traffic, promote uniformity, improve safety, and incorporate technology advances in traffic control device application (74 FR 66730, 77 FR 28455, and 77 FR 28460).

- Revise §§1926.200 through 1926.203 in Subpart G to clarify their provisions and eliminate duplication.
- The revisions delete the references in §§1926.200(g)(2) and 1926.201(a) to the 1988 Edition and Millennium Edition of the MUTCD and insert references to the 2009 Edition. The revisions also revise the regulatory text of paragraphs (g)(1) and (2) of § 1926.200 to eliminate confusion regarding OSHA's interpretation of the existing text. OSHA is deleting § 1926.202 because it duplicates the requirements in the revisions to §§ 1926.200(g) and 1926.203 because the revisions make §1926.202 unnecessary.

NOTE: Revise 16VAC25-60-130.D to update the reference to Part 6 of the MUTCD to the November 4, 2009 MUTCD ("2009 Edition"), including Revision 1 and Revision 2, both dated May 2012, as follows:

“D. The employer shall comply with the Virginia Department of Transportation (VDOT) Work Area Protection Manual in lieu of the federal Manual on Uniform Traffic Control Devices (Part VI of the MUTCD, ~~1988~~ 2009 Edition, Revision ~~3~~ 1 dated May 2012 and Revision 2 dated May 2012, or Part VI of the MUTCD, Millennium Edition - referenced in 16VAC25-175-1926.200 through 16VAC25-175-1926.~~202~~201) when working under a contract for construction, repair, or maintenance between the employer and the Commonwealth; agencies, authorities, or instrumentalities of the Commonwealth; or any political subdivision or public body of the Commonwealth when such contract stipulates employer compliance with the VDOT Work Area Protection Manual in effect at the time of contractual agreement.”

10. Revise §1926.250(a)(2) to exclude all single-family residential structures and wood-framed multifamily residential structures from the requirement of posting maximum safe load limits of floors in storage areas.
11. Revise Subpart S of Part 1926 to update §1926.800(k)(10)(ii), that mobile diesel powered equipment used in “other than gassy operations” underground be approved by the Mine Safety and Health Administration (MSHA) in accordance with the provisions of 30 CFR Part 32—MSHA revoked 30 CFR Part 32 and replaced it with 30 CFR Part 7, Subpart E and 30 CFR 75.1909. The final rule requires compliance only with §57.5067, pertaining to underground metal and nonmetal mines, and not §§75.1909, 75.1910, and 75.1911(a) through (i), pertaining to underground coal mines.
12. Revise Subpart W of Part 1926 by removing the provisions that specify the test procedures and performance requirements found in §§1926.1000, 1926.1001,

1926.1002, and 1926.1003, and replacing those provisions with references to the underlying consensus standards from which they were derived. (ISO 3471:2008, ISO 5700:2013, ISO 27850:2013.)

13. Revise Subpart Z of Part 1926 by deleting §1926.1129 entirely. §1926.1129 regulated exposure to Coke Oven Emissions in Construction; coke oven work is only found in general industry.
14. Make multiple revisions to Paragraphs and Appendices in Parts 1910, 1915, and 1926 to remove Social Security Number Collection Requirements.

Mandate and Impetus

Please identify the mandate for this regulatory change, and any other impetus that specifically prompted its initiation (e.g., new or modified mandate, internal staff review, petition for rulemaking, periodic review, board decision, etc.). “Mandate” is defined as “a directive from the General Assembly, the federal government, or a court that requires that a regulation be promulgated, amended, or repealed in whole or part.”

Under 29 CFR 1953.5(a), where a Federal program change is a new permanent standard, or a more stringent amendment to an existing permanent standard, the State shall promulgate a State standard adopting such new Federal standard, or more stringent amendment to an existing Federal standard, or an at least as effective equivalent thereof, within six months of the date of promulgation of the new Federal standard or more stringent amendment.

Statement of Final Agency Action

Please provide a statement of the final action taken by the agency including: 1) the date the action was taken; 2) the name of the agency taking the action; and 3) the title of the regulation.

On September 17, 2019, the Safety and Health Codes Board adopted Phase IV of federal OSHA’s final rule for the Standards Improvement Project, with an effective date of November 15, 2019.

To access the Standards Improvement Project—Phase IV, Final Rule, please click on the link below:

<https://www.govinfo.gov/content/pkg/FR-2019-05-14/pdf/2019-07902.pdf>

Standards Improvement Project - Phase IV; Final Rule

As Adopted by the

Safety and Health Codes Board

Date: September 17, 2019



VIRGINIA OCCUPATIONAL SAFETY AND HEALTH PROGRAM

VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

16 VAC 25-60-130.D	16 VAC25-175-1926.55
16 VAC25-85-1904.10	16 VAC25-175.1926.64
16 VAC25-90-1910.6	16 VAC25-175.1926.104
16 VAC25-90-1910.1001	16 VAC25-175.1926.200
16 VAC25-90-1910.1018	16 VAC25-175.1926.201
16 VAC25-90-1910.1027	16 VAC25-175.1926.202
16 VAC25-90-1910.1029	16 VAC25-175.1926.203
16 VAC25-90-1910.1043	16 VAC25-175.1926.250
16 VAC25-90-1910.1045	16 VAC25-175.1926.800
16 VAC25-90-1910.1048	16 VAC25-175.1926.1000
16 VAC25-90-1910.1052	16 VAC25-175.1926.1001
16 VAC25-100-1915.5	16 VAC25-175.1926.1002
16 VAC25-100-1915.80	16 VAC25-175-1926.1003
16 VAC25-100-1915.1001	16 VAC25-175-1926.1101
16 VAC25-175-1926.6	16 VAC25-175.1926.1127
16 VAC 25-175-1926.50	16 VAC25-175.1926.1129

When the regulations, as set forth in the Final Rule for Standards Improvement Project – Phase IV, are applied to the Commissioner of the Department of Labor and Industry and/or to Virginia employers, the following federal terms shall be considered to read as below:

Federal Terms

VOSH Equivalent

29 CFR

VOSH Standard

Assistant Secretary

Commissioner of Labor and
Industry

Agency

Department

May 14, 2019

November 15, 2019

subsequently recommended that OSHA publish the proposal.

List of Subjects

29 CFR Part 1904

Recordkeeping,

29 CFR Part 1910

Chest X-ray requirements, Incorporation by reference, Pulmonary—function testing, Social Security numbers on records.

29 CFR Part 1915

Chest X-ray requirements, Incorporation by reference, Sanitation, Social Security numbers on records.

29 CFR Part 1926

Airborne contaminants, Chest X-ray requirements, Coke oven emissions, Diesel equipment, Emergency services, Incorporation by reference, Lanyards, Load limits, Manual on Uniform Traffic Control Devices (MUCTD), Personal protective equipment (PPE), Process safety management (PSM), Roll-over protective structures (ROPS), Social Security numbers on records.

Authority and Signature

Loren Sweatt, Acting Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, authorized the preparation of this document pursuant to Sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657),

29 CFR part 1911, and Secretary's Order 1–2012 (77 FR 3912).

Signed at Washington, DC, on April 16, 2019.

Loren Sweatt,

Acting Assistant Secretary of Labor for Occupational Safety and Health.

Amendments to Standards

For the reasons stated in the preamble of this final rule, the Occupational Safety and Health Administration amends 29 CFR parts 1904, 1910, 1915, and 1926 as follows:

PART 1904—RECORDING AND REPORTING OCCUPATIONAL INJURIES AND ILLNESSES

- 1. Revise the authority citation for part 1904 to read as follows:

Authority: 29 U.S.C. 657, 658, 660, 666, 669, 673, Secretary of Labor's Orders No. 3–2000 (65 FR 50017) and 1–2012 (77 FR 3912), as applicable, and 5 U.S.C. 553.

Subpart C—Recordkeeping Forms and Recording Criteria

- 2. Revise paragraph (b)(6) of § 1904.10 to read as follows:

§ 1904.10 Recording criteria for cases involving occupational hearing loss.

* * * * *

(b) * * *
(6) *If a physician or other licensed health care professional determines the hearing loss is not work-related, do I*

still need to record the case? If a physician or other licensed health care professional determines, following the rules set out in § 1904.5, that the hearing loss is not work-related or that occupational noise exposure did not significantly aggravate the hearing loss, you do not have to consider the case work-related or record the case on the OSHA 300 Log.

* * * * *

PART 1910—OCCUPATIONAL SAFETY AND HEALTH STANDARDS

Subpart A—General

- 3. The authority citation for part 1910, subpart A, continues to read as follows:

Authority: 29 U.S.C. 653, 655, 657; Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017), 5–2002 (67 FR 65008), 5–2007 (72 FR 31159), 4–2010 (75 FR 55355), or 1–2012 (77 FR 3912), as applicable.

Sections 1910.6, 1910.7, 1910.8, and 1910.9 also issued under 29 CFR 1911. Section 1910.7(f) also issued under 31 U.S.C. 9701, 29 U.S.C. 9a, 5 U.S.C. 553; Public Law 106–113 (113 Stat. 1501A–222); Pub. L. 11–8 and 111–317; and OMB Circular A–25 (dated July 8, 1993) (58 FR 38142, July 15, 1993).

- 4. Amend § 1910.6 by:
 - a. Revising paragraphs (a)(2) through (4).
 - b. Redesignating paragraphs (i) through (z) as follows:

Old paragraph	New paragraph
(i) through (o)	(j) through (p).
(p) through (x)	(s) through (aa).
(y)	(r).
(z)	(bb).

- c. Adding new paragraphs (i) and (q). The revisions and additions read as follows:

§ 1910.6 Incorporation by reference.

(a) * * *

(2) Any changes in the standards incorporated by reference in this part and an official historic file of such changes are available for inspection in the Docket Office at the national office of the Occupational Safety and Health Administration, U.S. Department of Labor, Washington, DC 20210; telephone: 202–693–2350 (TTY number: 877–889–5627).

(3) The standards listed in this section are incorporated by reference into this part with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that

specified in this section, OSHA must publish a document in the **Federal Register** and the material must be available to the public.

(4) Copies of standards listed in this section and issued by private standards organizations are available for purchase from the issuing organizations at the addresses or through the other contact information listed below for these private standards organizations. In addition, these standards are available for inspection at any Regional Office of the Occupational Safety and Health Administration (OSHA), or at the OSHA Docket Office, U.S. Department of Labor, 200 Constitution Avenue NW, Room N–3508, Washington, DC 20210; telephone: 202–693–2350 (TTY number: 877–889–5627). They are also available for inspection at the National Archives and Records Administration (NARA).

For information on the availability of these standards at NARA, telephone: 202–741–6030, or go to www.archives.gov/federal-register/cfr/ibr-locations.html.

* * * * *

(i) The following material is available at the American Thoracic Society (ATS), 25 Broadway, 18th Floor New York, NY 10004; website: www.atsjournals.org/.

(1) Spirometric Reference Values from a Sample of the General U.S. Population. Hankinson JL, Odencrantz JR, Fedan KB. American Journal of Respiratory and Critical Care Medicine, 159:179–187, 1999, IBR approved for § 1910.1043(h).

(2) [Reserved]

* * * * *

(q) The following material is available from the International Labour Organization (ILO), 4 route des

Morillons, CH-1211 Genève 22, Switzerland; telephone: +41 (0) 22 799 6111; fax: +41 (0) 22 798 8685; website: www.ilo.org/.

(1) Guidelines for the Use of the ILO International Classification of Radiographs of Pneumoconioses, Revised Edition 2011, Occupational safety and health series; 22 (Rev.2011), IBR approved for § 1910.1001.

(2) [Reserved]

* * * * *

Subpart Z—Toxic and Hazardous Substances

■ 5. Revise the authority citation for part 1910, subpart Z, to read as follows:

Authority: 29 U.S.C. 653, 655, 657; Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), 6-96 (62 FR 111), 3-2000 (65 FR 50017), or 5-2007 (72 FR 31159), 4-2010 (75 FR 55355) or 1-2012 (77 FR 3912), as applicable; and 29 CFR part 1911.

All of subpart Z issued under 29 U.S.C. 655(b), except those substances that have exposure limits listed in Tables Z-1, Z-2, and Z-3 of § 1910.1000. The latter were issued under 29 U.S.C. 655(a).

Section 1910.1000, Tables Z-1, Z-2 and Z-3 also issued under 5 U.S.C. 553, but not under 29 CFR part 1911 except for the arsenic (organic compounds), benzene, cotton dust, and chromium (VI) listings.

Section 1910.1001 also issued under 40 U.S.C. 3704 and 5 U.S.C. 553.

Section 1910.1002 also issued under 5 U.S.C. 553, but not under 29 U.S.C. 655 or 29 CFR part 1911.

Sections 1910.1018, 1910.1029, and 1910.1200 also issued under 29 U.S.C. 653.

Section 1910.1030 also issued under Public Law 106-430, 114 Stat. 1901.

Section 1910.1201 also issued under 49 U.S.C. 1801-1819 and 5 U.S.C. 553.

■ 6. Amend § 1910.1001 by revising paragraphs (1)(2)(ii) and (1)(3)(ii), the heading to Table 1, and appendices D and E and H, sections III and IV, to read as follows:

§ 1910.1001 Asbestos.

* * * * *

(1) * * *

(2) * * *

(ii) Such examination shall include, as a minimum, a medical and work history; a complete physical examination of all systems with emphasis on the respiratory system, the cardiovascular system and digestive

tract; completion of the respiratory disease standardized questionnaire in appendix D to this section, part 1; a 14-by 17-inch or other reasonably-sized standard film or digital posterior-anterior chest X-ray; pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second (FEV₁); and any additional tests deemed appropriate by the examining physician. Classification of all chest X-rays shall be conducted in accordance with appendix E to this section.

(3) * * *

(ii) The scope of the medical examination shall be in conformance with the protocol established in paragraph (1)(2)(ii) of this section, except that the frequency of chest X-rays shall be conducted in accordance with Table 1 to this section, and the abbreviated standardized questionnaire contained in part 2 of appendix D to this section shall be administered to the employee.

Table 1 to § 1910.1001—Frequency of Chest X-ray

* * * * *

BILLING CODE 4510-26-P

APPENDIX D TO § 1910.1001—MEDICAL QUESTIONNAIRES; MANDATORY

This mandatory appendix contains the medical questionnaires that must be administered to all employees who are exposed to asbestos above the permissible exposure limit, and who will therefore be included in their employer's medical surveillance program. Part 1 of this appendix contains the Initial Medical Questionnaire, which must be obtained for all new hires who will be covered by the medical surveillance requirements. Part 2 includes the abbreviated Periodical Medical Questionnaire, which must be administered to all employees who are provided periodic medical examinations under the medical surveillance provisions of the standard in this section.

Part 1
INITIAL MEDICAL QUESTIONNAIRE

1. NAME _____
2. CLOCK NUMBER _____
3. PRESENT OCCUPATION _____
4. PLANT _____
5. ADDRESS _____
6. _____
(Zip Code)
7. TELEPHONE NUMBER _____
8. INTERVIEWER _____
9. DATE _____
10. Date of Birth _____
 Month Day Year

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11. Place of Birth _____

12. Sex 1. Male ___
2. Female ___

13. What is your marital status? 1. Single ___ 4. Separated/
2. Married ___ Divorced ___
3. Widowed ___

14. Race (Check all that apply)
1. White ___ 4. Hispanic or Latino ___
2. Black or African American ___ 5. American Indian or
Alaska Native ___
3. Asian ___ 6. Native Hawaiian or
Other Pacific Islander ___

15. What is the highest grade completed in school? _____
(For example 12 years is completion of high school)

OCCUPATIONAL HISTORY

16A. Have you ever worked full time (30 hours per week or more) for 6 months or more? 1. Yes ___ 2. No ___

IF YES TO 16A:

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

Specify job/industry _____ Total Years Worked ___

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

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

Specify job/industry _____ Total Years Worked ___

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

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

1. Job occupation _____
2. Number of years employed in this occupation _____
3. Position/job title _____
4. Business, field or industry _____

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

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

17. <u>PAST MEDICAL HISTORY</u>	YES	NO
A. Do you consider yourself to be in good health?	_____	_____
If "NO" state reason _____		
B. Have you any defect of vision?	_____	_____
If "YES" state nature of defect _____		
C. Have you any hearing defect?	_____	_____
If "YES" state nature of defect _____		

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D. Are you suffering from or have you ever suffered from:	YES	NO
a. Epilepsy (or fits, seizures, convulsions)?	_____	_____
b. Rheumatic fever?	_____	_____
c. Kidney disease?	_____	_____
d. Bladder disease?	_____	_____
e. Diabetes?	_____	_____
f. Jaundice?	_____	_____
18. <u>CHEST COLDS AND CHEST ILLNESSES</u>		
18A. If you get a cold, does it "usually" go to your chest? (Usually means more than 1/2 the time)	1. Yes ___	2. No ___
	3. Don't get colds	___
19A. During the past 3 years, have you had any chest illnesses that have kept you off work, indoors at home, or in bed?	1. Yes ___	2. No ___
IF YES TO 19A:		
B. Did you produce phlegm with any of these chest illnesses?	1. Yes ___	2. No ___
	3. Does Not Apply	___
C. In the last 3 years, how many such illnesses with (increased) phlegm did you have which lasted a week or more?	Number of illnesses ___	No such illnesses ___
20. Did you have any lung trouble before the age of 16?	1. Yes ___	2. No ___
21. Have you ever had any of the following?		
1A. Attacks of bronchitis?	1. Yes ___	2. No ___

IF YES TO 1A:

- B. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
3. Does Not Apply ___
- C. At what age was your first attack? Age in Years ___
Does Not Apply ___
- 2A. Pneumonia (include bronchopneumonia)? 1. Yes ___ 2. No ___

IF YES TO 2A:

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

IF YES TO 3A:

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

- 22A. Have you ever had chronic bronchitis? 1. Yes ___ 2. No ___

IF YES TO 22A:

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

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

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IF YES TO 23A:

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

C. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
3. Does Not Apply ___

D. At what age did it start? Age in Years ___
Does Not Apply ___

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

IF YES TO 24A:

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

C. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
3. Does Not Apply ___

D. At what age did it start? Age in Years ___
Does Not Apply ___

E. If you no longer have it, at what age did it stop? Age stopped ___
Does Not Apply ___

25. Have you ever had:

A. Any other chest illness? 1. Yes ___ 2. No ___

If yes, please specify _____

B. Any chest operations? 1. Yes ___ 2. No ___

If yes, please specify _____

C. Any chest injuries? 1. Yes ___ 2. No ___

If yes, please specify _____

26A. Has a doctor ever told you that you had heart trouble? 1. Yes ___ 2. No ___

IF YES TO 26A:

B. Have you ever had treatment for heart trouble in the past 10 years? 1. Yes ___ 2. No ___ 3. Does Not Apply ___

27A. Has a doctor told you that you had high blood pressure? 1. Yes ___ 2. No ___

IF YES TO 27A:

B. Have you had any treatment for high blood pressure (hypertension) in the past 10 years? 1. Yes ___ 2. No ___ 3. Does Not Apply ___

28. When did you last have your chest X-rayed? (Year) ___ ___ ___

29. Where did you last have your chest X-rayed (if known)? _____

What was the outcome? _____

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FAMILY HISTORY

30. Were either of your natural parents ever told by a doctor that they had a chronic lung condition such as:	FATHER			MOTHER		
	1. Yes	2. No	3. Don't know	1. Yes	2. No	3. Don't know
A. Chronic Bronchitis?	___	___	___	___	___	___
B. Emphysema?	___	___	___	___	___	___
C. Asthma?	___	___	___	___	___	___
D. Lung cancer?	___	___	___	___	___	___
E. Other chest conditions?	___	___	___	___	___	___
F. Is parent currently alive?	___	___	___	___	___	___
G. Please Specify	___ Age if Living			___ Age if Living		
	___ Age at Death			___ Age at Death		
	___ Don't Know			___ Don't Know		
H. Please specify cause of death	_____			_____		

COUGH

31A. Do you usually have a cough? (Count a cough with first smoke or on first going out of doors. Exclude clearing of throat.) (If no, skip to question 31C.)	1. Yes ___	2. No ___
B. Do you usually cough as much as 4 to 6 times a day 4 or more days out of the week?	1. Yes ___	2. No ___
C. Do you usually cough at all on getting up or first thing in the morning?	1. Yes ___	2. No ___

D. Do you usually cough at all during the rest of the day or at night? 1. Yes ___ 2. No ___

IF YES TO ANY OF ABOVE (31A, B, C, OR D), ANSWER THE FOLLOWING. IF NO TO ALL, CHECK "DOES NOT APPLY" AND SKIP TO NEXT PAGE

E. Do you usually cough like this on most days for 3 consecutive months or more during the year? 1. Yes ___ 2. No ___ 3. Does not apply ___

F. For how many years have you had the cough? Number of years ___ Does not apply ___

32A. Do you usually bring up phlegm from your chest? Count phlegm with the first smoke or on first going out of doors. Exclude phlegm from the nose. Count swallowed phlegm.) (If no, skip to 32C) 1. Yes ___ 2. No ___

B. Do you usually bring up phlegm like this as much as twice a day 4 or more days out of the week? 1. Yes ___ 2. No ___

C. Do you usually bring up phlegm at all on getting up or first thing in the morning? 1. Yes ___ 2. No ___

D. Do you usually bring up phlegm at all on during the rest of the day or at night? 1. Yes ___ 2. No ___

IF YES TO ANY OF THE ABOVE (32A, B, C, OR D), ANSWER THE FOLLOWING:

IF NO TO ALL, CHECK "DOES NOT APPLY" AND SKIP TO 33A

E. Do you bring up phlegm like this on most days for 3 consecutive months or more during the year? 1. Yes ___ 2. No ___ 3. Does not apply ___

F. For how many years have you had trouble with phlegm? Number of years ___ Does not apply ___

EPISODES OF COUGH AND PHLEGM

33A. Have you had periods or episodes of (increased*) cough and phlegm lasting for 3 weeks or more each year? 1. Yes ___ 2. No ___
*(For persons who usually have cough and/or phlegm)

IF YES TO 33A

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

WHEEZING

34A. Does your chest ever sound wheezy or whistling
1. When you have a cold? 1. Yes ___ 2. No ___
2. Occasionally apart from colds? 1. Yes ___ 2. No ___
3. Most days or nights? 1. Yes ___ 2. No ___

B. For how many years has this been present? Number of years ___
Does not apply ___

35A. Have you ever had an attack of wheezing that has made you feel short of breath? 1. Yes ___ 2. No ___

IF YES TO 35A

B. How old were you when you had your first such attack? Age in years ___
Does not apply ___

C. Have you had 2 or more such episodes? 1. Yes ___ 2. No ___
3. Does not apply ___

D. Have you ever required medicine or treatment for the(se) attack(s)? 1. Yes ___ 2. No ___
3. Does not apply ___

BREATHLESSNESS

36. If disabled from walking by any condition other than heart or lung disease, please describe and proceed to question 38A.

Nature of condition(s)

37A. Are you troubled by shortness of breath when hurrying on the level or walking up a slight hill?

1. Yes ___ 2. No ___

IF YES TO 37A

B. Do you have to walk slower than people of your age on the level because of breathlessness?

1. Yes ___ 2. No ___
3. Does not apply ___

C. Do you ever have to stop for breath when walking at your own pace on the level?

1. Yes ___ 2. No ___
3. Does not apply ___

D. Do you ever have to stop for breath after walking about 100 yards (or after a few minutes) on the level?

1. Yes ___ 2. No ___
3. Does not apply ___

E. Are you too breathless to leave the house or breathless on dressing or climbing one flight of stairs?

1. Yes ___ 2. No ___
3. Does not apply ___

TOBACCO SMOKING

38A. Have you ever smoked cigarettes?
(No means less than 20 packs of cigarettes or 12 oz. of tobacco in a lifetime or less than 1 cigarette a day for 1 year.)

