

ific emergency procedures described, and posted, and employees will be familiarized with their rehearsed in their applica-

materials relating to the procedure be provided upon request to representatives of the Assistant Secretary and the Director.

1974, the information regarding divisions (i), (ii), (iii), and paragraph shall be reported to the nearest OSHA Area Office any changes in such information similarly reported in writing calendar days of such change. description and in-plant location of regulated area; (s) regulated area; (s) and other identification as to the presence of dimethylamine in each regulated

number of employees in each area, during normal operations maintenance activities; and manner in which N-Nitrosodimethylamine is present in each area; e.g. whether it is manufactured, used, repackaged, stored, or otherwise handled. Incidents which result in release of N-Nitrosodimethylamine from any area where employees may be exposed shall be reported in accordance with this subparagraph. The facts obtainable at the time of the occurrence of the incident and the facts obtainable at the time of the report on any medical examination of affected employees shall be reported in 24 hours to the nearest OSHA Area Director.

Written report shall be filed with the OSHA Area Director within 10 days thereafter and shall include a specification of the amount of release, the amount of time and an explanation of the procedure in determining this figure; description of the area involved; extent of known and possible exposure and area contamination.

Report of any medical treatment of employees, and any medical examination implemented; and analysis of the circumstances of the incident, and measures taken or taken, with specific completion avoid further similar releases

Chapter XVII—Occupational Safety and Health Admin.

§ 1910.101

(g) *Medical surveillance.* At no cost to the employee, a program of medical surveillance shall be established and implemented for employees considered for assignment to enter regulated areas, and for authorized employees. (1) *Examinations.* (i) Before an employee is assigned to enter a regulated area, a preassignment physical examination by a physician shall be provided. The examination shall include the personal history of the employee, family and occupational background, including genetic and environmental factors.

(ii) Authorized employees shall be provided periodic physical examinations, not less often than annually, following the preassignment examination.

(iii) In all physical examinations, the examining physician shall consider whether there exist conditions of increased risk, including reduced immunological competence, those undergoing treatment with steroids or cytotoxic agents, pregnancy and cigarette smoking.

(2) *Records.* (i) Employers of employees examined pursuant to this paragraph shall cause to be maintained complete and accurate records of all such medical examinations. Records shall be maintained for the duration of the employee's employment. Upon termination of an employee's employment, including retirement or death, or in the event that the employer ceases business without a successor, records, or notarized true copies thereof, shall be forwarded by registered mail to the Director.

(ii) Records required by this paragraph shall be provided upon request to authorized representatives of the Assistant Secretary or the Director, and, upon request of an employee or former employee, to a physician designated by the employee or to a new employer.

(iii) Any physician who conducts a medical examination required by this paragraph shall furnish to the employer a statement of the employee's suitability for employment in the specific exposure.

§ 1910.1017 Vinyl chloride.

(a) *Scope and application.* (1) This section includes requirements for the control of employee exposure to vinyl chloride (chloroethene), Chemical Abstracts Service Registry No. 75014.

(2) This section applies to the manufacture, reaction, packaging, repackag-

ing, storage, handling or use of vinyl chloride or polyvinyl chloride, but does not apply to the handling or use of fabricated products made of polyvinyl chloride.

(3) This section applies to the transportation of vinyl chloride or polyvinyl chloride except to the extent that the Department of Transportation may regulate the hazards covered by this section.

(b) *Definitions.* (1) "Action level" means a concentration of vinyl chloride of 0.5 ppm averaged over an 8-hour work day.

(2) "Assistant Secretary" means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or his designee.

(3) "Authorized person" means any person specifically authorized by the employer whose duties require him to enter a regulated area or any person entering such an area as a designated representative of employees for the purpose of exercising an opportunity to observe monitoring and measuring procedures.

(4) "Director" means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health, Education, and Welfare, or his designee.

(5) "Emergency" means any occurrence such as, but not limited to, equipment failure, or operation of a relief device which is likely to, or does, result in massive release of vinyl chloride.

(6) "Fabricated product" means a product made wholly or partly from polyvinyl chloride, and which does not require further processing at temperatures, and for times, sufficient to cause mass melting of the polyvinyl chloride resulting in the release of vinyl chloride.

(7) "Hazardous operation" means any operation, procedure, or activity where a release of either vinyl chloride liquid or gas might be expected as a consequence of the operation or because of an accident in the operation, which would result in an employee exposure in excess of the permissible exposure limit.

(8) "OSHA Area Director" means the Director for the Occupational Safety and Health Administration Area Office having jurisdiction over the geographic area in which the employer's establishment is located.

JUL 2 - 1984

(9) "Polyvinyl chloride" means polyvinyl chloride homopolymer or copolymer before such is converted to a fabricated product.

(10) "Vinyl chloride" means vinyl chloride monomer.

(c) Permissible exposure limit. (1) No employee may be exposed to vinyl chloride at concentrations greater than 1 ppm averaged over any 8-hour period, and

(2) No employee may be exposed to vinyl chloride at concentrations greater than 5 ppm averaged over any period not exceeding 15 minutes.

(3) No employee may be exposed to vinyl chloride by direct contact with liquid vinyl chloride.

(d) Monitoring. (1) A program of initial monitoring and measurement shall be undertaken in each establishment to determine if there is any employee exposed, without regard to the use of respirators, in excess of the action level.

(2) Where a determination conducted under paragraph (d)(1) of this section shows any employee exposures, without regard to the use of respirators, in excess of the action level, a program for determining exposures for each such employee shall be established. Such a program:

(i) Shall be repeated at least monthly where any employee is exposed, without regard to the use of respirators, in excess of the permissible exposure limit.

(ii) Shall be repeated not less than quarterly where any employee is exposed, without regard to the use of respirators, in excess of the action level.

(iii) May be discontinued for any employee only when at least two consecutive monitoring determinations, made not less than 5 working days apart, show exposures for that employee at or below the action level.

(3) Whenever there has been a production, process or control change which may result in an increase in the release of vinyl chloride, or the employer has any other reason to suspect that any employee may be exposed in excess of the action level, a determination of employee exposure under paragraph (d)(1) of this section shall be performed.

(4) The method of monitoring and measurement shall have an accuracy (with a confidence level of 95 percent) of

not less than plus or minus 50 percent from 0.25 through 0.5 ppm, plus or minus 35 percent from over 0.5 ppm through 1.0 ppm, and plus or minus 25 percent over 1.0 ppm. (Methods meeting these accuracy requirements are available in the "NIOSH Manual of Analytical Methods").

(5) Employees or their designated representatives shall be afforded reasonable opportunity to observe the monitoring and measuring required by this paragraph.

(e) Regulated area. (1) A regulated area shall be established where:

(i) Vinyl chloride or polyvinyl chloride is manufactured, reacted, repackaged, stored, handled or used; and

(ii) Vinyl chloride concentrations are in excess of the permissible exposure limit.

(2) Access to regulated areas shall be limited to authorized persons. A daily roster shall be made of authorized persons who enter.

(f) Methods of compliance. Employee exposures to vinyl chloride shall be controlled to at or below the permissible exposure limit provided in paragraph (c) of this section by engineering, work practice, and personal protective controls as follows:

(1) Feasible engineering and work practice controls shall immediately be used to reduce exposures to at or below the permissible exposure limit.

(2) Wherever feasible engineering and work practice controls which can be instituted immediately are not sufficient to reduce exposures to at or below the permissible exposure limit, they shall nonetheless be used to reduce exposures to the lowest practicable level, and shall be supplemented by respiratory protection in accordance with paragraph (g) of this section. A program shall be established and implemented to reduce exposures to at or below the permissible exposure limit, or to the greatest extent feasible, solely by means of engineering and work practice controls, as soon as feasible.

(3) Written plans for such a program shall be developed and furnished upon request for examination and copying to authorized representatives of the Assistant Secretary and the Director. Such plans shall be updated at least every six months.