1. Yes ___ 2. No ___

IF YES TO 38A

B. Do you now smoke cigarettes (as of one month ago)

1. Yes ___ 2. No ___
3. Does not apply ___

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- C. How old were you when you first started regular cigarette smoking? Age in years ___
Does not apply ___
- D. If you have stopped smoking cigarettes completely, how old were you when you stopped? Age stopped ___
Check if still smoking ___
Does not apply ___
- E. How many cigarettes do you smoke per day now? Cigarettes ___
per day ___
Does not apply ___
- F. On the average of the entire time you smoked, how many cigarettes did you smoke per day? Cigarettes ___
per day ___
Does not apply ___
- G. Do or did you inhale the cigarette smoke? 1. Does not apply ___
2. Not at all ___
3. Slightly ___
4. Moderately ___
5. Deeply ___
- 39A. Have you ever smoked a pipe regularly? 1. Yes ___ 2. No ___
(Yes means more than 12 oz. of tobacco in a lifetime.)

IF YES TO 39A:
FOR PERSONS WHO HAVE EVER SMOKED A PIPE

- B. 1. How old were you when you started to smoke a pipe regularly? Age ___
2. If you have stopped smoking a pipe completely, how old were you when you stopped? Age stopped ___
Check if still smoking pipe ___
Does not apply ___

C. On the average over the entire time you smoked a pipe, how much pipe tobacco did you smoke per week? oz. per week (a standard pouch of tobacco contains 1 1/2 oz.)
 Does not apply

D. How much pipe tobacco are you smoking now? oz. per week
 Not currently smoking a pipe

E. Do you or did you inhale the pipe smoke?
 1. Never smoked
 2. Not at all
 3. Slightly
 4. Moderately
 5. Deeply

40A. Have you ever smoked cigars regularly? 1. Yes 2. No

(Yes means more than 1 cigar a week for a year)

IF YES TO 40A

FOR PERSONS WHO HAVE EVER SMOKED A CIGAR

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

2. If you have stopped smoking cigars completely, how old were you when you stopped smoking cigars? Age stopped
 Check if still
 Does not apply

C. On the average over the entire time you smoked cigars, how many cigars did you smoke per week? Cigars per week
 Does not apply

D. How many cigars are you smoking per week now? Cigars per week
 Check if not smoking cigars currently

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E. Do or did you inhale the cigar
smoke?

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

Signature _____

Date _____

Part 2

PERIODIC MEDICAL QUESTIONNAIRE

1. NAME _____

2. CLOCK NUMBER _____

3. PRESENT OCCUPATION _____

4. PLANT _____

5. ADDRESS _____

6. _____
(Zip Code)

7. TELEPHONE NUMBER _____

8. INTERVIEWER _____

9. DATE _____

10. What is your marital status? 1. Single ___ 4. Separated/
2. Married ___ Divorced ___
3. Widowed ___

11. OCCUPATIONAL HISTORY

11A. In the past year, did you work full time (30 hours per week or more) for 6 months or more? 1. Yes ___ 2. No ___

IF YES TO 11A:

11B. In the past year, did you work in a dusty job? 1. Yes ___ 2. No ___
3. Does not Apply ___

11C. Was dust exposure: 1. Mild ___ 2. Moderate ___ 3. Severe ___

11D. In the past year, were you exposed to gas or chemical fumes in your work? 1. Yes ___ 2. No ___

11E. Was exposure: 1. Mild ___ 2. Moderate ___ 3. Severe ___

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11F. In the past year, what was your: 1. Job/occupation? 2. Position/job title?

12. RECENT MEDICAL HISTORY

12A. Do you consider yourself to be in good health? Yes No

If NO, state reason

12B. In the past year, have you developed:

Table with 2 columns: Disease Name, Yes, No. Rows include Epilepsy, Rheumatic fever, Kidney disease, Bladder disease, Diabetes, Jaundice, and Cancer.

13. CHEST COLDS AND CHEST ILLNESSES

13A. If you get a cold, does it "usually" go to your chest? (usually means more than 1/2 the time)

1. Yes 2. No 3. Don't get colds

14A. During the past year, have you had any chest illnesses that have kept you off work, indoors at home, or in bed?

1. Yes 2. No 3. Does Not Apply

IF YES TO 14A:

14B. Did you produce phlegm with any of these chest illnesses?

1. Yes 2. No 3. Does Not Apply

14C. In the past year, how many such illnesses with (increased) phlegm did you have which lasted a week or more?

Number of illnesses No such illnesses

15. RESPIRATORY SYSTEM

In the past year have you had:

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

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

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

Date _____ Signature _____

BILLING CODE 4510-26-C

Appendix E to § 1910.1001—Classification of Chest X-Rays—Mandatory

(a) Chest X-rays shall be classified in accordance with the Guidelines for the use of the ILO International Classification of Radiographs of Pneumoconioses (revised edition 2011) (incorporated by reference, see § 1910.6), and recorded on a classification form following the format of the CDC/NIOSH (M) 2.8 form. As a minimum, the content within the bold lines of this form (items 1 through 4) shall be included. This form is not to be submitted to NIOSH.

(b) All X-rays shall be classified only by a B-Reader, a board eligible/certified radiologist, or an experienced physician with known expertise in pneumoconioses.

(c) Whenever classifying chest X-ray film, the physician shall have immediately

available for reference a complete set of the ILO standard format radiographs provided for use with the Guidelines for the use of the ILO International Classification of Radiographs of Pneumoconioses (revised edition 2011).

(d) Whenever classifying digitally-acquired chest X-rays, the physician shall have immediately available for reference a complete set of ILO standard digital chest radiographic images provided for use with the Guidelines for the Use of the ILO International Classification of Radiographs of Pneumoconioses (revised edition 2011). Classification of digitally-acquired chest X-rays shall be based on the viewing of images displayed as electronic copies and shall not be based on the viewing of hard copy printed transparencies of images.

* * * * *

Appendix H to § 1910.1001—Medical Surveillance Guidelines for Asbestos Non-Mandatory

* * * * *

III. Signs and Symptoms of Exposure-Related Disease

The signs and symptoms of lung cancer or gastrointestinal cancer induced by exposure to asbestos are not unique, except that a chest X-ray of an exposed patient with lung cancer may show pleural plaques, pleural calcification, or pleural fibrosis, and may also show asbestosis (*i.e.*, small irregular parenchymal opacities). Symptoms characteristic of mesothelioma include shortness of breath, pain in the chest or abdominal pain. Mesothelioma has a much longer average latency period compared with lung cancer (40 years versus 15–20 years), and mesothelioma is therefore more likely to

be found among workers who were first exposed to asbestos at an early age. Mesothelioma is a fatal disease.

Asbestosis is pulmonary fibrosis caused by the accumulation of asbestos fibers in the lungs. Symptoms include shortness of breath, coughing, fatigue, and vague feelings of sickness. When the fibrosis worsens, shortness of breath occurs even at rest. The diagnosis of asbestosis is most commonly based on a history of exposure to asbestos, the presence of characteristic radiologic abnormalities, end-inspiratory crackles (rales), and other clinical features of fibrosing lung disease. Pleural plaques and thickening may be observed on chest X-rays. Asbestosis is often a progressive disease even in the absence of continued exposure, although this appears to be a highly individualized characteristic. In severe cases, death may be caused by respiratory or cardiac failure.

IV. Surveillance and Preventive Considerations

As noted in section III of this appendix, exposure to asbestos has been linked to an increased risk of lung cancer, mesothelioma, gastrointestinal cancer, and asbestosis among occupationally exposed workers. Adequate screening tests to determine an employee's potential for developing serious chronic diseases, such as cancer, from exposure to asbestos do not presently exist. However, some tests, particularly chest X-rays and pulmonary function tests, may indicate that an employee has been overexposed to asbestos increasing his or her risk of developing exposure-related chronic diseases. It is important for the physician to become familiar with the operating conditions in which occupational exposure to asbestos is likely to occur. This is particularly important in evaluating medical and work histories and in conducting physical examinations. When an active employee has been identified as having been overexposed to asbestos, measures taken by the employer to eliminate or mitigate further exposure should also lower the risk of serious long-term consequences.

The employer is required to institute a medical surveillance program for all employees who are or will be exposed to asbestos at or above the permissible exposure limit (0.1 fiber per cubic centimeter of air). All examinations and procedures must be performed by or under the supervision of a licensed physician, at a reasonable time and place, and at no cost to the employee.

Although broad latitude is given to the physician in prescribing specific tests to be included in the medical surveillance program, OSHA requires inclusion of the following elements in the routine examination:

(i) Medical and work histories with special emphasis directed to symptoms of the respiratory system, cardiovascular system, and digestive tract.

(ii) Completion of the respiratory disease questionnaire contained in appendix D of this section.

(iii) A physical examination including a chest X-ray and pulmonary function test that includes measurement of the employee's forced vital capacity (FVC) and forced expiratory volume at one second (FEV₁).

(iv) Any laboratory or other test that the examining physician deems by sound medical practice to be necessary.

The employer is required to make the prescribed tests available at least annually to those employees covered; more often than specified if recommended by the examining physician; and upon termination of employment.

The employer is required to provide the physician with the following information: A copy of the standard in this section (including all appendices to this section); a description of the employee's duties as they relate to asbestos exposure; the employee's representative level of exposure to asbestos; a description of any personal protective and respiratory equipment used; and information from previous medical examinations of the affected employee that is not otherwise available to the physician. Making this information available to the physician will aid in the evaluation of the employee's health in relation to assigned duties and fitness to wear personal protective equipment, if required.

The employer is required to obtain a written opinion from the examining physician containing the results of the medical examination; the physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of exposure-related disease; any recommended limitations on the employee or on the use of personal protective equipment; and a statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions related to asbestos exposure that require further explanation or treatment. This written opinion must not reveal specific findings or diagnoses unrelated to exposure to asbestos, and a copy of the opinion must be provided to the affected employee.

■ 7. Amend § 1910.1018 by revising paragraphs (n)(2)(ii)(A) and (n)(3)(i) and (ii), appendix A, section VI, and appendix C, section I, to read as follows:

§ 1910.1018 Inorganic arsenic.

* * * * *

(n) * * *

(2) * * *

(ii) * * *

(A) A standard film or digital posterior-anterior chest X-ray;

* * * * *

(3) * * *

(i) Examinations must be provided in accordance with paragraphs (n)(2)(i) and (n)(2)(ii)(B) and (C) of this section at least annually.

(ii) Whenever a covered employee has not taken the examinations specified in paragraphs (n)(2)(i) and (n)(2)(ii)(B) and (C) of this section within six (6) months preceding the termination of employment, the employer shall provide such examinations to the

employee upon termination of employment.

* * * * *

Appendix A to § 1910.1018—Inorganic Arsenic Substance Information Sheet

* * * * *

VI. Medical Examinations

If your exposure to arsenic is over the Action Level (5 µg/m3)—(including all persons working in regulated areas) at least 30 days per year, or you have been exposed to arsenic for more than 10 years over the Action Level, your employer is required to provide you with a medical examination. The examination shall be every 6 months for employees over 45 years old or with more than 10 years exposure over the Action Level and annually for other covered employees. The medical examination must include a medical history; a chest X-ray (during initial examination only); skin examination and a nasal examination. The examining physician will provide a written opinion to your employer containing the results of the medical exams. You should also receive a copy of this opinion. The physician must not tell your employer any conditions he detects unrelated to occupational exposure to arsenic but must tell you those conditions.

* * * * *

Appendix C to § 1910.1018—Medical Surveillance Guidelines

I. General

Medical examinations are to be provided for all employees exposed to levels of inorganic arsenic above the action level (5 µg/m3) for at least 30 days per year (which would include among others, all employees, who work in regulated areas). Examinations are also to be provided to all employees who have had 10 years or more exposure above the action level for more than 30 days per year while working for the present or predecessor employer though they may no longer be exposed above the level.

An initial medical examination is to be provided to all such employees by December 1, 1978. In addition, an initial medical examination is to be provided to all employees who are first assigned to areas in which worker exposure will probably exceed 5 µg/m3 (after August 1, 1978) at the time of initial assignment. In addition to its immediate diagnostic usefulness, the initial examination will provide a baseline for comparing future test results. The initial examination must include as a minimum the following elements:

(1) A work and medical history, including a smoking history, and presence and degree of respiratory symptoms such as breathlessness, cough, sputum production, and wheezing;

(2) A 14" by 17" or other reasonably-sized standard film or digital posterior-anterior chest X-ray;

(3) A nasal and skin examination; and

(4) Other examinations which the physician believes appropriate because of the employee's exposure to inorganic arsenic or because of required respirator use.

Periodic examinations are also to be provided to the employees listed in the first paragraph of this section. The periodic examinations shall be given annually for those covered employees 45 years of age or less with fewer than 10 years employment in areas where employee exposure exceeds the action level (5 µg/m³). Periodic examinations need not include sputum cytology or chest X-ray and only an updated medical history is required.

Periodic examinations for other covered employees shall be provided every six (6) months. These examinations shall include all tests required in the initial examination,

except the chest X-ray, and the medical history need only be updated.

The examination contents are minimum requirements. Additional tests such as lateral and oblique X-rays or pulmonary function tests may be useful. For workers exposed to three arsenicals which are associated with lymphatic cancer, copper acetoarsenite, potassium arsenite, or sodium arsenite the examination should also include palpation of superficial lymph nodes and complete blood count.

* * * * *

■ 8. Amend § 1910.1027 by revising paragraph (l)(4)(ii)(C) and appendix D to read as follows:

§ 1910.1027 Cadmium.

* * * * *

(l) * * *

(4) * * *

(ii) * * *

(C) A 14 inch by 17 inch or other reasonably-sized standard film or digital posterior-anterior chest X-ray (after the initial X-ray, the frequency of chest X-rays is to be determined by the examining physician);

* * * * *

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APPENDIX D TO § 1910.1027—OCCUPATIONAL HEALTH HISTORY INTERVIEW WITH

REFERENCE TO CADMIUM EXPOSURE

Directions

(To be read by employee and signed prior to the interview)

Please answer the questions you will be asked as completely and carefully as you can. These questions are asked of everyone who works with cadmium. You will also be asked to give blood and urine samples. The doctor will give your employer a written opinion on whether you are physically capable of working with cadmium. Legally, the doctor cannot share personal information you may tell him/her with your employer. The following information is considered strictly confidential. The results of the tests will go to you, your doctor and your employer. You will also receive an information sheet explaining the results of any biological monitoring or physical examinations performed. If you are just being hired, the results of this interview and examination will be used to:

- (1) Establish your health status and see if working with cadmium might be expected to cause unusual problems,
- (2) Determine your health status today and see if there are changes over time,
- (3) See if you can wear a respirator safely.

If you are not a new hire:

OSHA says that everyone who works with cadmium can have periodic medical examinations performed by a doctor. The reasons for this are:

- a) If there are changes in your health, either because of cadmium or some other reason, to find them early,
- b) to prevent kidney damage.

Please sign below.

I have read these directions and understand them:

Employee signature

Date

Thank you for answering these questions. (Suggested Format)

Name _____

Age _____

Company _____

Job _____

Type of Preplacement Exam:

Periodic

Termination

Initial

Other

Blood Pressure _____

Pulse Rate _____

1. How long have you worked at the job listed above?

Not yet hired

Number of months

Number of years

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2. Job Duties etc.

3. Have you ever been told by a doctor that you had bronchitis?

Yes

No

If yes, how long ago?

Number of months

Number of years

4. Have you ever been told by a doctor that you had emphysema?

Yes

No

If yes, how long ago?

Number of years

Number of months

5. Have you ever been told by a doctor that you had other lung problems?

Yes

No

If yes, please describe type of lung problems and when you had these problems.

6. In the past year, have you had a cough?

Yes

No

If yes, did you cough up sputum?

Yes

No

If yes, how long did the cough with sputum production last?

Less than 3 months

3 months or longer

If yes, for how many years have you had episodes of cough with sputum production lasting this long?

Less than one

1

2

Longer than 2

7. Have you ever smoked cigarettes?

Yes

No

8. Do you now smoke cigarettes?

Yes

No

9. If you smoke or have smoked cigarettes, for how many years have you smoked, or did you smoke?

Less than 1 year

Number of years

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What is or was the greatest number of packs per day that you have smoked?

Number of packs

If you quit smoking cigarettes, how many years ago did you quit?

Less than 1 year

Number of years

How many packs a day do you now smoke?

Number of packs per day

10. Have you ever been told by a doctor that you had a kidney or urinary tract disease or disorder?

Yes

No

11. Have you ever had any of these disorders?

Kidney stones..... Yes No

Protein in urine..... Yes No

Blood in urine..... Yes No

Difficulty urinating..... Yes No

Other kidney/Urinary disorders..... Yes No

Please describe problems, age, treatment, and follow up for any kidney or urinary problems you have had:

12. Have you ever been told by a doctor or other health care provider who took your blood pressure that your blood pressure was high?

Yes

No

13. Have you ever been advised to take any blood pressure medication?

Yes

No

14. Are you presently taking any blood pressure medication?

Yes

No

15. Are you presently taking any other medication?

Yes

No

16. Please list any blood pressure or other medications and describe how long you have been taking each one:

Medicine	How long Taken

17. Have you ever been told by a doctor that you have diabetes? (sugar in your blood or urine)

Yes

No

If yes, do you presently see a doctor about your diabetes?

Yes

No

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If yes, how do you control your blood sugar?

- Diet alone
- Diet plus oral medicine
- Diet plus insulin (injection)

18. Have you ever been told by a doctor that you had:

- Anemia Yes No
- A low blood count? Yes No

19. Do you presently feel that you tire or run out of energy sooner than normal or sooner than other people your age?

- Yes
- No

If yes, for how long have you felt that you tire easily?

- Less than 1 year
- Number of years

20. Have you given blood within the last year?

- Yes
- No

If yes, how many times?

- Number of times

How long ago was the last time you gave blood?

- Less than 1 month
- Number of months

21. Within the last year have you had any injuries with heavy bleeding?

Yes

No

If yes, how long ago?

Less than 1 month

Number of months

Describe: _____

22. Have you recently had any surgery?

Yes

No

If yes, please describe: _____

23. Have you seen any blood lately in your stool or after a bowel movement?

Yes

No

24. Have you ever had a test for blood in your stool?

Yes

No

If yes, did the test show any blood in the stool?

Yes

No

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What further evaluation and treatment were done? _____

The following questions pertain to the ability to wear a respirator.
Additional information for the physician can be found in The Respiratory Protective
Devices Manual.

25. Have you ever been told by a doctor that you have asthma?
 Yes
 No

If yes, are you presently taking any medication for asthma? Mark all that apply.

- Shots
 Pills
 Inhaler

26. Have you ever had a heart attack?
 Yes
 No

If yes, how long ago?

- Number of years
 Number of months

27. Have you ever had pains in your chest?
 Yes
 No

If yes, when did it usually happen?

- While resting
 While working
 While exercising
 Activity didn't matter

28. Have you ever had a thyroid problem?

Yes

No

29. Have you ever had a seizure or fits?

Yes

No

30. Have you ever had a stroke (cerebrovascular accident)?

Yes

No

31. Have you ever had a ruptured eardrum or a serious hearing problem?

Yes

No

32. Do you now have a claustrophobia, meaning fear of crowded or closed in spaces or any psychological problems that would make it hard for you to wear a respirator?

Yes

No

The following questions pertain to reproductive history.

33. Have you or your partner had a problem conceiving a child?

Yes

No

If yes, specify:

Self

Present mate

Previous mate

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34. Have you or your partner consulted a physician for a fertility or other reproductive problem?
- Yes
 - No

If yes, specify who consulted the physician:

- Self
- Spouse/partner
- Self and partner

If yes, specify diagnosis made: _____

35. Have you or your partner ever conceived a child resulting in a miscarriage, still birth or a child with malformations or birth defects?
- Yes
 - No
- If yes, specify:
- Miscarriage
 - Still birth
 - Malformations or birth defects

If outcome was a child with malformations or birth defects, please specify type:

36. Was this outcome a result of a pregnancy of:
- Yours with present partner
 - Yours with a previous partner

37. Did the timing of any abnormal pregnancy outcome coincide with present employment?

Yes

No

List dates of occurrences: _____

38. What is the occupation of your spouse or partner?

For Women Only

39. Do you have menstrual periods?

Yes

No

Have you had menstrual irregularities?

Yes

No

If yes, specify type: _____

If yes, what was the approximated date this problem began? _____

Approximate date problem stopped? _____

For Men Only

40. Have you ever been diagnosed by a physician as having prostate gland problem(s)?
 Yes
 No

If yes, please describe type of problem(s) and what was done to evaluate and treat the problem(s): _____

BILLING CODE 4510-26-C

* * * * *

■ 9. Amend § 1910.1029 by revising paragraphs (j)(2)(ii) and (j)(3), appendix A, section VI, and appendix B, section II(A), to read as follows:

§ 1910.1029 Coke oven emissions.

* * * * *

(j) * * *
 (2) * * *
 (ii) A 14- by 17-inch or other reasonably-sized standard film or digital posterior-anterior chest X-ray;

(3) *Periodic examinations.* (i) The employer shall provide the examinations specified in paragraphs (j)(2)(i) and (iii) through (vi) of this section at least annually for employees covered under paragraph (j)(1)(i) of this section.

(ii) The employer must provide the examinations specified in paragraphs (j)(2)(i) and (iii) through (vii) of this section at least annually for employees 45 years of age or older or with five (5) or more years employment in the regulated area.

(iii) Whenever an employee who is 45 years of age or older or with five (5) or more years employment in a regulated area transfers or is transferred from employment in a regulated area, the employer must continue to provide the examinations specified in paragraphs (j)(2)(i) and (iii) through (vii) of this section at least annually as long as that employee is employed by the same employer or a successor employer.

* * * * *

Appendix A to § 1910.1029—Coke Oven Emissions Substance Information Sheet

* * * * *

VI. Medical Examinations

If you work in a regulated area at least 30 days per year, your employer is required to provide you with a medical examination

every year. The initial medical examination must include a medical history, a chest X-ray, pulmonary function test, weight comparison, skin examination, a urinalysis, and a urine cytology exam for early detection of urinary cancer. Periodic examinations shall include all tests required in the initial examination, except that (1) the x-ray is to be performed during initial examination only and (2) the urine cytologic test is to be performed only on those employees who are 45 years or older or who have worked for 5 or more years in the regulated area. The examining physician will provide a written opinion to your employer containing the results of the medical exams. You should also receive a copy of this opinion.

Appendix B to § 1910.1029—Industrial Hygiene and Medical Surveillance Guidelines

* * * * *

II. Medical Surveillance Guidelines

A. *General.* The minimum requirements for the medical examination for coke oven workers are given in the standard in paragraph (j) of this section. The initial examination is to be provided to all coke oven workers who work at least 30 days in the regulated area. The examination includes a 14" by 17" or other reasonably-sized standard film or digital posterior-anterior chest X-ray reading, pulmonary function tests (FVC and FEV₁), weight, urinalysis, skin examination, and a urinary cytologic examination. These tests are needed to serve as the baseline for comparing the employee's future test results. Periodic exams include all the elements of the initial exams, except that (1) the x-ray is to be performed during initial examination only and (2) the urine cytologic test is to be performed only on those employees who are 45 years or older or who have worked for 5 or more years in the regulated area. The examination contents are minimum requirements; additional tests such as lateral and oblique X-rays or additional pulmonary function tests may be performed if deemed necessary.

* * * * *

■ 10. Amend § 1910.1043 by:

- a. Revising paragraphs (h)(2)(iii), (h)(3)(ii), and (n)(1) and appendices B-I, B-II, and B-III; and
 - b. Removing and reserving appendix C; and
 - c. Revising appendix D.
- The revisions read as follows:

§ 1910.1043 Cotton dust.

* * * * *

(h) * * *
 (2) * * *
 (iii) A pulmonary function measurement, including forced vital capacity (FVC) and forced expiratory volume in one second (FEV₁), and determination of the FEV₁/FVC ratio shall be made. FVC, FEV₁, and FEV₁/FVC ratio values shall be compared to appropriate race/ethnicity-specific Lower Limit of Normal (LLN) values and predicted values published in Spirometric Reference Values from a Sample of the General U.S. Population, American Journal of Respiratory and Critical Care Medicine, 159(1): 179-187, January 1999 (commonly known as the NHANES III reference data set) (incorporated by reference, see § 1910.6). To obtain reference values for Asian-Americans, Spirometric Reference Values FEV₁ and FVC predicted and LLN values for Caucasians shall be multiplied by 0.88 to adjust for ethnic differences. These determinations shall be made for each employee before the employee enters the workplace on the first day of the work week, preceded by at least 35 hours of no exposure to cotton dust. The tests shall be repeated during the shift, no less than 4 and no more than 10 hours after the beginning of the work shift; and, in any event, no more than one hour after cessation of exposure. Such exposure shall be typical of the employee's usual workplace exposure.

* * * * *

(3) * * *

(ii) Medical surveillance as required in paragraph (h)(3)(i) of this section shall be provided every six months for all employees in the following categories:

(A) An FEV₁ greater than the LLN, but with an FEV₁ decrement of 5 percent or 200 ml. on a first working day;

(B) An FEV₁ of less than the LLN; or

(C) Where, in the opinion of the physician, any significant change in questionnaire findings, pulmonary function results, or other diagnostic tests have occurred.

* * * * *

(n) * * *

(1) Appendices B and D of this section are incorporated as part of this section and the contents of these appendices are mandatory.

* * * * *

BILLING CODE 4510-26-P

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APPENDIX B-I -- RESPIRATORY QUESTIONNAIRE

RESPIRATORY QUESTIONNAIRE

A. IDENTIFICATION DATA

PLANT _____

DAY MONTH YEAR

(figures) (last 2 digits)

NAME _____ DATE OF INTERVIEW _____

(Surname)

_____ DATE OF BIRTH _____

(First Names)

M F

ADDRESS _____ AGE ____ (8, 9) SEX _____ (10)

RACE (11) (Check all that apply)

1. White ____

4. Hispanic or Latino ____

2. Black or African American ____

5. American Indian or Alaska Native ____

3. Asian ____

6. Native Hawaiian or

Other Pacific Islander ____

INTERVIEWER: 1 2 3 4 5 6 7 8 (12)

WORK SHIFT: 1st ____ 2nd ____ 3rd ____ (13)

STANDING HEIGHT _____ (14, 15)

WEIGHT _____ (16, 18)

PRESENT WORK AREA

If working in more than one specified work area, X area where most of the work shift is spent. If "other," but spending 25% of the work shift in one of the specified work areas, classify in that work area. If carding department employee, check area within that department where most of the work shift is spent (if in doubt, check "throughout"). For work areas such as spinning and weaving where many work rooms may be involved, be sure to check to specific work room to which the employee is assigned - if he works in more than one work room within a department classify as 7 (all) for that department.

	Work-room Number	(19)	(20)	(21)	(22)	(23)	(24)	(25)
		Open	Pick	Area	Card #1	#2	Spin	Wind
AT	1			Cards				
RISK	2			Draw				
(cotton & cotton blend)	3			Comb				
	4			Thru Out				
	5							
	6							
	7 (all)							
Control (synthe- tic & wo ol)	8							
Ex- Worker (cotton)	9							

Continued -

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	Work- Room Number	(26) Spool	(27) Warp	(28) Slash	(29) Weave	(30) Other
AT	1					
RISK	2					
(cotton & cotton blend)	3					
	4					
	5					
	6					
	7					
	(all)					
Control (synthetic & wool)	8					
Ex- Worker (cotton)	9					

Use actual wording of each question. Put X in appropriate square after each question. When in doubt record "No". When no square, circle appropriate answer.

B. COUGH

(on getting up)

Do you usually cough first thing in the morning? _____

Yes _____ No _____ (31)

(Count a cough with first smoke or on "first going out of doors." Exclude clearing throat or a single cough.)

Do you usually cough during the day or at night? Yes _____ No _____ (32)
(Ignore an occasional cough.)

If 'Yes' to either question (31-32):

Do you cough like this on most days for as much as three months a year? Yes _____ No _____ (33)

Do you cough on any particular day of the week? Yes _____ No _____ (34)

(1) (2) (3) (4) (5) (6) (7)

If 'Yes': Which day? Mon Tues Wed Thur Fri Sat Sun (35)

C. PHLEGM or alternative word to suit local custom.

(on getting up)

Do you usually bring up any phlegm from your chest first thing in the morning? (Count phlegm with the first smoke or on "first going out of doors." Exclude phlegm from the nose. Count swallowed phlegm.) Yes _____ No _____ (36)

Do you usually bring up any phlegm from your chest during the day or at night? (Accept twice or more.) Yes _____ No _____ (37)

If 'Yes' to question (36) or (37):

Do you bring up any phlegm like this on most days for as much as three months each year? Yes _____ No _____ (38)

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If 'Yes' to question (33) or (38):

(cough)

How long have you had this phlegm?

(1) ___ 2 years or less (39)

(Write in number of years)

(2) ___ More than 2 year-9 years

(3) ___ 10-19 years

(4) ___ 20+ years

* These words are for subjects who work at night

D. CHEST ILLNESSES

In the past three years, have you had a period of (increased) *cough and phlegm lasting for 3 weeks or more?

(1) ___ No (40)

(2) ___ Yes, only one period

(3) ___ Yes, two or more periods

*For subjects who usually have phlegm

During the past 3 years have you had any chest illness which has kept you off work, indoors at home or in bed? (For as long as one week, flu?)

Yes _____ No _____ (41)

If 'Yes' to (41):

Did you bring up (more) phlegm than usual in any of these illnesses?

Yes _____ No _____ (42)

If 'Yes' to (42):

During the past three years have you had:

Only one such illness with increased phlegm? (1) ___ (43)

More than one such illness: (2) ___ (44)

Br. Grade _____

E. TIGHTNESS

Does your chest ever feel tight or your breathing become difficult?

Yes _____ No _____ (45)

Is your chest tight or your breathing difficult on any particular day of the week? (after a week or 10 days from the mill)

Yes _____ No _____ (46)

If 'Yes': Which day? (3) (4) (5) (6) (7) (8)

Mon. ^ Tues. Wed. Thur. Fri. Sat. Sun. (47)

(1) / \ (2)

Sometimes Always

If 'Yes' Monday: At what time on Monday does your chest feel tight or your breathing difficult?

(1) ___ Before entering the mill (48)

(2) ___ After entering the mill

(Ask only if NO to Question (45))

In the past, has your chest ever been tight or your breathing difficult on any particular day of the week?

Yes _____ No _____ (49)

If 'Yes': Which day? (3) (4) (5) (6) (7) (8)

Mon. ^ Tues. Wed. Thur. Fri. Sat. Sun. (50)

(1) / \ (2)

Sometimes Always

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F. BREATHLESSNESS

If disabled from walking by any condition other than heart or lung disease put "X" here and leave questions (52-60) unasked. _____ (51)

Are you ever troubled by shortness of breath, when hurrying on the level or walking up a slight hill? Yes _____ No _____ (52)

If 'No', grade is 1.

If 'Yes', proceed to next question.

Do you get short of breath walking with other people at an ordinary pace on the level? Yes _____ No _____ (53)

If 'No', grade is 2.

If 'Yes', proceed to next question.

Do you have to stop for breath when walking at your own pace on the level? Yes _____ No _____ (54)

If 'No', grade is 3.

If 'Yes', proceed to next question.

Are you short of breath on washing or dressing? Yes _____ No _____ (55)

If 'No', grade is 4.

If 'Yes' grade is 5.

Dyspnea Grd. _____ (56)

ON MONDAYS

Are you ever troubled by shortness of breath, when hurrying on the level or walking up a slight hill? Yes _____ No _____ (57)

If 'No', grade is 1.

If 'Yes', proceed to next question.

Do you get short of breath walking with other people at ordinary pace on the level? Yes _____ No _____ (58)

If 'No', grade is 2.

If 'Yes', proceed to next question.

Do you have to stop for breath when walking at your own pace on level ground?

Yes _____ No _____ (59)

If 'No', grade is 3.

If 'Yes', proceed to next question.

Are you short of breath on washing or dressing?

Yes _____ No _____ (60)

If 'No', grade is 4.

If 'Yes', grade is 5.

B. Grd. _____ (61)

G. OTHER ILLNESSES AND ALLERGY HISTORY

Do you have a heart condition for which you are under a doctor's care?

Yes _____ No _____ (62)

Have you ever had asthma?

Yes _____ No _____ (63)

If 'Yes', did it begin:

(1) _____ Before age 30

(2) _____ After age 30

If 'Yes' before 30 did you have asthma before ever going to work in a textile mill?

Yes _____ No _____ (64)

Have you ever had hay fever or other allergies (other than above)?

Yes _____ No _____ (65)

H. TOBACCO SMOKING*

Do you smoke?

Record 'Yes', if regular smoker up to one month ago (Cigarettes, cigar or pipe)

Yes _____ No _____ (66)

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If 'No' to (63)

Have you ever smoked? (Cigarettes, cigars, pipe.
Record 'No' if subject has never smoked as much
as one cigarette a day, or 1 oz of tobacco a
month, for as long as one year.)

Yes _____ No _____ (67)

If 'Yes' to (63) or (64), what have you smoked and for how many years?

(Write in specific number of years in the appropriate square)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Years	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	>40	
Cigarettes										(68)
Pipe										(69)
Cigars										(70)

If cigarettes, how many packs per day?
(Write in number of cigarettes)

- (1) _____ Less than 1/2 pack (71)
 (2) _____ 1/2 pack, but less than 1 pack
 (3) _____ 1 pack, but less than 1 1/2 packs
 (4) _____ 1 1/2 packs or more

Number of years _____ (72, 73)

If an ex-smoker (cigarettes, cigar or pipe),
how long since you stopped?
(Write in number of years)

- _____ (74)
 (1) _____ 0-1 year
 (2) _____ 1-4 years
 (3) _____ 5-9 years
 (4) _____ 10+ years

* Have you changed your smoking habits since last interview? If yes, specify what changes.

I. OCCUPATIONAL HISTORY**

Have you ever worked in:

A foundry? (As long as one year) Yes _____ No _____ (75)

Stone or mineral mining, quarry or processing?
(As long as one year) Yes _____ No _____ (76)

Asbestos milling or processing? Yes _____ No _____ (77)

Other dusts, fumes or smoke? Yes _____ No _____ (78)

If yes, specify.

Type of exposure _____

Length of exposure _____

** Ask only on first interview.

At what age did you first go to work in a textile mill?

(Write in specific age in appropriate square)

(1)	(2)	(3)	(4)	(5)	(6)
<20	20-24	25-29	30-34	35-39	40+

When you first worked in a textile mill,
did you work with:

(1) _____ Cotton or cotton blend (79)

(2) _____ Synthetic or wool (80)

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APPENDIX B-II -- RESPIRATORY QUESTIONNAIRE FOR NON-TEXTILE WORKERS FOR THE COTTON INDUSTRY

Respiratory Questionnaire for Non-Textile Workers for the Cotton Industry

Identification No. Interviewer Code

Location Date of Interview

A. IDENTIFICATION

1. NAME (Last) (First) (Middle Initial)

2. CURRENT ADDRESS (Number, Street, or Rural Route, City or Town, County, State, Zip Code)

3. PHONE NUMBER AREA CODE NO. () -

4. BIRTHDATE (Mo., Day, Yr.)

5. SEX

1. Male 2. Female

6. ETHNIC GROUP OR ANCESTRY (Check all that apply)

- 1. White
2. Black or African American
3. Asian

- 4. Hispanic or Latino
- 5. American Indian or Alaska Native
- 6. Native Hawaiian or Other Pacific Islander

7. STANDING HEIGHT

_____ (in)

8. WEIGHT (lbs)

9. WORK SHIFT

1st _____ 2nd _____ 3rd _____

10. PRESENT WORK AREA

Please indicate primary assigned work area and percent of time spent at that site. If at other locations, please indicate and note percent of time for each.

PRIMARY WORK AREA	
SPECIFIC JOB	

11. APPROPRIATE INDUSTRY

- 1. Garnetting
- 2. Cottonseed Oil Mill
- 3. Cotton Warehouse
- 4. Utilization
- 5. Cotton Classification
- 6. Cotton Ginning

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B. OCCUPATIONAL HISTORY TABLE

Complete the following table showing the entire work history of the individual from present to initial employment. Sporadic, part-time periods of employment, each of no significant duration, should be grouped if possible.

INDUSTRY AND LOCATION	TENURE OF EMPLOYMENT		SPECIFIC OCCUPATION	AVERAGE NO. DAYS WORKED PER WEEK	HAZARDOUS HEALTH EXPOSURE ASSOCIATED WITH WORK		
	FROM (year)	TO (year)			YES	NO	IF YES, DESCRIBE

C. SYMPTOMS

Use actual wording of each question. Put X in appropriate square after each question. When in doubt record "No."

COUGH

- 1. Do you usually cough first thing in the morning? (on getting up)* (Count a cough with first smoke or on "first going out of doors". Exclude clearing throat or a single cough.) 1. ____ Yes 2. ____ No

- 2. Do you usually cough during the day or at night? (Ignore an occasional cough.) 1. ____ Yes 2. ____ No

If YES to either 1 or 2:

3. Do you cough like this on days for as much as three months a year? 1. ___ Yes 2. ___ No 3. ___ NA

4. Do you cough on any particular day of the week? 1. ___ Yes 2. ___ No

If YES:

5. Which day? Mon. Tue. Wed. Thur. Fri. Sat. Sun. ___

PHLEGM

6. Do you usually bring up any phlegm from your chest first thing in the morning? (on getting up)* (Count phlegm with the first smoke or on "first going out of doors." Exclude phlegm from the nose. Count swallowed phlegm. 1. ___ Yes 2. ___ No

7. Do you usually bring up any phlegm from your chest during the day or at night? (Accept twice or more.) 1. ___ Yes 2. ___ No

If YES to either question 6 or 7:

8. Do you bring up phlegm like this on most days for as much as three months each year? 1. ___ Yes 2. ___ No

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If YES to question 3 or 8:

- 9. How long have you had this phlegm? (cough)
(Write in number of years)
- (1) ___ 2 years or less
- (2) ___ More than 2 years - 9 years
- (3) ___ 10-19 years
- (4) ___ 20+ years

* These words are for subjects who work at night.

CHEST ILLNESS

- 10. In the past three years, have you had a period of (increased) cough and phlegm lasting for 3 weeks or more?
- (1) ___ No
- (2) ___ Yes, only one period
- (3) ___ Yes, two or more periods

For subjects who usually have phlegm:

- 11. During the past 3 years have you had any chest illness which has kept you off work, indoors at home or in bed?
(For as long as one week, flu?)
- 1. ___ Yes 2. ___ No

If YES to 11:

- 12. Did you bring up (more) phlegm than usual in any of these illnesses?
- 1. ___ Yes 2. ___ No
- 13. Only one such illness with increased phlegm?
- 1. ___ Yes 2. ___ No

If YES to 12: During the past three years have you had:

- 14. More than one such illness:
- 1. ___ Yes 2. ___ No

Br. Grade _____

TIGHTNESS

15. Does your chest ever feel tight or your breathing become difficult? 1. ___ Yes 2. ___ No

16. Is your chest tight or your breathing difficult on any particular day of the week? (after a week or 10 days away from the mill) 1. ___ Yes 2. ___ No

17. If 'Yes': Which day? Mon. ^ (3) (4) (5) (6) (7) (8) Tues. Wed. Thur. Fri. Sat. Sun. (1) / \ (2) Sometimes Always

18. If YES Monday: ___ Before entering mill At what time on Monday does your chest feel tight or your breathing difficult? ___ After entering mill

(Ask only if NO to Question (15))

19. In the past, has your chest ever been tight or your breathing difficult on any particular day of the week? 1. ___ Yes 2. ___ No

20. If 'Yes': Which day? Mon. ^ (3) (4) (5) (6) (7) (8) Tues. Wed. Thur. Fri. Sat. Sun. (1) / \ (2) Sometimes Always

BREATHLESSNESS

21. If disabled from walking by any condition other than heart or lung disease put "X" in the space and leave questions (22-30) unasked. _____

22. Are you ever troubled by shortness of breath, when hurrying on the level or

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walking up a slight hill?

1. ___ Yes 2. ___ No

If NO, grade is 1. If YES, proceed to next question.

23. Do you get short of breath walking with other people at an ordinary pace on the level?

1. ___ Yes 2. ___ No

If NO, grade is 2. If YES, proceed to next question.

24. Do you have to stop for breath when walking at your own pace on the level?

1. ___ Yes 2. ___ No

If NO, grade is 3. If YES, proceed to next question.

25. Are you short of breath on washing or dressing?

1. ___ Yes 2. ___ No

If NO, grade is 4, If YES, grade is 5.

26.

Dyspnea Grd. _____

ON MONDAYS:

27. Are you ever troubled by shortness of breath, when hurrying on the level or walking up a slight hill?

1. ___ Yes 2. ___ No

If NO, grade is 1, If YES, proceed to next question.

28. Do you get short of breath walking with other people at an ordinary pace on the level?

1. ___ Yes 2. ___ No

If NO, grade is 2, If YES, proceed to next

question.

29. Do you have to stop for breath when walking at your own pace on the level? 1. ___ Yes 2. ___ No

If NO, grade is 3, If YES, proceed to next question.

30. Are you short of breath on washing or dressing? 1. ___ Yes 2. ___ No

If NO, grade is 4, If YES, grade is 5.

B. Grd. _____

OTHER ILLNESSES AND ALLERGY HISTORY

32. Do you have a heart condition for which you are under a doctor's care? 1. ___ Yes 2. ___ No

33. Have you ever had asthma? 1. ___ Yes 2. ___ No

If yes, did it begin:

(1) Before age 30 _____

(2) After age 30 _____

34. If yes before 30: did you have asthma before ever going to work in a textile mill? 1. ___ Yes 2. ___ No

35. Have you ever had hay fever or other allergies (other than above)? 1. ___ Yes 2. ___ No

TOBACCO SMOKING

36. Do you smoke? Record Yes if regular smoker up to one month ago. (Cigarettes, cigar or pipe) 1. ___ Yes 2. ___ No

If NO to (33).

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37. Have you ever smoked? 1. ___ Yes 2. ___ No
 (Cigarettes, cigars, pipe. Record NO if subject has never smoked as much as one cigarette a day, or 1 oz. of tobacco a month, for as long as one year.)

If YES to (33) or (34); what have you smoked for how many years?
 (Write in specific number of years in the appropriate square)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Years	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	>40	
Cigarettes										(38)
Pipe										(39)
Cigars										(40)

41. If cigarettes, how many packs per day?
 Write in number of cigarettes _____

- _____ Less than 1/2 pack
- _____ 1/2 pack, but less than 1 pack
- _____ 1 pack, but less than 1 1/2 packs
- _____ 1-1/2 packs or more

42. Number of pack years: _____

43. If an ex-smoker (Cigarettes, cigar or pipe), how long since you stopped? (Write in number of years.) _____

- _____ 0-1 year
- _____ 1-4 years
- _____ 5-9 years
- _____ 10+ years

OCCUPATIONAL HISTORY

Have you ever worked in:

44. A foundry? 1. Yes 2. No
(As long as one year)

45. Stone or mineral mining, quarrying 1. Yes 2. No
or
processing?
(As long as one year)

46. Asbestos milling or processing? 1. Yes 2. No
(Ever)

47. Cotton or cotton blend mill? 1. Yes 2. No
(For controls only)

48. Other dusts, fumes or smoke? 1. Yes 2. No
If yes, specify.

Type of exposure _____

Length of exposure _____

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APPENDIX B-III -- ABBREVIATED RESPIRATORY QUESTIONNAIRE

ABBREVIATED RESPIRATORY QUESTIONNAIRE

A. IDENTIFICATION DATA

PLANT _____

DAY MONTH YEAR

(figures) (last 2 digits)

NAME _____ DATE OF INTERVIEW _____

(Surname)

_____ DATE OF BIRTH _____

(First Names)

M F

ADDRESS _____ AGE ____ (8, 9) SEX _____ (10)

RACE (11) (Check all that apply)

1. White ____

4. Hispanic or Latino ____

2. Black or African American ____

5. American Indian or Alaska Native ____

3. Asian ____

6. Native Hawaiian or
Other Pacific Islander ____

INTERVIEWER: 1 2 3 4 5 6 7 8

(12)

WORK SHIFT: 1st _____ 2nd _____ 3rd _____ (13)

STANDING HEIGHT _____ (14, 15)

WEIGHT _____ (16, 18)

PRESENT WORK AREA

If working in more than one specified work area, X area where most of the work shift is spent. If "other," but spending 25% of the work shift in one of the specified work areas, classify in that work area. If carding department employee, check area within that department where most of the work shift is spent (if in doubt, check "throughout"). For work areas such as spinning and weaving where many work rooms may be involved, be sure to check to specific work room to which the employee is assigned - if he works in more than one work room within a department classify as 7 (all) for that department.

		(19)	(20)		(21)	(22)	(23)	(24)	(25)
	Work- room Number	Open	Pick	Area	Card #1	#2	Spin	Wind	Twist
AT	1			Cards					
RISK	2			Draw					
(cotton & Cotton blend)	3			Comb					
	4			Thru Out					
	5								
	6								
	7 (all)								
Control (synthetic & wool)	8								
Ex- Worker	9								

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(cotton)									
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Continued –

	Work- Room Number	(26) Spool	(27) Warp	(28) Slash	(29) Weave	(30) Other
AT	1					
RISK	2					
(cotton & cotton blend)	3					
	4					
	5					
	6					
	7 (all)					
Control (synthetic & wool)	8					
Ex- Worker (cotton)	9					

Use actual wording of each question. Put X in appropriate square after each question. When in doubt record 'No'. When no square, circle appropriate answer.

B. COUGH

(on getting up)

Do you usually cough first thing in the morning? _____

Yes _____ No _____ (31)

(Count a cough with first smoke or on "first going out of doors." Exclude clearing throat or a single cough.)

Do you usually cough during the day or at night? Yes _____ No _____ (32)
(Ignore an occasional cough.)