Chapter XVII—Occup

(g) Respiratory protection. This section:

(1) The employer respirator which meets of this paragraph and the employee uses such that until April 1,

Atmospheric conce
vinyl chlor

(i) Unknown, or above

(ii) Not over 3,600 ppm

(iii) Not over 1,000 P

(iv) Not over 100 p

(v) Not over 25 PP

(vi) Not over 10

use, and lin
devices.

(2) Respirat
among those
Mining Enforc
istration, Dep
and the Natio
tional Safety
visions of 30

(3) A resp
meeting the
shall be esta

(4) Select
chloride sha

is than plus or minus 50 percent .25 through 0.5 ppm, plus or minus percent from over 0.5 ppm through n, and plus or minus 25 percent 0 ppm. (Methods meeting these requirements are available in NIOSH Manual of Analytical is").

Employees or their designated representatives shall be afforded reasonable unity to observe the monitoring and measuring required by this aph.

Regulated area. (1) A regulated area shall be established where: vinyl chloride or polyvinyl chloride manufactured, reacted, repackaged, handled or used; and vinyl chloride concentrations are as of the permissible exposure

access to regulated areas shall be to authorized persons. A daily shall be made of authorized persons to enter.

Methods of compliance. Employees exposed to vinyl chloride shall be controlled to at or below the permissible exposure limit provided in paragraph (c) by engineering, work practice or personal protective controls as

feasible engineering and work controls shall immediately be used to reduce exposures to at or below the permissible exposure limit.

Wherever feasible engineering and work practice controls which can be implemented immediately are not sufficient to reduce exposures to at or below the permissible exposure limit, they shall nonetheless be used to reduce exposures to the lowest practicable level, and shall be supplemented by respiratory protection in accordance with paragraph (g) of this section. A program shall be established to reduce exposures to at or below the permissible exposure limit to the greatest extent feasible, by means of engineering and work controls, as soon as feasible.

Written plans for such a program shall be developed and furnished upon request for examination and copying to representatives of the Assistant Secretary and the Director. Such plans shall be updated at least every six

(g) **Respiratory protection.** Where respiratory protection is required under this section:

(1) The employer shall provide a respirator which meets the requirements of this paragraph and shall assure that the employee uses such respirator, except that until April 1, 1976, wearing of

respirators shall be at the discretion of each employee for exposures not in excess of 25 ppm, measured over any 15-minute period. Until April 1, 1976, each employee who chooses not to wear an appropriate respirator shall be informed at least quarterly of the hazards of vinyl chloride and the purpose, proper

Atmospheric concentration of vinyl chloride	Required apparatus
(i) Unknown, or above 3,600 ppm....	Open-circuit, self-contained breathing apparatus, pressure demand type, with full facepiece.
(ii) Not over 3,600 ppm.....	(A) Combination type C supplied air respirator, pressure demand type, with full or half facepiece, and auxiliary self-contained air supply; or
(iii) Not over 1,000 ppm.....	(B) Combination type, supplied air respirator continuous flow type, with full or half facepiece, and auxiliary self-contained air supply.
(iv) Not over 100 ppm.....	Type C, supplied air respirator, continuous flow type, with full or half facepiece, helmet or hood.
(v) Not over 25 ppm.....	(A) Combination type C supplied air respirator demand type, with full facepiece, and auxiliary self-contained air supply; or
(vi) Not over 10 ppm.....	(B) Open-circuit self-contained breathing apparatus with full facepiece, in demand mode; or
	(C) Type C supplied air respirator, demand type, with full facepiece.
	(A) A powered air-purifying respirator with hood, helmet, full or half facepiece, and a canister which provides a service life of at least 4 hours for concentrations of vinyl chloride up to 25 ppm, or
	(B) Gas mask, front- or back-mounted canister which provides a service life of at least 4 hours for concentrations of vinyl chloride up to 25 ppm.
	(A) Combination type C supplied-air respirator, demand type, with half facepiece, and auxiliary self-contained air supply; or
	(B) Type C supplied-air respirator, demand type, with half facepiece; or
	(C) Any chemical cartridge respirator with an organic vapor cartridge which provides a service life of at least 1 hour for concentrations of vinyl chloride up to 10 ppm.

use, and limitations of respiratory devices.