If 'Yes' to either question (31-32):

Do you cough like this on most days for as much as three months a year? Yes _____ No _____ (33)

Do you cough on any particular day of the week? Yes _____ No _____ (34)

(1) (2) (3) (4) (5) (6) (7)

If 'Yes': Which day? Mon Tues Wed Thur Fri Sat Sun (35)

C. PHLEGM or alternative word to suit local custom.

(on getting up)

Do you usually bring up any phlegm from your chest first thing in the morning? (Count phlegm with the first smoke or on "first going out of doors." Exclude phlegm from the nose. Count swallowed phlegm.) Yes _____ No _____ (36)

Do you usually bring up any phlegm from your chest during the day or at night? (Accept twice or more.) Yes _____ No _____ (37)

If 'Yes' to question (36) or (37):

Do you bring up any phlegm like this on most days for as much as three months each year? Yes _____ No _____ (38)

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If 'Yes' to question (33) or (38):

(cough)

How long have you had this phlegm?

(1) ___ 2 years or less

(Write in number of years)

(2) ___ More than 2 years-9 years

(3) ___ 10-19 years

(4) ___ 20+ years

* These words are for subjects who work at night

D. TIGHTNESS

Does your chest ever feel tight or your breathing become difficult?

Yes _____ No _____ (39)

Is your chest tight or your breathing difficult on any particular day of the week? (after a week or 10 days from the mill)

Yes _____ No _____ (40)

If 'Yes': Which day?

(3) (4) (5) (6) (7) (8)

Mon. ^ Tues. Wed. Thur. Fri. Sat. Sun. (41)

(1) / \ (2)

Sometimes Always

If 'Yes' Monday At what time on Monday does your chest feel tight or your breathing difficult?

(1) ___ Before entering the mill (42)

(2) ___ After entering the mill

(Ask only if NO to Question (45))

In the past, has your chest ever been tight or your breathing difficult on any particular day of the week?

Yes _____ No _____ (43)

If ^ Yes': Which day?

	(3)	(4)	(5)	(6)	(7)	(8)	
	Mon.	^ Tues.	Wed.	Thur.	Fri.	Sat.	Sun.
	(1) /	\ (2)					(44)
	Sometimes Always						

E. TOBACCO SMOKING

* Have you changed your smoking habits since last interview?

If yes, specify what changes.

BILLING CODE 4510-26-C

Appendix C to § 1910.1043 [Reserved]

Appendix D to § 1910.1043—Pulmonary Function Standards for Cotton Dust Standard

The spirometric measurements of pulmonary function shall conform to the following minimum standards, and these standards are not intended to preclude additional testing or alternate methods which can be determined to be superior.

I. Apparatus

a. The instrument shall be accurate to within ±50 milliliters or within ±3 percent of reading, whichever is greater.

b. 1. Instruments purchased on or before May 14, 2020 should be capable of measuring vital capacity from 0 to 7 liters BTPS

2. Instruments purchased after May 14, 2020 should be capable of measuring vital capacity from 0 to 8 liters BTPS.

c. The instrument shall have a low inertia and offer low resistance to airflow such that the resistance to airflow at 12 liters per second must be less than 1.5 cm H₂O/(liter/sec).

d. The zero time point for the purpose of timing the FEV₁ shall be determined by extrapolating the steepest portion of the volume time curve back to the maximal inspiration volume (1, 2, 3, 4) or by an equivalent method.

e. 1. Instruments purchased on or before May 14, 2020 that incorporate measurements of airflow to determine volume shall conform to the same volume accuracy stated in paragraph (a) of this section I when presented with flow rates from at least 0 to 12 liters per second.

2. Instruments purchased after May 14, 2020 that incorporate measurements of airflow to determine volume shall conform to the same volume accuracy stated in paragraph (a) of this section I when presented with flow rates from at least 0 to 14 liters per second.

f. The instrument or user of the instrument must have a means of correcting volumes to body temperature saturated with water vapor (BTPS) under conditions of varying ambient

spirometer temperatures and barometric pressures.

g. 1. Instruments purchased on or before May 14, 2020 shall provide a tracing or display of either flow versus volume or volume versus time during the entire forced expiration. A tracing or display is necessary to determine whether the patient has performed the test properly. The tracing must be stored and available for recall and must be of sufficient size that hand measurements may be made within the volume accuracy requirements of paragraph (a) of this section I. If a paper record is made it must have a paper speed of at least 2 cm/sec and a volume sensitivity of at least 10.0 mm of chart per liter of volume.

2. Instruments purchased after May 14, 2020 shall provide during testing a paper tracing or real-time display of flow versus volume and volume versus time for the entire forced expiration. Such a tracing or display is necessary to determine whether the worker has performed the test properly. Flow-volume and volume-time curves must be stored and available for recall. Real-time displays shall have a volume scale of at least 5 mm/L, a time scale of at least 10 mm/s, and a flow scale of at least 2.5 mm/L/s, when both flow-volume and volume-time displays are visible. If hand measurements will be made, paper tracings must be of sufficient size to allow those measurements to be made within the volume accuracy requirements of paragraph (a) of this section I. If a paper record is made it must have a paper speed of at least 2 cm/sec and a volume sensitivity of at least 10.0 mm of chart per liter of volume.

h. 1. Instruments purchased on or before May 14, 2020 shall be capable of accumulating volume for a minimum of 10 seconds and shall not stop accumulating volume before (i) the volume change for a 0.5-second interval is less than 25 milliliters, or (ii) the flow is less than 50 milliliters per second for a 0.5 second interval.

2. Instruments purchased after May 14, 2020 shall be capable of accumulating volume for a minimum of 15 seconds and shall not stop accumulating volume before the volume change for a 1-second interval is less than 25 milliliters.

i. The forced vital capacity (FVC) and forced expiratory volume in 1 second (FEV₁) measurements shall comply with the accuracy requirements stated in paragraph (a) of this section. That is, they should be accurately measured to within ±50 ml or within ±3 percent of reading, whichever is greater.

j. 1. Instruments purchased on or before May 14, 2020 must be capable of being calibrated in the field with respect to the FEV₁ and FVC. This calibration of the FEV₁ and FVC may be either directly or indirectly through volume and time base measurements. The volume calibration source should provide a volume displacement of at least 2 liters and should be accurate to within + or - 30 milliliters.

2. Instruments purchased after May 14, 2020 must be capable of having its calibration checked in the field and be recalibrated, if necessary, if the spirometer requires the technician to do so. The volume-calibration syringe shall provide a volume displacement of at least 3 liters and shall be accurate to within ± 0.5 percent of 3 liters (15 milliliters).

II. Technique for Measurement of Forced Vital Capacity Maneuver

a. Use of a nose clip is recommended but not required. The procedures shall be explained in simple terms to the worker who shall be instructed to loosen any tight clothing and stand in front of the apparatus. The worker may sit, but care should be taken on repeat testing that the same position be used and, if possible, the same spirometer. Particular attention shall be given to ensure that the chin is slightly elevated with the neck slightly extended. The worker shall be instructed to make a full inspiration from a normal breathing pattern and then blow into the apparatus, without interruption, as hard, fast, and completely as possible. At least three and no more than eight forced expirations shall be carried out. During the maneuvers, the worker shall be observed for compliance with instruction. The expirations shall be checked visually for technical acceptability and repeatability from flow-volume or volume-time tracings or displays. The following efforts shall be judged technically unacceptable when the worker:

- 1. Has not reached full inspiration preceding the forced expiration,
- 2. Has not used maximal effort during the entire forced expiration,
- 3. Has not tried to exhale continuously for at least 6 seconds and the volume-time curve shows no change in volume (<0.025 L) for at least one second,
- 4. Has coughed in the first second or closed the glottis,
- 5. Has an obstructed mouthpiece or a leak around the mouthpiece (obstruction due to tongue being placed in front of mouthpiece, false teeth falling in front of mouthpiece, etc.),
- 6. Has an unsatisfactory start of expiration, one characterized by excessive hesitation (or false starts), and, therefore, not allowing back extrapolation of time 0 (extrapolated volume on the volume-time tracing must be less than 150 milliliters or 5 percent of the FVC, whichever is greater.), and
- 7. Has an excessive variability between the acceptable curves. The difference between the two largest FVCs from the satisfactory tracings shall not exceed 150 milliliters and the difference between the two largest FEV₁s of the satisfactory tracings shall not exceed 150 milliliters.
 - b. Calibration checks of the volume accuracy of the instrument for recording FVC and FEV₁ shall be performed daily or more frequently if specified by the spirometer manufacturer, using a 3-liter syringe. Calibration checks to ensure that the spirometer is recording 3 liters of injected air to within ±3.5 percent, or 2.90 to 3.10 liters, shall be conducted. Calibration checks of flow-type spirometers shall include injection of 3 liters air over a range of speeds, with injection times of 0.5 second, 3 seconds, and

6 or more seconds. Checks of volume-type spirometers shall include a single calibration check and a check to verify that the spirometer is not leaking more than 30 milliliters/minute air.

III. Interpretation of Spirogram

- a. The first step in evaluating a spirogram should be to determine whether or not the worker has performed the test properly or as described in section II of this appendix. From the three satisfactory tracings, the forced vital capacity (FVC) and forced expiratory volume in 1 second (FEV₁) shall be measured and recorded. The largest observed FVC and largest observed FEV₁ shall be used in the analysis regardless of the curve(s) on which they occur.
- b. [Reserved]

IV. Qualifications of Personnel Administering the Test

Technicians who perform pulmonary function testing should have the basic knowledge required to produce meaningful results. Training consisting of approximately 16 hours of formal instruction should cover the following areas.

- a. Basic physiology of the forced vital-capacity maneuver and the determinants of airflow limitation, with emphasis on the relation to repeatability of results.
- b. Instrumentation requirements, including calibration check procedures, sources of error, and their correction.
- c. Performance of the testing including worker coaching, recognition of improperly performed maneuvers and corrective actions.
- d. Data quality with emphasis on repeatability.
- e. Actual use of the equipment under supervised conditions.

f. Measurement of tracings and calculations of results.

■ 11. Revise paragraphs (n)(2)(iii) and (n)(3)(i) and (ii) of § 1910.1045 to read as follows:

§ 1910.1045 Acrylonitrile.

* * * * *

(n) * * *

(2) * * *

(iii) A 14- by 17-inch or other reasonably-sized standard film or digital posterior-anterior chest X-ray; and

* * * * *

(3) * * *

(i) The employer shall provide the examinations specified in paragraphs (n)(2)(i), (ii), and (iv) of this section at least annually for all employees specified in paragraph (n)(1) of this section.

(ii) If an employee has not had the examination specified in paragraphs (n)(2)(i), (ii), and (iv) of this section within 6 months preceding termination of employment, the employer shall make such examination available to the employee prior to such termination.

* * * * *

■ 12. Revise appendix D of § 1910.1048 to read as follows:

§ 1910.1048 Formaldehyde.

* * * * *

BILLING CODE 4510-26-P

APPENDIX D TO § 1910.1048—NONMANDATORY MEDICAL DISEASE QUESTIONNAIRE

A. Identification

Plant Name: _____

Date: _____

Employee Name: _____

Job Title: _____

Birthdate: _____

Age: _____

Sex: _____

Height: _____

Weight: _____

B. Medical History

1. Have you ever been in the hospital as a patient?

Yes__ No__

If yes, what kind of problem were you having? _____

2. Have you ever had any kind of operation?

Yes__ No__

If yes, what kind? _____

3. Do you take any kind of medicine regularly?

Yes__ No__

If yes, what kind? _____

4. Are you allergic to any drugs, foods, or chemicals?

Yes__ No__

If yes, what kind of allergy is it? _____

What causes the allergy? _____

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- 5. Have you ever been told that you have asthma, hayfever, or sinusitis?
Yes__ No__
- 6. Have you ever been told that you have emphysema, bronchitis, or any other respiratory problems?
Yes__ No__
- 7. Have you ever been told you had hepatitis?
Yes__ No__
- 8. Have you ever been told that you had cirrhosis?
Yes__ No__
- 9. Have you ever been told that you had cancer?
Yes__ No__
- 10. Have you ever had arthritis or joint pain?
Yes__ No__
- 11. Have you ever been told that you had high blood pressure?
Yes__ No__
- 12. Have you ever had a heart attack or heart trouble?
Yes__ No__

B-1. Medical History Update

- 1. Have you been in the hospital as a patient any time within the past year?
Yes__ No__
If so, for what condition? _____

- 2. Have you been under the care of a physician during the past year?
Yes__ No__
If so, for what condition? _____

3. Is there any change in your breathing since last year?
Yes__ No__
Better? _____
Worse? _____
No change? _____
If change, do you know why? _____

4. Is your general health different this year from last year?
Yes__ No__
If different, in what way? _____

5. Have you in the past year or are you now taking any medication on a regular basis?
Yes__ No__
Name Rx _____
Condition being treated _____

C. Occupational History

1. How long have you worked for your present employer?

2. What jobs have you held with this employer? Include job title and length of time in each job _____

3. In each of these jobs, how many hours a day were you exposed to chemicals?

4. What chemicals have you worked with most of the time?

5. Have you ever noticed any type of skin rash you feel was related to your work?
Yes__ No__

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6. Have you ever noticed that any kind of chemical makes you cough?

Yes__ No__

Wheeze?

Yes__ No__

Become short of breath or cause your chest to become tight?

Yes__ No__

7. Are you exposed to any dust or chemicals at home?

Yes__ No__

If yes, explain: _____

8. In other jobs, have you ever had exposure to:

Wood dust?

Yes__ No__

Nickel or chromium?

Yes__ No__

Silica (foundry, sand blasting)?

Yes__ No__

Arsenic or asbestos?

Yes__ No__

Organic solvents?

Yes__ No__

Urethane foams?

Yes__ No__

C-1. Occupational History Update

1. Are you working on the same job this year as you were last year?

Yes__ No__

If not, how has your job changed? _____

-
2. What chemicals are you exposed to on your job?

 3. How many hours a day are you exposed to chemicals?

 4. Have you noticed any skin rash within the past year you feel was related to your work?
Yes__ No__
If so, explain circumstances: _____

 5. Have you noticed that any chemical makes you cough, be short of breath, or wheeze?
Yes__ No__
If so, can you identify it? _____

D. Miscellaneous

1. Do you smoke?
Yes__ No__
If so, how much and for how long? _____

Pipe _____
Cigars _____
Cigarettes _____
2. Do you drink alcohol in any form?
Yes__ No__
If so, how much, how long, and how often? _____

3. Do you wear glasses or contact lenses?
Yes__ No__
4. Do you get any physical exercise other than that required to do your job?
Yes__ No__
If so, explain: _____

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5. Do you have any hobbies or "side jobs" that require you to use chemicals, such as furniture stripping, sand blasting, insulation or manufacture of urethane foam, furniture, etc.?

Yes__ No__

If so, please describe, giving type of business or hobby, chemicals used and length of exposures.

E. Symptoms Questionnaire

1. Do you ever have any shortness of breath?

Yes__ No__

If yes, do you have to rest after climbing several flights of stairs?

Yes__ No__

If yes, if you walk on the level with people your own age, do you walk slower than they do?

Yes__ No__

If yes, if you walk slower than a normal pace, do you have to limit the distance that you walk?

Yes__ No__

If yes, do you have to stop and rest while bathing or dressing?

Yes__ No__

2. Do you cough as much as three months out of the year?

Yes__ No__

If yes, have you had this cough for more than two years?

Yes__ No__

If yes, do you ever cough anything up from chest?

Yes__ No__

-
-
3. Do you ever have a feeling of smothering, unable to take a deep breath, or tightness in your chest?
Yes__ No__
If yes, do you notice that this on any particular day of the week?
Yes__ No__
If yes, what day or the week?
Yes__ No__
If yes, do you notice that this occurs at any particular place?
Yes__ No__
If yes, do you notice that this is worse after you have returned to work after being off for several days?
Yes__ No__
4. Have you ever noticed any wheezing in your chest?
Yes__ No__
If yes, is this only with colds or other infections?
Yes__ No__
Is this caused by exposure to any kind of dust or other material?
Yes__ No__
If yes, what kind? _____
5. Have you noticed any burning, tearing, or redness of your eyes when you are at work?
Yes__ No__
If so, explain circumstances: _____

6. Have you noticed any sore or burning throat or itchy or burning nose when you are at work?
Yes__ No__
If so, explain circumstances: _____

7. Have you noticed any stuffiness or dryness of your nose?
Yes__ No__

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8. Do you ever have swelling of the eyelids or face?
Yes__ No__
9. Have you ever been jaundiced?
Yes__ No__
If yes, was this accompanied by any pain?
Yes__ No__
10. Have you ever had a tendency to bruise easily or bleed excessively?
Yes__ No__
11. Do you have frequent headaches that are not relieved by aspirin or Tylenol?
Yes__ No__
If yes, do they occur at any particular time of the day or week?
Yes__ No__
If yes, when do they occur? _____

12. Do you have frequent episodes of nervousness or irritability?
Yes__ No__
13. Do you tend to have trouble concentrating or remembering?
Yes__ No__
14. Do you ever feel dizzy, light-headed, excessively drowsy or like you have been drugged?
Yes__ No__
15. Does your vision ever become blurred?
Yes__ No__
16. Do you have numbness or tingling of the hands or feet or other parts of your body?
Yes__ No__
17. Have you ever had chronic weakness or fatigue?
Yes__ No__
18. Have you ever had any swelling of your feet or ankles to the point where you could not wear your shoes?
Yes__ No__

19. Are you bothered by heartburn or indigestion?

Yes__ No__

20. Do you ever have itching, dryness, or peeling and scaling of the hands?

Yes__ No__

21. Do you ever have a burning sensation in the hands, or reddening of the skin?

Yes__ No__

22. Do you ever have cracking or bleeding of the skin on your hands?

Yes__ No__

23. Are you under a physician's care?

Yes__ No__

If yes, for what are you being treated? _____

24. Do you have any physical complaints today?

Yes__ No__

If yes, explain? _____

25. Do you have other health conditions not covered by these questions?

Yes__ No__

If yes, explain: _____

■ 13. Revise appendix F of § 1910.1051 to read as follows: **§ 1910.1051 1,3-Butadiene.**
* * * * *

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APPENDIX F TO § 1910.1051—MEDICAL QUESTIONNAIRES (NON-MANDATORY)

1,3-Butadiene (BD) Initial Health Questionnaire

DIRECTIONS:

You have been asked to answer the questions on this form because you work with BD (butadiene). These questions are about your work, medical history, and health concerns. Please do your best to answer all of the questions. If you need help, please tell the doctor or health care professional who reviews this form.

This form is a confidential medical record. Only information directly related to your health and safety on the job may be given to your employer. Personal health information will not be given to anyone without your consent.

Date: _____

Name: _____
Last First MI

Job Title: _____

Company's Name: _____

Supervisor's Name: _____ Supervisor's Phone No.: () _____ - _____

Work History

1. Please list all jobs you have had in the past, starting with the job you have now and moving back in time to your first job. (For more space, write on the back of this page.)

Main Job Duty	Years	Company Name City, State	Chemicals
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

2. Please describe what you do during a typical work day. Be sure to tell about you work with BD

3. Please check any of these chemicals that you work with now or have worked with in the past:

- benzene _____
- glues _____
- toluene _____
- inks, dyes _____
- other solvents, grease cutters _____
- insecticides (like DDT, lindane, etc.) _____
- paints, varnishes, thinners, strippers _____
- dusts _____
- carbon tetrachloride ("carbon tet") _____

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- arsine _____
- carbon disulfide _____
- lead _____
- cement _____
- petroleum products _____
- nitrites _____

4. Please check the protective clothing or equipment you use at the job you have now:

- gloves _____
- coveralls _____
- respirator _____
- dust mask _____
- safety glasses, goggles _____

Please circle your answer of yes or no.

5. Does your protective clothing or equipment fit you properly?

yes no

6. Have you ever made changes in your protective clothing or equipment to make it fit better?

yes no

7. Have you been exposed to BD when you were not wearing protective clothing or equipment?

yes no

8. Where do you eat, drink and/or smoke when you are at work?

(Please check all that apply.)

- Cafeteria/restaurant/snack bar _____
- Break room/employee lounge _____
- Smoking lounge _____
- At my work station _____

Please circle your answer.

9. Have you been exposed to radiation (like x-rays or nuclear material) at the job you have now or at past jobs?

yes no

10. Do you have any hobbies that expose you to dusts or chemicals (including paints, glues, etc.)?

yes no

11. Do you have any second or side jobs?

yes no

If yes, what are your duties there? _____

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12. Were you in the military?

yes no

If yes, what did you do in the military? _____

Family Health History

1. In the FAMILY MEMBER column, across from the disease name, write which family member, if any, had the disease.

Disease	Family Member
Cancer	
Lymphoma	
Sickle Cell Disease or Trait	
Immune Disease	
Leukemia	
Anemia	

2. Please fill in the following information about family health:

RELATIVE	ALIVE?	AGE AT DEATH?	CAUSE OF DEATH?
Father			
Mother			
Brother/Sister			
Brother/Sister			
Brother/Sister			

PERSONAL HEALTH HISTORY

Birth Date ___/___/___ Age ___ Sex ___ Height ___ Weight ___

Please circle your answer.

1. Do you smoke any tobacco products?

yes no

2. Have you ever had any kind of surgery or operation?

yes no

If yes, what type of surgery: _____

3. Have you ever been in the hospital for any other reasons?

yes no

If yes, please describe the reason: _____

4. Do you have any on-going or current medical problems or conditions?

yes no

If yes, please describe: _____

5. Do you now have or have you ever had any of the following?

Please check all that apply to you.

- unexplained fever _____
- anemia ("low blood") _____
- HIV/AIDS _____
- weakness _____
- sickle cell _____
- miscarriage _____
- skin rash _____
- bloody stools _____
- leukemia/lymphoma _____
- neck mass/swelling _____
- wheezing _____
- yellowing of skin _____
- bruising easily _____
- lupus _____
- weight loss _____
- kidney problems _____
- enlarged lymph nodes _____
- liver disease _____
- cancer _____
- infertility _____
- drinking problems _____
- thyroid problems _____
- night sweats _____
- chest pain _____
- still birth _____

- eye redness _____
- lumps you can feel _____
- child with birth defect _____
- autoimmune disease _____
- overly tired _____
- lung problems _____
- rheumatoid arthritis _____
- mononucleosis("mono") _____
- nagging cough _____

Please circle your answer.

6. Do you have any symptoms or health problems that you think may be related to your work with BD?

yes no

If yes, please describe: _____

7. Have any of your co-workers had similar symptoms or problems?

yes no don't know

If yes, please describe: _____

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8. Do you notice any irritation of your eyes, nose, throat, lungs or skin when working with BD?

yes no

9. Do you notice any blurred vision, coughing, drowsiness, nausea, or headache when working with BD?

yes no

10. Do you take any medications (including birth control or over-the-counter)?

yes no

If yes, please list: _____

11. Are you allergic to any medication, food, or chemicals?

yes no

If yes, please list: _____

12. Do you have any health conditions not covered by this questionnaire that you think are affected by your work with BD?

yes no

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If yes, please explain: _____

13. Did you understand all the questions?

yes no

Signature

1,3-Butadiene (BD) Update Health Questionnaire

DIRECTIONS:

You have been asked to answer the questions on this form because you work with BD (butadiene). These questions ask about changes in your work, medical history, and health concerns since the last time you were evaluated. Please do your best to answer all of the questions. If you need help, please tell the doctor or health care professional who reviews this form.

This form is a confidential medical record. Only information directly related to your health and safety on the job may be given to your employer. Personal health information will not be given to anyone without your consent.

Date: _____

Name: _____

 Last First MI

Job Title: _____

Company's Name: _____

Supervisor's Name: _____ Supervisor's Phone No.: () _____ - _____

Present Work History

1. Please describe any NEW duties that you have at your job: _____

2. Please list any additional job titles you have:

Please circle your answer.

3. Are you exposed to any other chemicals in your work since the last time you were evaluated for exposure to BD?

yes no

If yes, please list what they are: _____

4. Does your personal protective equipment and clothing fit you properly?

yes no

5. Have you made changes in this equipment or clothing to make it fit better?

yes no

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6. Have you been exposed to BD when you were not wearing protective equipment or clothing?

yes no

7. Are you exposed to any NEW chemicals at home or while working on hobbies?

yes no

If yes, please list what they are: _____

8. Since your last BD health evaluation, have you started working any new second or side jobs?

yes no

If yes, what are your duties there? _____

Personal Health History

1. What is your current weight? _____ pounds

2. Have you been diagnosed with any new medical conditions or illness since your last evaluation?

yes no

If yes, please tell what they are: _____

3. Since your last evaluation, have you been in the hospital for any illnesses, injuries, or surgery?

yes no

If yes, please describe: _____

4. Do you have any of the following? Please place a check for all that apply to you.

- | | | | |
|----------------------|-----|-------------------------|-----|
| unexplained fever | ___ | liver disease | ___ |
| anemia ("low blood") | ___ | cancer | ___ |
| HIV/AIDS | ___ | infertility | ___ |
| weakness | ___ | drinking problems | ___ |
| sickle cell | ___ | thyroid problems | ___ |
| miscarriage | ___ | night sweats | ___ |
| skin rash | ___ | still birth | ___ |
| bloody rash | ___ | eye redness | ___ |
| leukemia/lymphoma | ___ | lumps you can feel | ___ |
| neck mass/swelling | ___ | child with birth defect | ___ |
| wheezing | ___ | autoimmune disease | ___ |
| chest pain | ___ | overly tired | ___ |
| bruising easily | ___ | lung problems | ___ |
| lupus | ___ | rheumatoid arthritis | ___ |
| weight loss | ___ | mononucleosis "mono" | ___ |
| kidney problems | ___ | nagging cough | ___ |
| enlarged lymph nodes | ___ | yellowing of skin | ___ |

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Please circle your answer.

5. Do you have any symptoms or health problems that you think may be related to your work with BD?

yes no

If yes, please describe: _____

6. Have any of your co-workers had similar symptoms or problems?

yes no don't know

If yes, please describe: _____

7. Do you notice any irritation of your eyes, nose, throat, lungs, or skin when working with BD?

yes no

8. Do you notice any blurred vision, coughing, drowsiness, nausea, or headache when working with BD?

yes no

9. Have you been taking any NEW medications (including birth control or over-the-counter)?

yes no

If yes, please list:

10. Have you developed any NEW allergies to medications, foods, or chemicals?

yes no

If yes, please list:

11. Do you have any health conditions not covered by this questionnaire that you think are affected by your work with BD?

yes no

If yes, please explain: _____

12. Did you understand all the questions?

yes no

Signature

BILLING CODE 4510-26-C

■ 14. Revise appendix B, section IV, of § 1910.1052 to read as follows:

§ 1910.1052 Methylene chloride.

* * * * *

Appendix B to § 1910.1052—Medical Surveillance for Methylene Chloride

* * * * *

IV. Surveillance and Preventive Considerations

As discussed in sections II and III of this appendix, MC is classified as a suspect or potential human carcinogen. It is a central nervous system (CNS) depressant and a skin, eye and respiratory tract irritant. At extremely high concentrations, MC has caused liver damage in animals. MC principally affects the CNS, where it acts as a narcotic. The observation of the symptoms characteristic of CNS depression, along with a physical examination, provides the best detection of early neurological disorders. Since exposure to MC also increases the carboxyhemoglobin level in the blood, ambient carbon monoxide levels would have an additive effect on that carboxyhemoglobin level. Based on such information, a periodic post-shift carboxyhemoglobin test as an index of the presence of carbon monoxide in the blood is recommended, but not required, for medical surveillance.

Based on the animal evidence and three epidemiologic studies previously mentioned, OSHA concludes that MC is a suspect human carcinogen. The medical surveillance program is designed to observe exposed workers on a regular basis. While the medical surveillance program cannot detect MC-induced cancer at a preneoplastic stage, OSHA anticipates that, as in the past, early detection and treatments of cancers leading to enhanced survival rates will continue to evolve.

A. Medical and Occupational History

The medical and occupational work history plays an important role in the initial evaluation of workers exposed to MC. It is therefore extremely important for the examining physician or other licensed health care professional to evaluate the MC-exposed worker carefully and completely and to focus the examination on MC's potentially associated health hazards. The medical evaluation must include an annual detailed work and medical history with special emphasis on cardiac history and neurological symptoms.

An important goal of the medical history is to elicit information from the worker regarding potential signs or symptoms associated with increased levels of carboxyhemoglobin due to the presence of carbon monoxide in the blood. Physicians or other licensed health care professionals should ensure that the smoking history of all

MC exposed employees is known. Exposure to MC may cause a significant increase in carboxyhemoglobin level in all exposed persons. However, smokers as well as workers with anemia or heart disease and those concurrently exposed to carbon monoxide are at especially high risk of toxic effects because of an already reduced oxygen carrying capacity of the blood.

A comprehensive or interim medical and work history should also include occurrence of headache, dizziness, fatigue, chest pain, shortness of breath, pain in the limbs, and irritation of the skin and eyes.

In addition, it is important for the physician or other licensed health care professional to become familiar with the operating conditions in which exposure to MC is likely to occur. The physician or other licensed health care professional also must become familiar with the signs and symptoms that may indicate that a worker is receiving otherwise unrecognized and exceptionally high exposure levels of MC.

An example of a medical and work history that would satisfy the requirement for a comprehensive or interim work history is represented by the following:

The following is a list of recommended questions and issues for the self-administered questionnaire for methylene chloride exposure.

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QUESTIONNAIRE FOR METHYLENE CHLORIDE EXPOSURE

I. Demographic Information

1. Name
2. Date
3. Date of Birth
4. Age
5. Present occupation
6. Sex
7. Race (Check all that apply)
 - a. White ___
 - b. Black or African American ___
 - c. Asian ___
 - d. Hispanic or Latino ___
 - e. American Indian or Alaska Native ___
 - f. Native Hawaiian or Other Pacific Islander ___

II. Occupational History

1. Have you ever worked with methylene chloride, dichloromethane, methylene dichloride, or CH_2Cl_2 (all are different names for the same chemical)? Please list which on the occupational history form if you have not already.
2. If you have worked in any of the following industries and have not listed them on the occupational history form, please do so.

Furniture stripping

Polyurethane foam manufacturing

Chemical manufacturing or formulation

Pharmaceutical manufacturing

Any industry in which you used solvents to clean and degrease equipment or parts

Construction, especially painting and refinishing

Aerosol manufacturing

Any industry in which you used aerosol adhesives

3. If you have not listed hobbies or household projects on the occupational history form, especially furniture refinishing, spray painting, or paint stripping, please do so.

III. Medical History

A. General

1. Do you consider yourself to be in good health? If no, state reason(s).
2. Do you or have you ever had:
 - a. Persistent thirst
 - b. Frequent urination (three times or more at night)
 - c. Dermatitis or irritated skin
 - d. Non-healing wounds
3. What prescription or non-prescription medications do you take, and for what reasons?
4. Are you allergic to any medications, and what type of reaction do you have?

B. Respiratory

1. Do you have or have you ever had any chest illnesses or diseases? Explain.
2. Do you have or have you ever had any of the following:
 - a. Asthma
 - b. Wheezing
 - c. Shortness of breath
3. Have you ever had an abnormal chest X-ray? If so, when, where, and what were the findings?
4. Have you ever had difficulty using a respirator or breathing apparatus? Explain.
5. Do any chest or lung diseases run in your family? Explain.
6. Have you ever smoked cigarettes, cigars, or a pipe? Age started:
7. Do you now smoke?
8. If you have stopped smoking completely, how old were you when you stopped?
9. On the average of the entire time you smoked, how many packs of cigarettes, cigars, or bowls of tobacco did you smoke per day?

C. Cardiovascular

1. Have you ever been diagnosed with any of the following: Which of the following apply to you now or did apply to you at some time in the past, even if the problem is controlled by medication? Please explain any yes answers (i.e., when problem was diagnosed, length of time on medication).
 - a. High cholesterol or triglyceride level
 - b. Hypertension (high blood pressure)
 - c. Diabetes
 - d. Family history of heart attack, stroke, or blocked arteries
2. Have you ever had chest pain? If so, answer the next five questions.
 - a. What was the quality of the pain (i.e., crushing, stabbing, squeezing)?
 - b. Did the pain go anywhere (i.e., into jaw, left arm)?
 - c. What brought the pain out?
 - d. How long did it last?
 - e. What made the pain go away?
3. Have you ever had heart disease, a heart attack, stroke, aneurysm, or blocked arteries anywhere in your body? Explain (when, treatment).
4. Have you ever had bypass surgery for blocked arteries in your heart or anywhere else? Explain.
5. Have you ever had any other procedures done to open up a blocked artery (balloon angioplasty, carotid endarterectomy, clot-dissolving drug)?

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6. Do you have or have you ever had (explain each):
 - a. Heart murmur
 - b. Irregular heartbeat
 - c. Shortness of breath while lying flat
 - d. Congestive heart failure
 - e. Ankle swelling
 - f. Recurrent pain anywhere below the waist while walking
7. Have you ever had an electrocardiogram (EKG)? When?
8. Have you ever had an abnormal EKG? If so, when, where, and what were the findings?
9. Do any heart diseases, high blood pressure, diabetes, high cholesterol, or high triglycerides run in your family? Explain.

D. Hepatobiliary and Pancreas

1. Do you now or have you ever drunk alcoholic beverages?
Age started: _____ Age stopped: _____.
2. Average numbers per week:
 - a. Beers: _____, ounces in usual container:
 - b. Glasses of wine: _____, ounces per glass:
 - c. Drinks: _____, ounces in usual container:
3. Do you have or have you ever had (explain each):
 - a. Hepatitis (infectious, autoimmune, drug-induced, or chemical)
 - b. Jaundice
 - c. Elevated liver enzymes or elevated bilirubin
 - d. Liver disease or cancer

E. Central Nervous System

1. Do you or have you ever had (explain each):
 - a. Headache
 - b. Dizziness
 - c. Fainting
 - d. Loss of consciousness
 - e. Garbled speech
 - f. Lack of balance
 - g. Mental/psychiatric illness
 - h. Forgetfulness

F. Hematologic

1. Do you have, or have you ever had (explain each):
 - a. Anemia
 - b. Sickle cell disease or trait
 - c. Glucose-6-phosphate dehydrogenase deficiency
 - d. Bleeding tendency disorder
2. If not already mentioned previously, have you ever had a reaction to sulfa drugs or to drugs used to prevent or treat malaria? What was the drug? Describe the reaction.

B. Physical Examination

The complete physical examination, when coupled with the medical and occupational history, assists the physician or other licensed health care professional in detecting pre-existing conditions that might place the employee at increased risk, and establishes a baseline for future health monitoring. These examinations should include:

1. Clinical impressions of the nervous system, cardiovascular function and pulmonary function, with additional tests conducted where indicated or determined by the examining physician or other licensed health care professional to be necessary.

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2. An evaluation of the advisability of the worker using a respirator, because the use of certain respirators places an additional burden on the cardiopulmonary system. It is necessary for the attending physician or other licensed health care professional to evaluate the cardiopulmonary function of these workers, in order to inform the employer in a written medical opinion of the worker's ability or fitness to work in an area requiring the use of certain types of respiratory protective equipment. The presence of facial hair or scars that might interfere with the worker's ability to wear certain types of respirators should also be noted during the examination and in the written medical opinion.

Because of the importance of lung function to workers required to wear certain types of respirators to protect themselves from MC exposure, these workers must receive an assessment of pulmonary function before they begin to wear a negative pressure respirator and at least annually thereafter. The recommended pulmonary function tests include measurement of the employee's forced vital capacity (FVC), forced expiratory volume at one second (FEV_1), as well as calculation of the ratios of FEV_1 to FVC, and the ratios of measured FVC and measured FEV_1 to expected respective values corrected for variation due to age, sex, race, and height. Pulmonary function evaluation must be conducted by a physician or other licensed health care professional experienced in pulmonary function tests.

The following is a summary of the elements of a physical exam which would fulfill the requirements under the MC standard:

PHYSICAL EXAM

I. Skin and appendages

1. Irritated or broken skin
2. Jaundice
3. Clubbing cyanosis, edema
4. Capillary refill time
5. Pallor

II. Head

1. Facial deformities
2. Scars
3. Hair growth

III. Eyes

1. Scleral icterus
2. Corneal arcus
3. Pupillary size and response
4. Fundoscopic exam

IV. Chest

1. Standard exam

V. Heart

1. Standard exam
2. Jugular vein distension
3. Peripheral pulses

VI. Abdomen

1. Liver span

VII. Nervous System

1. Complete standard neurologic exam

VIII. Laboratory

1. Hemoglobin and hematocrit
2. Alanine aminotransferase (ALT, SGPT)
3. Post-shift carboxyhemoglobin

IX. Studies

1. Pulmonary function testing
2. Electrocardiogram

An evaluation of the oxygen carrying capacity of the blood of employees (for example by measured red blood cell volume) is considered useful, especially for workers acutely exposed to MC.

It is also recommended, but not required, that end of shift carboxyhemoglobin levels be determined periodically, and any level above 3% for non-smokers and above 10% for smokers should prompt an investigation of the worker and his workplace. This test is recommended because MC is metabolized to CO, which combines strongly with hemoglobin, resulting in a reduced capacity of the blood to transport oxygen in the body. This is of particular concern for cigarette smokers because they already have a diminished hemoglobin capacity due to the presence of CO in cigarette smoke.

C. Additional Examinations and Referrals

1. Examination by a Specialist

When a worker examination reveals unexplained symptoms or signs (i.e. in the physical examination or in the laboratory tests), follow-up medical examinations are necessary to assure that MC exposure is not adversely affecting the worker's health. When the examining physician or other licensed health care professional finds it necessary, additional tests should be included to determine the nature of the medical

problem and the underlying cause. Where relevant, the worker should be sent to a specialist for further testing and treatment as deemed necessary.

The final rule requires additional investigations to be covered and it also permits physicians or other licensed health care professionals to add appropriate or necessary tests to improve the diagnosis of disease should such tests become available in the future.

2. Emergencies

The examination of workers exposed to MC in an emergency should be directed at the organ systems most likely to be affected. If the worker has received a severe acute exposure, hospitalization may be required to assure proper medical intervention. It is not possible to precisely define "severe," but the physician or other licensed health care professional's judgment should not merely rest on hospitalization. If the worker has suffered significant conjunctival, oral, or nasal irritation, respiratory distress, or discomfort, the physician or other licensed health care professional should instigate appropriate follow-up procedures. These include attention to the eyes, lungs and the neurological system. The frequency of follow-up examinations should be determined by the attending physician or other licensed health care professional. This testing permits the early identification essential to proper medical management of such workers.

D. Employer Obligations

The employer is required to provide the responsible physician or other licensed health care professional and any specialists involved in a diagnosis with the following information: a copy of the MC standard including relevant appendices, a description of the affected employee's duties as they relate to his or her exposure to MC; an estimate of the employee's exposure including duration (e.g., 15hr/wk, three 8-hour shifts/wk, full

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time); a description of any personal protective equipment used by the employee, including respirators; and the results of any previous medical determinations for the affected employee related to MC exposure to the extent that this information is within the employer's control.

E. Physicians' or Other Licensed Health Care Professionals' Obligations

The standard in this section requires the employer to ensure that the physician or other licensed health care professional provides a written statement to the employee and the employer. This statement should contain the physician's or licensed health care professional's opinion as to whether the employee has any medical condition placing him or her at increased risk of impaired health from exposure to MC or use of respirators, as appropriate. The physician or other licensed health care professional should also state his or her opinion regarding any restrictions that should be placed on the employee's exposure to MC or upon the use of protective clothing or equipment such as respirators. If the employee wears a respirator as a result of his or her exposure to MC, the physician or other licensed health care professional's opinion should also contain a statement regarding the suitability of the employee to wear the type of respirator assigned. Furthermore, the employee should be informed by the physician or other licensed health care professional about the cancer risk of MC and about risk factors for heart disease, and the potential for exacerbation of underlying heart disease by exposure to MC through its metabolism to carbon monoxide. Finally, the physician or other licensed health care professional should inform the employer that the employee has been told the results of the medical examination and of any medical conditions which require further explanation.

or treatment. This written opinion must not contain any information on specific findings or diagnosis unrelated to employee's occupational exposures.

The purpose in requiring the examining physician or other licensed health care professional to supply the employer with a written opinion is to provide the employer with a medical basis to assist the employer in placing employees initially, in assuring that their health is not being impaired by exposure to MC, and to assess the employee's ability to use any required protective equipment.

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* * * * *

PART 1915—OCCUPATIONAL SAFETY AND HEALTH STANDARDS FOR SHIPYARD EMPLOYMENT

■ 15. The authority citation for part 1915 continues to read as follows:

Authority: 33 U.S.C. 941; 29 U.S.C. 653, 655, 657; Secretary of Labor's Order No. 12-71 (36 FR 8754); 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), 6-96 (62 FR 111), 3-2000 (65 FR 50017), 5-2002 (67 FR 65008), 5-2007 (72 FR 31160), 4-2010 (75 FR 55355), or 1-2012 (77 FR 3912); 29 CFR part 1911; and 5 U.S.C. 553, as applicable. Sections 1915.120 and 1915.152 also issued under 29 CFR part 1911.

Subpart A—General Provisions

- 16. Amend § 1915.5 by:
- a. Revising paragraphs (b) and (c).
- b. Redesignating paragraph (d) as follows:

Old paragraph	New paragraph
(d)(1)	(d).
(d)(1)(i) through (xiii)	(d)(1) through (13).
(d)(1)(vi)(A) through (C) ..	(d)(6)(i) through (iii).
(d)(1)(vii)(A) through (C) ..	(d)(7)(i) through (iii).
(d)(1)(viii)(A) through (C) ..	(d)(8)(i) through (iii).
(d)(2)	(e).
(d)(2)(i)	(e)(1).
(d)(3)	(f).
(d)(3)(i)	(f)(1).
(d)(4)	(i).
(d)(4)(i) through (xviii)	(i)(1) through (18).
(d)(5)	(g).
(d)(5)(i) and (ii)	(g)(1) and (2).

- c. In newly redesignated paragraph (d) introductory text, removing "below in this paragraph" and adding in its place "in this paragraph (d)."
- d. Adding reserved paragraphs (e)(2) and (f)(2).
- e. In newly redesignated paragraph (g) introductory text, removing "below in this paragraph" and adding in its place "in this paragraph (g)."
- f. Adding paragraph (h).

The revisions and additions read as follows:

§ 1915.5 Incorporation by reference.

(b)(1) The standards listed in this section are incorporated by reference into this part with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, OSHA must publish a document in the **Federal Register** and the material must be available to the public.

(2) Any changes in the standards incorporated by reference in this part and an official historic file of such changes are available for inspection in the Docket Office at the national office of the Occupational Safety and Health Administration, U.S. Department of Labor, Washington, DC 20210; telephone: 202-693-2350 (TTY number: 877-889-5627).

(c) Copies of standards listed in this section and issued by private standards organizations are available for purchase from the issuing organizations at the addresses or through the other contact information listed below for these private standards organizations. In addition, the standards are available for inspection at any Regional Office of the Occupational Safety and Health Administration (OSHA), or at the OSHA Docket Office, U.S. Department of Labor, 200 Constitution Avenue NW, Room N-3508, Washington, DC 20210; telephone: 202-693-2350 (TTY number: 877-889-5627). These standards are also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of these standards at NARA, telephone: 202-741-6030, or go to www.archives.gov/federalregister/cfr/ibr-locations.html.

* * * * *

(h) The following material is available from the International Labour Organization (ILO), 4 route des Morillons, CH-1211 Genève 22, Switzerland; telephone: +41 (0) 22 799 6111; fax: +41 (0) 22 798 8685; website: www.ilo.org/.

(1) Guidelines for the Use of the ILO International Classification of Radiographs of Pneumoconioses, Revised Edition 2011, Occupational safety and health series; 22 (Rev.2011), IBR approved for § 1915.1001.

(2) [Reserved]

* * * * *

Subpart F—General Working Conditions

■ 17. Revise paragraph (b)(33) of § 1915.80 to read as follows:

§ 1915.80 Scope, application, definitions, and effective dates.

* * * * *

(b) * * *

(33) *Vermin.* Insects, birds, rodents and other animals that may create safety and health hazards for employees.

* * * * *

Subpart Z—Toxic and Hazardous Substances

■ 18. Amend § 1915.1001 by revising paragraph (m)(2)(ii)(C) and appendices D and E and I, sections III and IV, to read as follows:

§ 1915.1001 Asbestos.

* * * * *

(m) * * *

(2) * * *

(ii) * * *

(C) A physical examination directed to the pulmonary and gastrointestinal systems, including a 14- by 17-inch or other reasonably-sized standard film or digital posterior-anterior chest X-ray to be administered at the discretion of the

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physician, and pulmonary function tests expiratory volume at one second (FEV₁). conducted in accordance with appendix
of forced vital capacity (FVC) and forced Classification of all chest X-rays shall be E to this section.

* * * * *

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APPENDIX D TO § 1915.1001—MEDICAL QUESTIONNAIRES; MANDATORY

This mandatory appendix contains the medical questionnaires that must be administered to all employees who are exposed to asbestos, tremolite, anthophyllite, actinolite, or a combination of these minerals above the permissible exposure limit (0.1 f/cc), and who will therefore be included in their employer’s medical surveillance program. Part 1 of this appendix contains the Initial Medical Questionnaire, which must be obtained for all new hires who will be covered by the medical surveillance requirements. Part 2 includes the abbreviated Periodical Medical Questionnaire, which must be administered to all employees who are provided periodic medical examinations under the medical surveillance provisions of the standard in this section.

Part 1
INITIAL MEDICAL QUESTIONNAIRE

1. NAME _____
2. CLOCK NUMBER _____
3. PRESENT OCCUPATION _____
4. PLANT _____
5. ADDRESS _____
6. _____
(Zip Code)
7. TELEPHONE NUMBER _____
8. INTERVIEWER _____
9. DATE _____
10. Date of Birth _____
Month Day Year

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11. Place of Birth _____

12. Sex 1. Male ___
2. Female ___

13. What is your marital status? 1. Single ___ 4. Separated/
2. Married ___ Divorced ___
3. Widowed ___

14. Race (Check all that apply)
1. White ___ 4. Hispanic or Latino ___
2. Black or African American ___ 5. American Indian
or Alaska Native ___
3. Asian ___ 6. Native Hawaiian or
Other Pacific Islander ___

15. What is the highest grade completed in school? _____
(For example 12 years is completion of high school)

OCCUPATIONAL HISTORY

16A. Have you ever worked full time (30 hours per week or more) for 6 months or more? 1. Yes ___ 2. No ___

IF YES TO 16A:

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

Specify job/industry _____ Total Years Worked ___

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

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

Specify job/industry _____ Total Years Worked ___

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

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

1. Job occupation _____

2. Number of years employed in this occupation _____

3. Position/job title _____

4. Business, field or industry _____

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

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

17. PAST MEDICAL HISTORY YES NO

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

If "NO" state reason _____

B. Have you any defect of vision? _____

If "YES" state nature of defect _____

C. Have you any hearing defect? _____

If "YES" state nature of defect _____

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

18. CHEST COLDS AND CHEST ILLNESSES

18A. If you get a cold, does it "usually" go to your chest? (Usually means more than 1/2 the time)

1. Yes ___ 2. No ___
 3. Don't get colds ___

19A. During the past 3 years, have you had any chest illnesses that have kept you off work, indoors at home, or in bed?

1. Yes ___ 2. No ___

IF YES TO 19A:

B. Did you produce phlegm with any of these chest illnesses?

1. Yes ___ 2. No ___
 3. Does Not Apply ___

C. In the last 3 years, how many such illnesses with (increased) phlegm did you have which lasted a week or more?

Number of illnesses ___
 No such illnesses ___

20. Did you have any lung trouble before the age of 16?

1. Yes ___ 2. No ___

21. Have you ever had any of the following?

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

IF YES TO 1A:

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

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

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

IF YES TO 2A:

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

C. At what age did you first have it? Age in Years ___
Does Not Apply ___

3A. Hay Fever? 1. Yes ___ 2. No ___

IF YES TO 3A:

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

C. At what age did it start? Age in Years ___
Does Not Apply ___

22A. Have you ever had chronic bronchitis? 1. Yes ___ 2. No ___

IF YES TO 22A:

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

C. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
3. Does Not Apply ___

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D. At what age did it start? Age in Years ___
Does Not Apply ___

23A. Have you ever had emphysema? 1. Yes ___ 2. No ___

IF YES TO 23A:

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

C. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
3. Does Not Apply ___

D. At what age did it start? Age in Years ___
Does Not Apply ___

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

IF YES TO 24A:

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

C. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
3. Does Not Apply ___

D. At what age did it start? Age in Years ___
Does Not Apply ___

E. If you no longer have it, at what age did it stop? Age stopped ___
Does Not Apply ___

25. Have you ever had:

A. Any other chest illness? 1. Yes ___ 2. No ___

If yes, please specify _____

B. Any chest operations? 1. Yes ___ 2. No ___

If yes, please specify _____

C. Any chest injuries? 1. Yes ___ 2. No ___

If yes, please specify _____

26A. Has a doctor ever told you that you had heart trouble? 1. Yes ___ 2. No ___

IF YES TO 26A:

B. Have you ever had treatment for heart trouble in the past 10 years? 1. Yes ___ 2. No ___ 3. Does Not Apply ___

27A. Has a doctor told you that you had high blood pressure? 1. Yes ___ 2. No ___

IF YES TO 27A:

B. Have you had any treatment for high blood pressure (hypertension) in the past 10 years? 1. Yes ___ 2. No ___ 3. Does Not Apply ___

28. When did you last have your chest X-rayed? (Year) ___ ___ ___

29. Where did you last have your chest X-rayed (if known)? _____

What was the outcome? _____

FAMILY HISTORY

30. Were either of your natural parents ever told by a doctor that they had a chronic lung condition such as:	FATHER			MOTHER		
	1. Yes	2. No	3. Don't know	1. Yes	2. No	3. Don't know
A. Chronic Bronchitis?	___	___	___	___	___	___
B. Emphysema?	___	___	___	___	___	___
C. Asthma?	___	___	___	___	___	___
D. Lung cancer?	___	___	___	___	___	___
E. Other chest conditions?	___	___	___	___	___	___
F. Is parent currently alive?	___	___	___	___	___	___
G. Please Specify	___	Age if Living	___	___	Age if Living	___
	___	Age at Death	___	___	Age at Death	___
	___	Don't Know	___	___	Don't Know	___
H. Please specify cause of death	_____			_____		

COUGH

31A. Do you usually have a cough? (Count a cough with first smoke or on first going out of doors. Exclude clearing of throat.) (If no, skip to question 31C.)	1. Yes ___	2. No ___
B. Do you usually cough as much as 4 to 6 times a day 4 or more days out of the week?	1. Yes ___	2. No ___
C. Do you usually cough at all on getting up or first thing in the morning?	1. Yes ___	2. No ___

D. Do you usually cough at all during the rest of the day or at night? 1. Yes ___ 2. No ___

IF YES TO ANY OF ABOVE (31A, B, C, OR D), ANSWER THE FOLLOWING. IF NO TO ALL, CHECK "DOES NOT APPLY" AND SKIP TO NEXT PAGE

E. Do you usually cough like this on most days for 3 consecutive months or more during the year? 1. Yes ___ 2. No ___ 3. Does not apply ___

F. For how many years have you had the cough? Number of years ___ Does not apply ___

32A. Do you usually bring up phlegm from your chest? 1. Yes ___ 2. No ___
 Count phlegm with the first smoke or on first going out of doors. Exclude phlegm from the nose. Count swallowed phlegm.) (If no, skip to 32C)

B. Do you usually bring up phlegm like this as much as twice a day 4 or more days out of the week? 1. Yes ___ 2. No ___

C. Do you usually bring up phlegm at all on getting up or first thing in the morning? 1. Yes ___ 2. No ___

D. Do you usually bring up phlegm at all on during the rest of the day or at night? 1. Yes ___ 2. No ___

IF YES TO ANY OF THE ABOVE (32A, B, C, OR D), ANSWER THE FOLLOWING:

IF NO TO ALL, CHECK "DOES NOT APPLY" AND SKIP TO 33A

E. Do you bring up phlegm like this on most days for 3 consecutive months or more during the year? 1. Yes ___ 2. No ___ 3. Does not apply ___

F. For how many years have you had trouble with phlegm? Number of years ___ Does not apply ___

EPISODES OF COUGH AND PHLEGM

33A. Have you had periods or episodes of (increased*) cough and phlegm lasting for 3 weeks or more each year? 1. Yes ___ 2. No ___
 *(For persons who usually have cough and/or phlegm)

IF YES TO 33A

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

WHEEZING

34A. Does your chest ever sound wheezy or whistling 1. Yes ___ 2. No ___

1. When you have a cold? 1. Yes ___ 2. No ___

2. Occasionally apart from colds? 1. Yes ___ 2. No ___

3. Most days or nights? 1. Yes ___ 2. No ___

B. For how many years has this been present? Number of years ___
Does not apply ___

35A. Have you ever had an attack of wheezing that has made you feel short of breath? 1. Yes ___ 2. No ___

IF YES TO 35A

B. How old were you when you had your first such attack? Age in years ___
Does not apply ___

C. Have you had 2 or more such episodes? 1. Yes ___ 2. No ___
3. Does not apply ___

D. Have you ever required medicine or treatment for the(se) attack(s)? 1. Yes ___ 2. No ___
3. Does not apply ___

BREATHLESSNESS

36. If disabled from walking by any condition other than heart or lung disease, please describe and proceed to question 38A.

Nature of condition(s)

37A. Are you troubled by shortness of breath when hurrying on the level or walking up a slight hill?

1. Yes ___ 2. No ___

IF YES TO 37A

B. Do you have to walk slower than people of your age on the level because of breathlessness?

1. Yes ___ 2. No ___
3. Does not apply ___

C. Do you ever have to stop for breath when walking at your own pace on the level?

1. Yes ___ 2. No ___
3. Does not apply ___

D. Do you ever have to stop for breath after walking about 100 yards (or after a few minutes) on the level?

1. Yes ___ 2. No ___
3. Does not apply ___

E. Are you too breathless to leave the house or breathless on dressing or climbing one flight of stairs?

1. Yes ___ 2. No ___
3. Does not apply ___

TOBACCO SMOKING

38A. Have you ever smoked cigarettes?
(No means less than 20 packs of cigarettes or 12 oz. of tobacco in a lifetime or less than 1 cigarette a day for 1 year.)

1. Yes ___ 2. No ___

IF YES TO 38A

B. Do you now smoke cigarettes (as of one month ago)

1. Yes ___ 2. No ___
3. Does not apply ___

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- C. How old were you when you first started regular cigarette smoking? Age in years ___
Does not apply ___
- D. If you have stopped smoking cigarettes completely, how old were you when you stopped? Age stopped ___
Check if still smoking ___
Does not apply ___
- E. How many cigarettes do you smoke per day now? Cigarettes ___
per day ___
Does not apply ___
- F. On the average of the entire time you smoked, how many cigarettes did you smoke per day? Cigarettes ___
per day ___
Does not apply ___
- G. Do or did you inhale the cigarette smoke? 1. Does not apply ___
2. Not at all ___
3. Slightly ___
4. Moderately ___
5. Deeply ___
- 39A. Have you ever smoked a pipe regularly? 1. Yes ___ 2. No ___
(Yes means more than 12 oz. of tobacco in a lifetime.)

IF YES TO 39A

FOR PERSONS WHO HAVE EVER SMOKED A PIPE

- B. 1. How old were you when you started to smoke a pipe regularly? Age ___
2. If you have stopped smoking a pipe completely, how old were you when you stopped? Age stopped ___
Check if still smoking pipe ___
Does not apply ___

C. On the average over the entire time you smoked a pipe, how much pipe tobacco did you smoke per week? oz. per week (a standard pouch of tobacco contains 1 1/2 oz.)
 Does not apply

D. How much pipe tobacco are you smoking now? oz. per week
 Not currently smoking a pipe

E. Do you or did you inhale the pipe smoke?
 1. Never smoked
 2. Not at all
 3. Slightly
 4. Moderately
 5. Deeply

40A. Have you ever smoked cigars regularly? 1. Yes 2. No

(Yes means more than 1 cigar a week for a year)

IF YES TO 40A

FOR PERSONS WHO HAVE EVER SMOKED A CIGAR

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

2. If you have stopped smoking cigars completely, how old were you when you stopped smoking cigars? Age stopped
 Check if still
 Does not apply

C. On the average over the entire time you smoked cigars, how many cigars did you smoke per week? Cigars per week
 Does not apply

D. How many cigars are you smoking per week now? Cigars per week
 Check if not smoking cigars currently

E. Do or did you inhale the cigar 1. Never smoked

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smoke?

- 2. Not at all _____
- 3. Slightly _____
- 4. Moderately _____
- 5. Deeply _____

Signature _____

Date _____

Part 2
PERIODIC MEDICAL QUESTIONNAIRE

1. NAME _____

2. CLOCK NUMBER _____

3. PRESENT OCCUPATION _____

4. PLANT _____

5. ADDRESS _____

6. _____
(Zip Code)

7. TELEPHONE NUMBER _____

8. INTERVIEWER _____

9. DATE _____

10. What is your marital status? 1. Single ___ 4. Separated/
2. Married ___ Divorced ___
3. Widowed ___

11. OCCUPATIONAL HISTORY

11A. In the past year, did you work full time (30 hours per week or more) for 6 months or more? 1. Yes ___ 2. No ___

IF YES TO 11A:

11B. In the past year, did you work in a dusty job? 1. Yes ___ 2. No ___
3. Does not Apply ___

11C. Was dust exposure: 1. Mild ___ 2. Moderate ___ 3. Severe ___

11D. In the past year, were you exposed to gas or chemical fumes in your work? 1. Yes ___ 2. No ___

11E. Was exposure: 1. Mild ___ 2. Moderate ___ 3. Severe ___

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11F. In the past year, what was your: 1. Job/occupation? 2. Position/job title?

12. RECENT MEDICAL HISTORY

12A. Do you consider yourself to be in good health? Yes No

If NO, state reason

12B. In the past year, have you developed: Yes No Epilepsy? Rheumatic fever? Kidney disease? Bladder disease? Diabetes? Jaundice? Cancer?

13. CHEST COLDS AND CHEST ILLNESSES

13A. If you get a cold, does it "usually" go to your chest? (usually means more than 1/2 the time) 1. Yes 2. No 3. Don't get colds

14A. During the past year, have you had any chest illnesses that have kept you off work, indoors at home, or in bed? 1. Yes 2. No 3. Does Not Apply

IF YES TO 14A:

14B. Did you produce phlegm with any of these chest illnesses? 1. Yes 2. No 3. Does Not Apply

14C. In the past year, how many such illnesses with (increased) phlegm did you have which lasted a week or more? Number of illnesses No such illnesses

15. RESPIRATORY SYSTEM

In the past year have you had:

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

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

Do you have:

	<u>Yes or No</u>	<u>Further Comment on Positive Answers</u>
Frequent colds	_____	
Chronic cough	_____	
Shortness of breath when walking or climbing one flight or stairs	_____	

Do you:

Wheeze	_____	
Cough up phlegm	_____	
Smoke cigarettes	_____	Packs per day _____ How many years _____

Date _____ Signature _____

BILLING CODE 4510-26-C

Appendix E to § 1915.1001—Classification of Chest X-Rays. Mandatory

(a) Chest X-rays shall be classified in accordance with the Guidelines for the use of the ILO International Classification of Radiographs of Pneumoconioses (revised edition 2011) (incorporated by reference, see § 1915.5), and recorded on a classification form following the format of the CDC/NIOSH (M) 2.8 form. As a minimum, the content within the bold lines of this form (items 1 through 4) shall be included. This form is not to be submitted to NIOSH.

(b) All X-rays shall be classified only by a B-Reader, a board eligible/certified radiologist, or an experienced physician with known expertise in pneumoconioses.

(c) Whenever classifying chest X-ray film, the physician shall have immediately available for reference a complete set of the

ILO standard format radiographs provided for use with the Guidelines for the use of the ILO International Classification of Radiographs of Pneumoconioses (revised edition 2011).

(d) Whenever classifying digitally-acquired chest X-rays, the physician shall have immediately available for reference a complete set of ILO standard digital chest radiographic images provided for use with the Guidelines for the Use of the ILO International Classification of Radiographs of Pneumoconioses (revised edition 2011). Classification of digitally-acquired chest X-rays shall be based on the viewing of images displayed as electronic copies and shall not be based on the viewing of hard copy printed transparencies of images.

* * * * *

Appendix I to § 1915.1001—Medical Surveillance Guidelines for Asbestos, Non-Mandatory

* * * * *

III. Signs and Symptoms of Exposure-Related Disease

The signs and symptoms of lung cancer or gastrointestinal cancer induced by exposure to asbestos are not unique, except that a chest X-ray of an exposed patient with lung cancer may show pleural plaques, pleural calcification, or pleural fibrosis, and may also show asbestosis (*i.e.*, small irregular parenchymal opacities). Symptoms characteristic of mesothelioma include shortness of breath, pain in the chest or abdominal pain. Mesothelioma has a much longer average latency period compared with lung cancer (40 years versus 15–20 years), and mesothelioma is therefore more likely to be found among workers who were first exposed to asbestos at an early age. Mesothelioma is a fatal disease.

Asbestosis is pulmonary fibrosis caused by the accumulation of asbestos fibers in the lungs. Symptoms include shortness of breath, coughing, fatigue, and vague feelings of

sickness. When the fibrosis worsens, shortness of breath occurs even at rest. The diagnosis of asbestosis is most commonly based on a history of exposure to asbestos, the presence of characteristic radiologic abnormalities, end-inspiratory crackles (rales), and other clinical features of fibrosing lung disease. Pleural plaques and thickening may be observed on chest X-rays. Asbestosis is often a progressive disease even in the absence of continued exposure, although this appears to be a highly individualized characteristic. In severe cases, death may be caused by respiratory or cardiac failure.

IV. Surveillance and Preventive Considerations

As noted in section III of this appendix, exposure to asbestos have been linked to an increased risk of lung cancer, mesothelioma, gastrointestinal cancer, and asbestosis among occupationally exposed workers. Adequate screening tests to determine an employee's potential for developing serious chronic diseases, such as a cancer, from exposure to asbestos do not presently exist. However, some tests, particularly chest X-rays and pulmonary function tests, may indicate that an employee has been overexposed to asbestos increasing his or her risk of developing exposure related chronic diseases. It is important for the physician to become familiar with the operating conditions in which occupational exposure to asbestos is likely to occur. This is particularly important in evaluating medical and work histories and in conducting physical examinations. When an active employee has been identified as having been overexposed to asbestos measures taken by the employer to eliminate or mitigate further exposure should also lower the risk of serious long-term consequences.

The employer is required to institute a medical surveillance program for all employees who are or will be exposed to asbestos at or above the permissible exposure limits (0.1 fiber per cubic centimeter of air) for 30 or more days per year and for all employees who are assigned to wear a negative-pressure respirator. All examinations and procedures must be performed by or under the supervision of licensed physician at a reasonable time and place, and at no cost to the employee.

Although broad latitude is given to the physician in prescribing specific tests to be included in the medical surveillance program, OSHA requires inclusion of the following elements in the routine examination.

(i) Medical and work histories with special emphasis directed to symptoms of the respiratory system, cardiovascular system, and digestive tract.

(ii) Completion of the respiratory disease questionnaire contained in appendix D to this section.

(iii) A physical examination including a chest X-ray and pulmonary function test that includes measurement of the employee's forced vital capacity (FVC) and forced expiratory volume at one second (FEV₁).

(iv) Any laboratory or other test that the examining physician deems by sound medical practice to be necessary.

The employer is required to make the prescribed tests available at least annually to those employees covered; more often than specified if recommended by the examining physician; and upon termination of employment.

The employer is required to provide the physician with the following information: A copy of the standard in this section (including all appendices to this section); a description of the employee's duties as they relate to asbestos exposure; the employee's representative level of exposure to asbestos; a description of any personal protective and respiratory equipment used; and information from previous medical examinations of the affected employee that is not otherwise available to the physician. Making this information available to the physician will aid in the evaluation of the employee's health in relation to assigned duties and fitness to wear personal protective equipment, if required.

The employer is required to obtain a written opinion from the examining physician containing the results of the medical examination; the physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of exposure-related disease; any recommended limitations on the employee or on the use of personal protective equipment; and a statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions related to asbestos exposure that require further explanation or treatment. This written opinion must not reveal specific findings or diagnoses unrelated to exposure to asbestos, and a copy of the opinion must be provided to the affected employee.

* * * * *

PART 1926—SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION

Subpart A—General

■ 19. The authority citation for part 1926, subpart A, continues to read as follows:

Authority: 40 U.S.C. 3701 *et seq.*; 29 U.S.C. 653, 655, 657; Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), 6-96 (62 FR 111), 3-2000 (65 FR 50017), 5-2002 (67 FR 65008), or 5-2007 (72 FR 31160), 5-2007 (72 FR 31160), 4-2010 (75 FR 55355), or 1-2012 (77 FR 3912), as applicable; and 29 CFR part 1911.

■ 20. Amend § 1926.6 by:
 ■ a. Revising paragraphs (a) through (c).
 ■ b. Redesignating paragraphs (g) through (ff) as follows:

Old paragraphs	New paragraphs
(g) and (h)	(d) and (e).
(j)	(g).
(k)	(i).
(l)	(h).
(m) through (p)	(j) through (m).
(u) through (w)	(n) through (p).
(x) and (y)	(r) and (s).

Old paragraphs	New paragraphs
(aa)	(t).
(dd) and (ee)	(u) and (v).
(ff)	(f).

- c. Adding reserved paragraph (d)(2).
- d. Revising newly redesignated paragraphs (f)(1) and (2) and removing newly redesignated (f)(3) and (4).
- e. Adding reserved paragraphs (i)(2), (l)(2), and (m)(2).
- f. Revising newly designating paragraph (n).
- g. Adding reserved paragraph (o)(2).
- h. Adding paragraph (q).
- i. Further redesignating newly redesignated paragraphs (r)(1) through (3) as paragraphs (r)(4) through (6) and adding new paragraphs (r)(1) through (3).
- j. Revising newly redesignated paragraphs (t)(2) and (u).
- k. Adding reserved paragraph (v)(2).
- l. Removing reserved paragraphs (z), (bb), and (cc).

The revisions and additions read as follows:

§ 1926.6 Incorporation by reference.

(a) The standards of agencies of the U.S. Government, and organizations which are not agencies of the U.S. Government which are incorporated by reference in this part, have the same force and effect as other standards in this part. Only the mandatory provisions (*i.e.*, provisions containing the word "shall" or other mandatory language) of standards incorporated by reference are adopted as standards under the Occupational Safety and Health Act.

(b) The standards listed in this section are incorporated by reference into this part with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, OSHA must publish a document in the **Federal Register** and the material must be available to the public.

(c) Copies of standards listed in this section and issued by private standards organizations are available for purchase from the issuing organizations at the addresses or through the other contact information listed below for these private standards organizations. In addition, the standards are available for inspection at any Regional Office of the Occupational Safety and Health Administration (OSHA), or at the OSHA Docket Office, U.S. Department of Labor, 200 Constitution Avenue NW, Room N-3508, Washington, DC 20210; telephone: 202-693-2350 (TTY number: 877-889-5627). These standards are also available for inspection at the

National Archives and Records Administration (NARA). For information on the availability of these standards at NARA, telephone: 202-741-6030, or go to www.archives.gov/federal-register/cfr/ibr-locations.html.

(f) * * *
 (1) ANSI B15.1-1953 (R1958), Safety Code for Mechanical Power-Transmission Apparatus, revised 1958, IBR approved for § 1926.300(b)(2).

(2) ANSI B30.5-1968, Crawler, Locomotive, and Truck Cranes, approved Dec. 16, 1968, IBR approved for § 1926.1433(a).

(n) The following material is available from the Federal Highway Administration, United States Department of Transportation, 1200 New Jersey Avenue SE, Washington, DC 20590; telephone: 202-366-4000; website: www.fhwa.dot.gov/:

(1) Manual on Uniform Traffic Control Devices for Streets and Highways, 2009 Edition, December 2009 (including Revision 1 dated May 2012 and Revision 2 dated May 2012), ("MUTCD") IBR approved for §§ 1926.200(g) and 1926.201(a).

(2) [Reserved]

(q) The following material is available from the International Labour Organization (ILO), 4 route des Morillons, CH-1211 Genève 22, Switzerland; telephone: +41 (0) 22 799 6111; fax: +41 (0) 22 798 8685; website: www.ilo.org/:

(1) Guidelines for the Use of the ILO International Classification of Radiographs of Pneumoconioses, Revised Edition 2011, Occupational safety and health series; 22 (Rev.2011), IBR approved for § 1926.1101.

(2) [Reserved]

(r) * * *
 (1) ISO 3471:2008(E), Earth-moving machinery—Roll-over protective structures—Laboratory tests and performance requirements, Fourth Edition, Aug. 8, 2008 ("ISO 3471:2008"), IBR approved for §§ 1926.1001(c) and 1926.1002(c).

(2) ISO 5700:2013(E), Tractors for agriculture and forestry—Roll-over protective structures—Static test method and acceptance conditions, Fifth Edition, May 1, 2013 ("ISO 5700:2013"), IBR approved for § 1926.1002(c).

(3) ISO 27850:2013(E), Tractors for agriculture and forestry—Falling object protective structures—Test procedures and performance requirements, First Edition, May.01, 2013 ("ISO

27850:2013"), IBR approved for § 1926.1003(c).

(t) * * *
 (2) PCSA Std. No. 2, Mobile Hydraulic Crane Standards, 1968 ("PCSA Std. No. 2 (1968)"), IBR approved for §§ 1926.602(b) and 1926.1433(a).

(u) The following material is available from the Society of Automotive Engineers (SAE), 400 Commonwealth Drive, Warrendale, PA 15096; telephone: 1-877-606-7323; fax: 724-776-0790; website: www.sae.org/:

(1) SAE 1970 Handbook, IBR approved for § 1926.602(b).

(2) SAE J166-1971, Trucks and Wagons, IBR approved for § 1926.602(a).

(3) SAE J167, Protective Frame with Overhead Protection-Test Procedures and Performance Requirements, approved July 1970, IBR approved for § 1926.1003(b).

(4) SAE J168, Protective Enclosures-Test Procedures and Performance Requirements, approved July 1970, IBR approved for § 1926.1002(b).

(5) SAE J185 (reaf. May 2003), Access Systems for Off-Road Machines, reaffirmed May 2003 ("SAE J185 (May 1993)"), IBR approved for § 1926.1423(c).

(6) SAE J236-1971, Self-Propelled Graders, IBR approved for § 1926.602(a).

(7) SAE J237-1971, Front End Loaders and Dozers, IBR approved for § 1926.602(a).

(8) SAE J319b-1971, Self-Propelled Scrapers, IBR approved for § 1926.602(a).

(9) SAE J320a, Minimum Performance Criteria for Roll-Over Protective Structure for Rubber-Tired, Self-Propelled Scrapers, revised July 1969 (editorial change July 1970), IBR approved for § 1926.1001(b).

(10) SAE J321a-1970, Fenders for Pneumatic-Tired Earthmoving Haulage Equipment, IBR approved for § 1926.602(a).

(11) SAE J333a-1970, Operator Protection for Agricultural and Light Industrial Tractors, IBR approved for § 1926.602(a).

(12) SAE J334a, Protective Frame Test Procedures and Performance Requirements, revised July 1970, IBR approved for § 1926.1002(b).

(13) SAE J386-1969, Seat Belts for Construction Equipment, IBR approved for § 1926.602(a).

(14) SAE J394, Minimum Performance Criteria for Roll-Over Protective Structure for Rubber-Tired Front End Loaders and Rubber-Tired Dozers, approved July 1969 (editorial change July 1970), IBR approved for § 1926.1001(b).

(15) SAE J395, Minimum Performance Criteria for Roll-Over Protective Structure for Crawler Tractors and Crawler-Type Loaders, approved July 1969 (editorial change July 1970), IBR approved for § 1926.1001(b).

(16) SAE J396, Minimum Performance Criteria for Roll-Over Protective Structure for Motor Graders, approved July 1969 (editorial change July 1970), IBR approved for § 1926.1001(b).

(17) SAE J397, Critical Zone Characteristics and Dimensions for Operators of Construction and Industrial Machinery, approved July 1969, IBR approved for § 1926.1001(b).

(18) SAE J987 (rev. Jun. 2003), Lattice Boom Cranes—Method of Test, revised Jun. 2003 ("SAE J987 (Jun. 2003)"), IBR approved for § 1926.1433(c).

(19) SAE J1063 (rev. Nov. 1993), Cantilevered Boom Crane Structures—Method of Test, revised Nov. 1993 ("SAE J1063 (Nov. 1993)"), IBR approved for § 1926.1433(c).

Subpart D—Occupational Health and Environmental Controls

■ 21. Revise the authority citation for part 1926, subpart D, to read as follows:

Authority: 40 U.S.C. 3704; 29 U.S.C. 653, 655, and 657; and Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), 6-96 (62 FR 111), 3-2000 (65 FR 50017), 5-2002 (67 FR 65008), 5-2007 (72 FR 31159), 4-2010 (75 FR 55355), or 1-2012 (77 FR 3912) as applicable; and 29 CFR part 1911. Sections 1926.59, 1926.60, and 1926.65 also issued under 5 U.S.C. 553 and 29 CFR part 1911.

Section 1926.61 also issued under 49 U.S.C. 1801-1819 and 5 U.S.C. 553. Section 1926.62 also issued under sec. 1031, Public Law 102-550, 106 Stat. 3672 (42 U.S.C. 4853).

Section 1926.65 also issued under sec. 126, Public Law 99-499, 100 Stat. 1614 (reprinted at 29 U.S.C.A. 655 Note) and 5 U.S.C. 553.

■ 22. Revise paragraph (f) of § 1926.50 to read as follows:

§ 1926.50 Medical services and first aid.

(f)(1) In areas where 911 emergency dispatch services are not available, the telephone numbers of the physicians, hospitals, or ambulances shall be conspicuously posted.

(2) In areas where 911 emergency dispatch services are available and an employer uses a communication system for contacting necessary emergency-medical service, the employer must:

- (i) Ensure that the communication system is effective in contacting the emergency-medical service; and
- (ii)(A) When using a communication system in an area that does not

automatically supply the caller's latitude and longitude information to the 911 emergency dispatcher, the employer must post in a conspicuous location at the worksite either:

(1) The latitude and longitude of the worksite; or

(2) Other location-identification information that communicates effectively to employees the location of the worksite.

(B) The requirement specified in paragraph (f)(2)(ii)(A) of this section does not apply to worksites with readily available telephone land lines that have 911 emergency service that automatically identifies the location of the caller.

* * * * *

■ 23. Amend § 1926.55 by:

■ a. Revising paragraphs (a) and (c);

■ b. Removing the heading for appendix A;

■ c. Designating the table entitled "Threshold Limit Values of Airborne Contaminants for Construction" as Table 1 to § 1926.55 and revising the table heading;

■ d. In newly designated Table 1:

■ i. Revising the fourth and fifth column headings;

■ ii. Removing the entry for "Asbestos; see 1926.58" and adding in its place the entry "Asbestos; see § 1926.1101";

■ iii. Removing the entry for "Coke oven emissions; see § 1926.1129";

■ iv. Removing the entry for "Talc (containing asbestos); use asbestos limit; see 1926.58" and adding in its place the entry "Talc (containing asbestos); use asbestos limit; see § 1926.1101"; and

■ v. Removing the entry for "Tremolite, asbestiform; see 1926.58" and adding in its place the entry "Tremolite, asbestiform; see § 1926.1101";

■ e. Designating the table entitled "Mineral Dusts" as Table 2 to § 1926.55;

■ f. Following newly designated Table 2, removing the word "Footnotes" and adding in its place "Footnotes to Tables 1 and 2 of this section";

■ g. Revising footnotes 2 and 3;

■ h. Removing and reserving footnote 4;

■ i. Revising footnote 5 and the footnote designated by a single asterisk; and

■ j. Removing the footnote designated by double asterisks.

The revisions read as follows:

§ 1926.55 Gases, vapors, fumes, dusts, and mists.

(a) Employers must limit an employee's exposure to any substance listed in Table 1 or 2 of this section in accordance with the following:

(1) *Substances with limits preceded by (C)—Ceiling Values.* An employee's exposure, as determined from breathing-

zone air samples, to any substance in Table 1 of this section with a permissible exposure limit preceded by (C) must at no time exceed the exposure limit specified for that substance. If instantaneous monitoring is not feasible, then the employer must assess the ceiling as a 15-minute time-weighted average exposure that the employer cannot exceed at any time during the working day.

(2) *Other substances—8-hour Time Weighted Averages.* An employee's exposure, as determined from breathing-zone air samples, to any substance in Table 1 or 2 of this section with a permissible exposure limit not preceded by (C) must not exceed the limit specified for that substance measured as an 8-hour time-weighted average in any work shift.

* * * * *

(c) Paragraphs (a) and (b) of this section do not apply to the exposure of employees to airborne asbestos, tremolite, anthophyllite, or actinolite dust. Whenever any employee is exposed to airborne asbestos, tremolite, anthophyllite, or actinolite dust, the requirements of § 1926.1101 shall apply.

* * * * *

TABLE 1 TO § 1926.55—PERMISSIBLE EXPOSURE LIMITS FOR AIRBORNE CONTAMINANTS

Substance	CAS No. ^d	ppm ^a	mg/m ^{3b}	Skin designation [*]
Asbestos; see § 1926.1101.				
Talc (containing asbestos); use asbestos limit; see § 1926.1101.				
Tremolite, asbestiform; see § 1926.1101.				

² See Table 2 of this section.

³ Use Asbestos Limit § 1926.1101.

⁴ [Reserved]

⁵ See Table 2 of this section for the exposure limit for any operations or sectors where the exposure limit in § 1926.1153 is stayed or is otherwise not in effect.

* An "X" designation in the "Skin Designation" column indicates that the substance is a dermal hazard.

^a Parts of vapor or gas per million parts of contaminated air by volume at 25 °C and 760 torr.

^b Milligrams of substance per cubic meter of air. When entry is in this column only, the value is exact; when listed with a ppm entry, it is approximate.

^d The CAS number is for information only. Enforcement is based on the substance name. For an entry covering more than one metal compound, measured as the metal, the CAS number for the metal is given—not CAS numbers for the individual compounds.

* * * * *

■ 24. Revise § 1926.64 to read as follows:

§ 1926.64 Process safety management of highly hazardous chemicals.

For requirements regarding the process safety management of highly hazardous chemicals as it pertains to

construction work, follow the requirements in 29 CFR 1910.119.

Subpart E—Personal Protective and Life Saving Equipment

■ 25. The authority citation for part 1926, subpart E, continues to read as follows:

Authority: 40 U.S.C. 3701 *et seq.*; 29 U.S.C. 653, 655, 657; Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), 6-96 (62 FR 111), 5-2002 (67 FR 65008), 5-2007 (72 FR 31160), 4-2010 (75 FR 55355), or 1-2012 (77 FR 3912), as applicable; and 29 CFR part 1911.

■ 26. Revise paragraph (c) of § 1926.104 to read as follows:

§ 1926.104 Safety belts, lifelines, and lanyards.

* * * * *

(c) Lifelines used on rock-scaling operations, or in areas where the lifeline may be subjected to cutting or abrasion, shall be a minimum of 7/8-inch wire core manila rope. For all other lifeline applications, a minimum of 3/4-inch manila or equivalent, with a minimum breaking strength of 5,000 pounds, shall be used.

* * * * *

Subpart G—Signs, Signals, and Barricades

■ 27. The authority citation for part 1926, subpart G, continues to read as follows:

Authority: 40 U.S.C. 333; 29 U.S.C. 653, 655, 657; Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 3-2000 (65 FR 50017), 5-2002 (67 FR 65008), 5-2007 (72 FR 31159), 4-2010 (75 FR 55355), or 1-2012 (77 FR 3912), as applicable; and 29 CFR part 1911.

■ 28. Revise paragraph (g) of § 1926.200 to read as follows:

§ 1926.200 Accident prevention signs, devices, and tags.

* * * * *

(g) *Traffic control signs and devices.*

(1) At points of hazard, construction areas shall be posted with legible traffic control signs and protected by traffic control devices.

(2) The design and use of all traffic control devices, including signs, signals, markings, barricades, and other devices, for protection of construction workers shall conform to Part 6 of the MUTCD (incorporated by reference, see § 1926.6).

* * * * *

■ 29. Revise paragraph (a) of § 1926.201 to read as follows:

§ 1926.201 Signaling.

(a) *Flaggers.* Signaling by flaggers and the use of flaggers, including warning

garments worn by flaggers, shall conform to Part 6 of the MUTCD (incorporated by reference, see § 1926.6).

* * * * *

§ 1926.202 [Removed]

■ 30. Remove § 1926.202.

§ 1926.203 [Removed]

■ 31. Remove § 1926.203.

Subpart H—Materials Handling, Storage, Use, and Disposal

■ 32. The authority citation for part 1926, subpart H, continues to read as follows:

Authority: 40 U.S.C. 3701; 29 U.S.C. 653, 655, 657; and Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), 4-2010 (75 FR 55355), or 1-2012 (77 FR 3912), as applicable. Section 1926.250 also issued under 29 CFR part 1911.

■ 33. Revise paragraph (a)(2) of § 1926.250 to read as follows:

§ 1926.250 General requirements for storage.

(a) * * *

(2)(i) The weight of stored materials on floors within buildings and structures shall not exceed maximum safe load limits.

(ii) Employers shall conspicuously post maximum safe load limits of floors within buildings and structures, in pounds per square foot, in all storage areas, except when the storage area is on a floor or slab on grade. Posting is not required for storage areas in all single-family residential structures and wood-framed multi-family residential structures.

* * * * *

Subpart S—Underground Construction, Caissons, Cofferdams and Compressed Air

■ 34. The authority citation for part 1926, subpart S, continues to read as follows:

Authority: 40 U.S.C. 3701; 29 U.S.C. 653, 655, 657; and Secretary of Labor's Orders 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), 6-96 (62 FR 111), 5-2007 (72 FR 31159), or 1-2012 (77 FR 3912), as applicable.

■ 35. Revise paragraph (k)(10) of § 1926.800 to read as follows:

§ 1926.800 Underground construction.

* * * * *

(k) * * *

(10)(i) Internal combustion engines, except diesel-powered engines on mobile equipment, are prohibited underground.

(ii) Mobile diesel-powered equipment used underground in atmospheres other than gassy operations:

(A) Shall comply with MSHA provisions in 30 CFR 57.5067; or

(B) If purchased on or before July 15, 2019, may alternatively comply with MSHA provisions under 30 CFR part 32 (revised as of July 1, 1996) (formerly Schedule 24), or be demonstrated by the employer to be fully equivalent to such MSHA-approved equipment, and be operated in accordance with that part.

(iii) For purposes of this paragraph (k)(10), when an applicable MSHA provision uses the term "mine," use the phrase "underground construction site." (Each brake horsepower of a diesel engine requires at least 100 cubic feet (2.832 m³) of air per minute for suitable operation in addition to the air requirements for personnel. Some engines may require a greater amount of air to ensure that the allowable levels of carbon monoxide, nitric oxide, and nitrogen dioxide are not exceeded.)

* * * * *

Subpart W—Rollover Protective Structures; Overhead Protection

■ 36. The authority citation for part 1926, subpart W, is revised to read as follows:

Authority: 40 U.S.C. 3701; 29 U.S.C. 653, 655, 657; and Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), 6-96 (62 FR 111), 3-2000 (65 FR 50017), 5-2002 (67 FR 65008), or 1-2012 (77 FR 3912), as applicable.

■ 37. Amend § 1926.1000 by revising the section heading and paragraphs (a) through (c) to read as follows:

§ 1926.1000 Scope.

(a) *Coverage.* This subpart applies to the following types of material handling equipment: All rubber-tired, self-propelled scrapers, rubber-tired front-end loaders, rubber-tired dozers, wheel-type agricultural and industrial tractors, crawler tractors, crawler-type loaders, and motor graders, with or without attachments, that are used in construction work. This subpart also applies to compactors and rubber-tired skid-steer equipment, with or without attachments, manufactured after July 15, 2019, that are used in construction work. This subpart does not apply to sideboom pipelaying tractors.

(b) *Equipment manufactured before July 15, 2019.* Material handling equipment described in paragraph (a) of this section (excluding compactors and rubber-tired skid-steer equipment) manufactured before July 15, 2019, shall be equipped with rollover protective

structures that meet the minimum performance standards prescribed in § 1926.1001(b), as applicable. Agricultural and industrial tractors used in construction shall be equipped with rollover protective structures that meet the minimum performance standards prescribed in § 1926.1002(b), as applicable. When overhead protection is provided on agricultural and industrial tractors, the overhead protection shall meet the minimum performance standards prescribed in § 1926.1003(b), as applicable.

(c) *Equipment manufactured on or after July 15, 2019.* Material handling machinery described in paragraph (a) of this section manufactured on or after July 15, 2019, shall be equipped with rollover protective structures that meet the minimum performance standards prescribed in § 1926.1001(c). Agricultural and industrial tractors used in construction shall be equipped with rollover protective structures that meet the minimum performance standards prescribed in § 1926.1002(c). When overhead protection is provided on agricultural and industrial tractors, the overhead protection shall meet the minimum performance standards prescribed in § 1926.1003(c).

* * * * *

■ 38. Section 1926.1001 is revised to read as follows:

§ 1926.1001 Minimum performance criteria for rollover protective structures for designated scrapers, loaders, dozers, graders, crawler tractors, compactors, and rubber-tired skid steer equipment.

(a) *General.* This section prescribes minimum performance criteria for rollover protective structures (ROPS) for rubber-tired self-propelled scrapers; rubber-tired front end loaders and rubber-tired dozers; crawler tractors and crawler-type loaders, motor graders, compactors, and rubber-tired skid steer equipment.

(b) *Equipment manufactured before July 15, 2019.* For equipment listed in paragraph (a) of this section (excluding compactors and rubber-tired skid steer equipment) manufactured before July 15, 2019, the protective frames shall conform to the following Society of Automotive Engineers Recommended Practices as applicable: SAE J320a, Minimum Performance Criteria for Roll-Over Protective Structure for Rubber-Tired, Self-Propelled Scrapers; SAE J394, Minimum Performance Criteria for Roll-Over Protective Structure for Rubber-Tired Front End Loaders and Rubber-Tired Dozers; SAE J395, Minimum Performance Criteria for Roll-Over Protective Structure for Crawler Tractors and Crawler-Type Loaders;

SAE J396, Minimum Performance Criteria for Roll-Over Protective Structure for Motor Graders; and SAE J397, Critical Zone Characteristics and Dimensions for Operators of Construction and Industrial Machinery, as applicable (each incorporated by reference, see § 1926.6), or comply with the consensus standard (ISO 3471:2008) listed in paragraph (c) of this section.

(c) *Equipment manufactured on or after July 15, 2019.* For equipment listed in paragraph (a) of this section manufactured on or after July 15, 2019, the protective frames shall meet the test and performance requirements of the International Organization for Standardization (ISO) standard ISO 3471:2008 Earth-Moving Machinery—Roll-over protective structures—Laboratory tests and performance requirements (incorporated by reference, see § 1926.6).

■ 39. Amend § 1926.1002 by:

- a. Revising paragraphs (a) through (d);
- b. Removing paragraphs (e) through (i);
- c. Redesignating paragraph (j) as paragraph (e); and
- d. Removing newly redesignated paragraph (e)(3) and paragraph (k).

The revisions read as follows:

§ 1926.1002 Protective frames (roll-over protective structures, known as ROPS) for wheel-type agricultural and industrial tractors used in construction.

(a) *General.* This section sets forth requirements for frames used to protect operators of wheel-type agricultural and industrial tractors used in construction work that will minimize the possibility of operator injury resulting from accidental upsets during normal operation. See paragraph (e) of this section for definitions of agricultural and industrial tractors.

(b) *Equipment manufactured before July 15, 2019.* For equipment manufactured before July 15, 2019, the protective frames shall meet the test and performance requirements of the Society of Automotive Engineers Standard J334a, Protective Frame Test Procedures and Performance Requirements and J168, Protective enclosures-test procedures and performance requirements, as applicable (incorporated by reference, see § 1926.6), or comply with the consensus standard (ISO 5700:2013) listed in paragraph (c) of this section.

(c) *Equipment manufactured on or after July 15, 2019.* For equipment manufactured on or after July 15, 2019, the protective frames shall meet the test and performance requirements of the International Organization for Standardization (ISO) standard ISO

5700:2013, Tractors for agriculture and forestry—Roll-over protective structures—static test method and acceptance conditions or ISO 3471:2008 Earth-Moving Machinery—Roll-over protective structures—Laboratory tests and performance requirements (incorporated by reference, see § 1926.6).

(d) *Overhead protection requirements.* For overhead protection requirements, see § 1926.1003.

* * * * *

■ 40. Section 1926.1003 is revised to read as follows:

§ 1926.1003 Overhead protection for operators of agricultural and industrial tractors used in construction.

(a) *General.* This section sets forth requirements for overhead protection used to protect operators of wheel-type agricultural and industrial tractors used in construction work that will minimize the possibility of operator injury resulting from overhead objects such as flying or falling objection, and from the cover itself in the event of accidental upset.

(b) *Equipment manufactured before July 15, 2019.* When overhead protection is provided on wheel-type agricultural and industrial tractors manufactured before July 15, 2019, the overhead protection shall be designed and installed according to the requirements contained in the test and performance requirements of Society of Automotive Engineers Standard J167, Protective Frame with Overhead Protection-Test Procedures and Performance Requirements, which pertains to overhead protection requirements (incorporated by reference, see § 1926.6) or comply with the consensus standard (ISO 27850:2013) listed in paragraph (c) of this section.

(c) *Equipment manufactured on or after July 15, 2019.* When overhead protection is provided on wheel-type agricultural and industrial tractors manufactured on or after July 15, 2019, the overhead protection shall be designed and installed according to the requirements contained in the test and performance requirements of the International Organization for Standardization (ISO) standard ISO 27850:2013, Tractors for agriculture and forestry—Falling object protective structures—Test procedures and performance requirements, which pertains to overhead protection requirements (incorporated by reference, see § 1926.6).

(d) *Site clearing.* In the case of machines to which § 1926.604 (relating to site clearing) also applies, the

overhead protection may be either the type of protection provided in § 1926.604, or the type of protection provided by this section.

Appendix A to Subpart W of Part 1926 [Removed]

- 41. Remove appendix A to subpart W of part 1926.

Subpart Z—Toxic and Hazardous Substances

- 42. The authority citation for part 1926, subpart Z, is revised to read as follows:

Authority: 40 U.S.C. 3704; 29 U.S.C. 653, 655, 657; and Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), 6-96 (62 FR 111), 3-2000 (65 FR 50017), 5-2002 (67 FR 65008), 5-2007 (72 FR 31160), 4-2010 (75 FR 55355), or 1-2012 (77 FR 3912) as applicable; and 29 CFR part 1911.

Section 1926.1102 not issued under 29 U.S.C. 655 or 29 CFR part 1911; also issued under 5 U.S.C. 553.

- 43. Amend § 1926.1101 by revising paragraph (m)(2)(ii)(C) and appendices D and E and I, sections III and IV(iii), to read as follows:

§ 1926.1101 Asbestos.

* * * * *

(m) * * *

(2) * * *

(ii) * * *

(C) A physical examination directed to the pulmonary and gastrointestinal systems, including a 14- by 17-inch or other reasonably-sized standard film or digital posterior-anterior chest X-ray to be administered at the discretion of the physician, and pulmonary function tests of forced vital capacity (FVC) and forced expiratory volume at one second (FEV₁). Classification of all chest X-rays shall be conducted in accordance with appendix E to this section.

* * * * *

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APPENDIX D TO § 1926.1101—MEDICAL QUESTIONNAIRES; MANDATORY

This mandatory appendix contains the medical questionnaires that must be administered to all employees who are exposed to asbestos above permissible exposure limit, and who will therefore be included in their employer's medical surveillance program. Part 1 of this appendix contains the Initial Medical Questionnaire, which must be obtained for all new hires who will be covered by the medical surveillance requirements. Part 2 includes the abbreviated Periodical Medical Questionnaire, which must be administered to all employees who are provided periodic medical examinations under the medical surveillance provisions of the standard in this section.

Part 1

INITIAL MEDICAL QUESTIONNAIRE

- 1. NAME _____
- 2. CLOCK NUMBER _____
- 3. PRESENT OCCUPATION _____
- 4. PLANT _____
- 5. ADDRESS _____
- 6. _____
(Zip Code)
- 7. TELEPHONE NUMBER _____
- 8. INTERVIEWER _____
- 9. DATE _____
- 10. Date of Birth _____
Month Day Year

11. Place of Birth _____

12. Sex 1. Male ___
2. Female ___

13. What is your marital status? 1. Single ___ 4. Separated/
2. Married ___ Divorced ___
3. Widowed ___

14. (Check all that apply)
1. White ___ 4. Hispanic or Latino ___
2. Black or African American ___ 5. American Indian or
Alaska Native ___
3. Asian ___ 6. Native Hawaiian or
Other Pacific Islander ___

15. What is the highest grade completed in school? _____
(For example 12 years is completion of high school)

OCCUPATIONAL HISTORY

16A. Have you ever worked full time (30 hours per week or more) for 6 months or more? 1. Yes ___ 2. No ___

IF YES TO 16A:

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

Specify job/industry _____ Total Years Worked ___

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

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

Specify job/industry _____ Total Years Worked ___

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

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

- 1. Job occupation _____
- 2. Number of years employed in this occupation _____
- 3. Position/job title _____
- 4. Business, field or industry _____

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

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

17. <u>PAST MEDICAL HISTORY</u>	YES	NO
A. Do you consider yourself to be in good health?	_____	_____
If "NO" state reason _____		
B. Have you any defect of vision?	_____	_____
If "YES" state nature of defect _____		
C. Have you any hearing defect?	_____	_____
If "YES" state nature of defect _____		

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

18. CHEST COLDS AND CHEST ILLNESSES

18A. If you get a cold, does it "usually" go to your chest? (Usually means more than 1/2 the time)

1. Yes ___ 2. No ___
 3. Don't get colds ___

19A. During the past 3 years, have you had any chest illnesses that have kept you off work, indoors at home, or in bed?

1. Yes ___ 2. No ___

IF YES TO 19A:

B. Did you produce phlegm with any of these chest illnesses?

1. Yes ___ 2. No ___
 3. Does Not Apply ___

C. In the last 3 years, how many such illnesses with (increased) phlegm did you have which lasted a week or more?

Number of illnesses ___
 No such illnesses ___

20. Did you have any lung trouble before the age of 16?

1. Yes ___ 2. No ___

21. Have you ever had any of the following?

1A. Attacks of bronchitis?

1. Yes ___ 2. No ___

IF YES TO 1A:

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- B. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
3. Does Not Apply ___
- C. At what age was your first attack? Age in Years ___
Does Not Apply ___
- 2A. Pneumonia (include bronchopneumonia)? 1. Yes ___ 2. No ___
- IF YES TO 2A:
- B. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
3. Does Not Apply ___
- C. At what age did you first have it? Age in Years ___
Does Not Apply ___
- 3A. Hay Fever? 1. Yes ___ 2. No ___
- IF YES TO 3A:
- B. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
3. Does Not Apply ___
- C. At what age did it start? Age in Years ___
Does Not Apply ___
- 22A. Have you ever had chronic bronchitis? 1. Yes ___ 2. No ___
- IF YES TO 22A:
- B. Do you still have it? 1. Yes ___ 2. No ___
3. Does Not Apply ___
- C. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
3. Does Not Apply ___
- D. At what age did it start? Age in Years ___
Does Not Apply ___

23A. Have you ever had emphysema? 1. Yes ___ 2. No ___

IF YES TO 23A:

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

C. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
3. Does Not Apply ___

D. At what age did it start? Age in Years ___
Does Not Apply ___

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

IF YES TO 24A:

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

C. Was it confirmed by a doctor? 1. Yes ___ 2. No ___
3. Does Not Apply ___

D. At what age did it start? Age in Years ___
Does Not Apply ___

E. If you no longer have it, at what age did it stop? Age stopped ___
Does Not Apply ___

25. Have you ever had:

A. Any other chest illness? 1. Yes ___ 2. No ___

If yes, please specify _____

B. Any chest operations? 1. Yes ___ 2. No ___

If yes, please specify _____

C. Any chest injuries? 1. Yes ___ 2. No ___

If yes, please specify _____

26A. Has a doctor ever told 1. Yes ___ 2. No ___

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you that you had heart trouble?

IF YES TO 26A:

B. Have you ever had treatment for heart trouble in the past 10 years? 1. Yes ___ 2. No ___ 3. Does Not Apply ___

27A. Has a doctor told you that you had high blood pressure? 1. Yes ___ 2. No ___

IF YES TO 27A:

B. Have you had any treatment for high blood pressure (hypertension) in the past 10 years? 1. Yes ___ 2. No ___ 3. Does Not Apply ___

28. When did you last have your chest X-rayed? (Year) ___ ___ ___ ___

29. Where did you last have your chest X-rayed (if known)? _____

What was the outcome? _____

FAMILY HISTORY

30. Were either of your natural parents ever told by a doctor that they had a chronic lung condition such as:	FATHER			MOTHER		
	1. Yes	2. No	3. Don't know	1. Yes	2. No	3. Don't know
A. Chronic Bronchitis?	___	___	___	___	___	___
B. Emphysema?	___	___	___	___	___	___
C. Asthma?	___	___	___	___	___	___
D. Lung cancer?	___	___	___	___	___	___
E. Other chest conditions?	___	___	___	___	___	___
F. Is parent currently alive?	___	___	___	___	___	___
G. Please Specify	___ Age if Living			___ Age if Living		
	___ Age at Death			___ Age at Death		
	___ Don't Know			___ Don't Know		
H. Please specify cause of death	_____			_____		

COUGH

31A. Do you usually have a cough? (Count a cough with first smoke or on first going out of doors. Exclude clearing of throat.) (If no, skip to question 31C.)	1. Yes ___	2. No ___
B. Do you usually cough as much as 4 to 6 times a day 4 or more days out of the week?	1. Yes ___	2. No ___
C. Do you usually cough at all on getting up or first thing in the morning?	1. Yes ___	2. No ___

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D. Do you usually cough at all during the rest of the day or at night? 1. Yes ___ 2. No ___

IF YES TO ANY OF ABOVE (31A, B, C, OR D), ANSWER THE FOLLOWING. IF NO TO ALL, CHECK "DOES NOT APPLY" AND SKIP TO NEXT PAGE

E. Do you usually cough like this on most days for 3 consecutive months or more during the year? 1. Yes ___ 2. No ___ 3. Does not apply ___

F. For how many years have you had the cough? Number of years ___ Does not apply ___

32A. Do you usually bring up phlegm from your chest? 1. Yes ___ 2. No ___ Count phlegm with the first smoke or on first going out of doors. Exclude phlegm from the nose. Count swallowed phlegm.) (If no, skip to 32C)

B. Do you usually bring up phlegm like this as much as twice a day 4 or more days out of the week? 1. Yes ___ 2. No ___

C. Do you usually bring up phlegm at all on getting up or first thing in the morning? 1. Yes ___ 2. No ___

D. Do you usually bring up phlegm at all on during the rest of the day or at night? 1. Yes ___ 2. No ___

IF YES TO ANY OF THE ABOVE (32A, B, C, OR D), ANSWER THE FOLLOWING:

IF NO TO ALL, CHECK "DOES NOT APPLY" AND SKIP TO 33A

E. Do you bring up phlegm like this on most days for 3 consecutive months or more during the year? 1. Yes ___ 2. No ___ 3. Does not apply ___

F. For how many years have you had trouble with phlegm? Number of years ___ Does not apply ___

EPISODES OF COUGH AND PHLEGM

33A. Have you had periods or episodes of (increased*) cough and phlegm lasting for 3 weeks or more each year? 1. Yes ___ 2. No ___

*(For persons who usually have cough and/or phlegm)

IF YES TO 33A

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

WHEEZING

34A. Does your chest ever sound wheezy or whistling

1. When you have a cold? 1. Yes ___ 2. No ___

2. Occasionally apart from colds? 1. Yes ___ 2. No ___

3. Most days or nights? 1. Yes ___ 2. No ___

B. For how many years has this been present? Number of years ___
Does not apply ___

35A. Have you ever had an attack of wheezing that has made you feel short of breath? 1. Yes ___ 2. No ___

IF YES TO 35A

B. How old were you when you had your first such attack? Age in years ___
Does not apply ___

C. Have you had 2 or more such episodes? 1. Yes ___ 2. No ___
3. Does not apply ___

D. Have you ever required medicine or treatment for the(se) attack(s)? 1. Yes ___ 2. No ___
3. Does not apply ___

BREATHLESSNESS

36. If disabled from walking by any condition other than heart or lung disease, please describe and proceed to question 38A.

Nature of condition(s)

37A. Are you troubled by shortness of breath when hurrying on the level or walking up a slight hill?

1. Yes ___ 2. No ___

IF YES TO 37A

B. Do you have to walk slower than people of your age on the level because of breathlessness?

1. Yes ___ 2. No ___
3. Does not apply ___

C. Do you ever have to stop for breath when walking at your own pace on the level?

1. Yes ___ 2. No ___
3. Does not apply ___

D. Do you ever have to stop for breath after walking about 100 yards (or after a few minutes) on the level?

1. Yes ___ 2. No ___
3. Does not apply ___

E. Are you too breathless to leave the house or breathless on dressing or climbing one flight of stairs?

1. Yes ___ 2. No ___
3. Does not apply ___

TOBACCO SMOKING

38A. Have you ever smoked cigarettes?
(No means less than 20 packs of cigarettes or 12 oz. of tobacco in a lifetime or less than 1 cigarette a day for 1 year.)

1. Yes ___ 2. No ___

IF YES TO 38A

B. Do you now smoke cigarettes (as of one month ago)

1. Yes ___ 2. No ___
3. Does not apply ___

- | | |
|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| C. How old were you when you first started regular cigarette smoking? | Age in years _____
Does not apply _____ |
| D. If you have stopped smoking cigarettes completely, how old were you when you stopped? | Age stopped _____
Check if still smoking _____
Does not apply _____ |
| E. How many cigarettes do you smoke per day now? | Cigarettes per day _____
Does not apply _____ |
| F. On the average of the entire time you smoked, how many cigarettes did you smoke per day? | Cigarettes per day _____
Does not apply _____ |
| G. Do or did you inhale the cigarette smoke? | 1. Does not apply _____
2. Not at all _____
3. Slightly _____
4. Moderately _____
5. Deeply _____ |
| 39A. Have you ever smoked a pipe regularly?
(Yes means more than 12 oz. of tobacco in a lifetime.) | 1. Yes _____ 2. No _____ |

IF YES TO 39A

FOR PERSONS WHO HAVE EVER SMOKED A PIPE

- | | |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| B. 1. How old were you when you started to smoke a pipe regularly? | Age _____ |
| 2. If you have stopped smoking a pipe completely, how old were you when you stopped? | Age stopped _____
Check if still smoking pipe _____
Does not apply _____ |

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C. On the average over the entire time you smoked a pipe, how much pipe tobacco did you smoke per week? oz. per week (a standard pouch of tobacco contains 1 1/2 oz.)
 Does not apply

D. How much pipe tobacco are you smoking now? oz. per week
 Not currently smoking a pipe

E. Do you or did you inhale the pipe smoke?
 1. Never smoked
 2. Not at all
 3. Slightly
 4. Moderately
 5. Deeply

40A. Have you ever smoked cigars regularly? 1. Yes 2. No

(Yes means more than 1 cigar a week for a year)

IF YES TO 40A

FOR PERSONS WHO HAVE EVER SMOKED A CIGAR

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

2. If you have stopped smoking cigars completely, how old were you when you stopped smoking cigars? Age stopped
 Check if still
 Does not apply

C. On the average over the entire time you smoked cigars, how many cigars did you smoke per week? Cigars per week
 Does not apply

D. How many cigars are you smoking per week now? Cigars per week
 Check if not smoking cigars currently

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E. Do or did you inhale the cigar
smoke?

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

Signature _____

Date _____

Part 2

PERIODIC MEDICAL QUESTIONNAIRE

1. NAME _____

2. CLOCK NUMBER _____

3. PRESENT OCCUPATION _____

4. PLANT _____

5. ADDRESS _____

6. _____
(Zip Code)

7. TELEPHONE NUMBER _____

8. INTERVIEWER _____

9. DATE _____

10. What is your marital status? 1. Single ___ 4. Separated/
2. Married ___ Divorced ___
3. Widowed ___

11. OCCUPATIONAL HISTORY

11A. In the past year, did you work full time (30 hours per week or more) for 6 months or more? 1. Yes ___ 2. No ___

IF YES TO 11A:

11B. In the past year, did you work in a dusty job? 1. Yes ___ 2. No ___
3. Does not Apply ___

11C. Was dust exposure: 1. Mild ___ 2. Moderate ___ 3. Severe ___

11D. In the past year, were you exposed to gas or chemical fumes in your work? 1. Yes ___ 2. No ___

11E. Was exposure: 1. Mild ___ 2. Moderate ___ 3. Severe ___

11F. In the past year,
 what was your: 1. Job/occupation? _____
2. Position/job title? _____

12. RECENT MEDICAL HISTORY

12A. Do you consider yourself to
 be in good health? Yes ___ No ___

If NO, state reason _____

12B. In the past year, have you developed:

	<u>Yes</u>	<u>No</u>
Epilepsy?	___	___
Rheumatic fever?	___	___
Kidney disease?	___	___
Bladder disease?	___	___
Diabetes?	___	___
Jaundice?	___	___
Cancer?	___	___

13. CHEST COLDS AND CHEST ILLNESSES

13A. If you get a cold, does it "usually" go to your chest? (usually means more than 1/2
 the time)
1. Yes ___ 2. No ___
3. Don't get colds ___

14A. During the past year, have you had
 any chest illnesses that have kept you
 off work, indoors at home, or in bed?
1. Yes ___ 2. No ___
3. Does Not Apply ___

IF YES TO 14A:

14B. Did you produce phlegm with any
 of these chest illnesses?
1. Yes ___ 2. No ___
3. Does Not Apply ___

14C. In the past year, how many such
 illnesses with (increased) phlegm
 did you have which lasted a week
 or more?
Number of illnesses ___
No such illnesses ___

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15. RESPIRATORY SYSTEM

In the past year have you had:

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

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

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

Date _____ Signature _____

**Appendix E to § 1926.1101—
Classification of Chest X-Rays—
Mandatory**

(a) Chest X-rays shall be classified in accordance with the Guidelines for the use of the ILO International Classification of Radiographs of Pneumoconioses (revised edition 2011) (incorporated by reference, see § 1926.6), and recorded on a classification form following the format of the CDC/NIOSH (M) 2.8 form. As a minimum, the content within the bold lines of this form (items 1 through 4) shall be included. This form is not to be submitted to NIOSH.

(b) All X-rays shall be classified only by a B-Reader, a board eligible/certified radiologist, or an experienced physician with known expertise in pneumoconioses.

(c) Whenever classifying chest X-ray film, the physician shall have immediately available for reference a complete set of the ILO standard format radiographs provided for use with the Guidelines for the use of the ILO International Classification of Radiographs of Pneumoconioses (revised edition 2011).

(d) Whenever classifying digitally-acquired chest X-rays, the physician shall have immediately available for reference a complete set of ILO standard digital chest radiographic images provided for use with the Guidelines for the Use of the ILO International Classification of Radiographs of Pneumoconioses (revised edition 2011). Classification of digitally-acquired chest X-rays shall be based on the viewing of images displayed as electronic copies and shall not be based on the viewing of hard copy printed transparencies of images.

* * * * *

**Appendix I to § 1926.1101—Medical
Surveillance Guidelines for Asbestos,
Non-Mandatory**

* * * * *

**III. Signs and Symptoms of Exposure-
Related Disease**

The signs and symptoms of lung cancer or gastrointestinal cancer induced by exposure to asbestos are not unique, except that a chest X-ray of an exposed patient with lung cancer may show pleural plaques, pleural calcification, or pleural fibrosis, and may also show asbestosis (i.e., small irregular parenchymal opacities). Symptoms characteristic of mesothelioma include shortness of breath, pain in the chest or abdominal pain. Mesothelioma has a much longer average latency period compared with lung cancer (40 years versus 15–20 years), and mesothelioma is therefore more likely to be found among workers who were first exposed to asbestos at an early age. Mesothelioma is a fatal disease.

Asbestosis is pulmonary fibrosis caused by the accumulation of asbestos fibers in the lungs. Symptoms include shortness of breath, coughing, fatigue, and vague feelings of sickness. When the fibrosis worsens, shortness of breath occurs even at rest. The diagnosis of asbestosis is most commonly based on a history of exposure to asbestos, the presence of characteristic radiologic

abnormalities, end-inspiratory crackles (rales), and other clinical features of fibrosing lung disease. Pleural plaques and thickening may be observed on chest X-rays. Asbestosis is often a progressive disease even in the absence of continued exposure, although this appears to be a highly individualized characteristic. In severe cases, death may be caused by respiratory or cardiac failure.

**IV. Surveillance and Preventive
Considerations**

As noted in section III of this appendix, exposure to asbestos has been linked to an increased risk of lung cancer, mesothelioma, gastrointestinal cancer, and asbestosis among occupationally exposed workers. Adequate screening tests to determine an employee's potential for developing serious chronic diseases, such as a cancer, from exposure to asbestos do not presently exist. However, some tests, particularly chest X-rays and pulmonary function tests, may indicate that an employee has been overexposed to asbestos increasing his or her risk of developing exposure related chronic diseases. It is important for the physician to become familiar with the operating conditions in which occupational exposure to asbestos is likely to occur. This is particularly important in evaluating medical and work histories and in conducting physical examinations. When an active employee has been identified as having been overexposed to asbestos measures taken by the employer to eliminate or mitigate further exposure should also lower the risk of serious long-term consequences.

The employer is required to institute a medical surveillance program for all employees who are or will be exposed to asbestos at or above the permissible exposure limit (0.1 fiber per cubic centimeter of air). All examinations and procedures must be performed by or under the supervision of a licensed physician, at a reasonable time and place, and at no cost to the employee.

Although broad latitude is given to the physician in prescribing specific tests to be included in the medical surveillance program, OSHA requires inclusion of the following elements in the routine examination:

(i) Medical and work histories with special emphasis directed to symptoms of the respiratory system, cardiovascular system, and digestive tract.

(ii) Completion of the respiratory disease questionnaire contained in appendix D of this appendix.

(iii) A physical examination including a chest X-ray and pulmonary function test that includes measurement of the employee's forced vital capacity (FVC) and forced expiratory volume at one second (FEV₁).

(iv) Any laboratory or other test that the examining physician deems by sound medical practice to be necessary.

The employer is required to make the prescribed tests available at least annually to those employees covered; more often than specified if recommended by the examining physician; and upon termination of employment.

The employer is required to provide the physician with the following information: A copy of the standard in this section (including all appendices to this section); a description of the employee's duties as they relate to asbestos exposure; the employee's representative level of exposure to asbestos; a description of any personal protective and respiratory equipment used; and information from previous medical examinations of the affected employee that is not otherwise available to the physician. Making this information available to the physician will aid in the evaluation of the employee's health in relation to assigned duties and fitness to wear personal protective equipment, if required.

The employer is required to obtain a written opinion from the examining physician containing the results of the medical examination; the physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of exposure-related disease; any recommended limitations on the employee or on the use of personal protective equipment; and a statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions related to asbestos exposure that require further explanation or treatment. This written opinion must not reveal specific findings or diagnoses unrelated to exposure to asbestos, and a copy of the opinion must be provided to the affected employee.

* * * * *

■ 44. Revise paragraph (l)(4)(ii)(C) of § 1926.1127 to read as follows:

§ 1926.1127 Cadmium.

* * * * *

(l) * * *

(4) * * *

(ii) * * *

(C) A 14 inch by 17 inch or other reasonably-sized standard film or digital posterior-anterior chest X-ray (after the initial X-ray, the frequency of chest X-rays is to be determined by the examining physician);

* * * * *

§ 1926.1129 [Removed and Reserved]

■ 45. Remove and reserve § 1926.1129.

§§ 1910.120, 1910.1001, 1910.1017, 1910.1018, 1910.1025, 1910.1026, 1910.1027, 1910.1028, 1910.1029, 1910.1030, 1910.1043, 1910.1044, 1910.1045, 1910.1047, 1910.1048, 1910.1050, 1910.1051, 1910.1052, 1910.1053, 1915.1001, 1915.1026, 1926.60, 1926.62, 1926.65, 1926.1101, 1926.1126, 1926.1127, and 1926.1153 [Amended]

■ 46. In addition to the amendments set forth above, in 29 CFR parts 1910, 1915, and 1926, remove words and punctuation from the following sections as follows:

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Words and punctuation to remove	29 CFR		
	Part 1910	Part 1915	Part 1926
and social security number.	1910.120(f)(8)(ii)(A), 1910.1001(m)(3)(ii)(A), 1910.1017(m)(1), 1910.1025(d)(5), 1910.1025(n)(3)(ii)(A), 1910.1025, app. B, Sec. XII., 1910.1026(m)(4)(ii)(A), 1910.1028(k)(2)(iii)(A), 1910.1030(h)(1)(ii)(A), 1910.1043(k)(2)(ii)(A), 1910.1044(p)(2)(ii)(a), 1910.1047(k)(3)(ii)(A), 1910.1048(o)(3)(f), 1910.1048(o)(4)(ii)(D), 1910.1050(n)(5)(ii)(A), 1910.1051(m)(4)(ii)(A), 1910.1053(k)(3)(ii)(A).	1915.1001(n)(3)(ii)(A), 1915.1026(k)(4)(ii)(A).	1926.60(o)(5)(ii)(A), 1926.62(d)(5), 1926.62(n)(3)(ii)(A), 1926.62, app. B, Sec. XII., 1926.65(f)(8)(ii)(A), 1926.1101(n)(3)(ii)(A), 1926.1126(k)(4)(ii)(A), 1926.1127(d)(2)(iv), 1926.1153(j)(3)(ii)(A).
social security numbers..	1910.1043(k)(1)(ii)(C), 1910.1048(o)(1)(vi).	-----	
social security number..	1910.1028(k)(1)(ii)(D), 1910.1050(n)(3)(ii)(D), 1910.1052(m)(2)(ii)(F), 1910.1052(m)(2)(iii)(C).	-----	
social security number.	1910.1001(m)(1)(ii)(F), 1910.1047(k)(2)(ii)(F), 1910.1050(n)(4)(ii)(A), 1910.1051(m)(2)(ii)(F), 1910.1052(m)(3)(ii)(A).	-----	
social security number..	1910.1018(q)(1)(ii)(D), 1910.1018(q)(2)(ii)(A), 1910.1025(n)(1)(ii)(D), 1910.1025(n)(2)(ii)(A), 1910.1026(m)(1)(ii)(F), 1910.1027(n)(1)(ii)(B), 1910.1027(n)(3)(ii)(A), 1910.1029(m)(1)(i)(a), 1910.1029(m)(2)(i)(a), 1910.1044(p)(1)(ii)(d), 1910.1045(q)(2)(ii)(D), 1910.1053(k)(1)(ii)(G).	1915.1001(n)(2)(ii)(F), 1915.1026(k)(1)(ii)(F).	1926.60(o)(4)(ii)(F), 1926.62(n)(1)(ii)(D), 1926.62(n)(2)(ii)(A), 1926.1101(n)(2)(ii)(F), 1926.1126(k)(1)(ii)(F), 1926.1127(n)(1)(ii)(B), 1926.1127(n)(3)(ii)(A), 1926.1153(j)(1)(ii)(G).

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BILLING CODE 4510-26-P

16VAC25-60-130.D. The employer shall comply with the Virginia Department of Transportation (VDOT) Work Area Protection Manual in lieu of the federal Manual on Uniform Traffic Control Devices (Part VI of the MUTCD, 1988 2009 Edition, Revision 3 1 dated May 2012 and Revision 2 dated May 2012, or Part VI of the MUTCD, Millennium Edition - referenced in 16VAC25-175-1926.200 through 16VAC25-175-1926.202) when working under a contract for construction, repair, or maintenance between the employer and the Commonwealth; agencies, authorities, or instrumentalities of the Commonwealth; or any political subdivision or public body of the Commonwealth when such contract stipulates employer compliance with the VDOT Work Area Protection Manual in effect at the time of contractual agreement.”