(2) Respirators shall be selected from among those jointly approved by the Mining Enforcement and Safety Administration, Department of the Interior, and the National Institute for Occupational Safety and Health under the provisions of 30 CFR Part 11.

(3) A respiratory protection program meeting the requirements of § 1910.134 shall be established and maintained.

(4) Selection of respirators for vinyl chloride shall be as follows:

(5) (i) Entry into unknown concentrations or concentrations greater than 36,000 ppm (lower explosive limit) may be made only for purposes of life rescue; and

(ii) Entry into concentrations of less than 36,000 ppm, but greater than 3,600 ppm may be made only for purposes of life rescue, firefighting, or securing equipment so as to prevent a greater hazard from release of vinyl chloride.

(6) Where air-purifying respirators are used:

(i) Air-purifying canisters or cartridges shall be replaced prior to the expiration of their service life or the end of the shift in which they are first used, whichever occurs first, and

(ii) A continuous monitoring and alarm system shall be provided where concentrations of vinyl chloride could reasonably exceed the allowable concentrations for the devices in use. Such system shall be used to alert employees when vinyl chloride concentrations exceed the allowable concentrations for the devices in use.

(7) Apparatus prescribed for higher concentrations may be used for any lower concentration.

(h) *Hazardous operations.* (1) Employees engaged in hazardous operations, including entry of vessels to clean polyvinyl chloride residue from vessel walls, shall be provided and required to wear and use;

(i) Respiratory protection in accordance with paragraphs (c) and (g) of this section; and

(ii) Protective garments to prevent skin contact with liquid vinyl chloride or with polyvinyl chloride residue from vessel walls. The protective garments shall be selected for the operation and its possible exposure conditions.

(2) Protective garments shall be provided clean and dry for each use.

(i) *Emergency situations.* A written operational plan for emergency situations shall be developed for each facility storing, handling, or otherwise using vinyl chloride as a liquid or compressed gas. Appropriate portions of the plan shall be implemented in the event of an emergency. The plan shall specifically provide that:

(1) Employees engaged in hazardous operations or correcting situations of existing hazardous releases shall be equipped as required in paragraph (h) of this section;

(2) Other employees not so equipped shall evacuate the area and not return until conditions are controlled by the methods required in paragraph (f) of this section and the emergency is abated.

(j) *Training.* Each employee engaged in vinyl chloride or polyvinyl chloride operations shall be provided training in a program relating to the hazards of vinyl chloride and precautions for its safe use.

(1) The program shall include:

(i) The nature of the health hazard from chronic exposure to vinyl chloride including specifically the carcinogenic hazard;

(ii) The specific nature of operations which could result in exposure to vinyl chloride in excess of the permissible limit and necessary protective steps;

(iii) The purpose for, proper use, and limitations of respiratory protective devices;

(iv) The fire hazard and acute toxicity of vinyl chloride, and the necessary protective steps;

(v) The purpose for and a description of the monitoring program;

(vi) The purpose for, and a description of, the medical surveillance program;

(vii) Emergency procedures;

(viii) Specific information to aid the employee in recognition of conditions which may result in the release of vinyl chloride; and

(ix) A review of this standard at the employee's first training and indoctrination program, and annually thereafter.

(2) All materials relating to the program shall be provided upon request to the Assistant Secretary and the Director.

(k) *Medical surveillance.* A program of medical surveillance shall be instituted for each employee exposed, without regard to the use of respirators, to vinyl chloride in excess of the action level. The program shall provide each such employee with an opportunity for examinations and tests in accordance with this paragraph. All medical examinations and procedures shall be performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee.

(1) At the time of initial assignment, or upon institution of medical surveillance;

(i) A general physical examination shall be performed, with specific attention to detecting enlargement of liver, spleen or kidneys, or dysfunction in these organs, and for abnormalities in skin, connective tissues and the pulmonary system (See Appendix A).

(ii) A medical history shall be taken, including the following topics:

(A) Alcohol intake;

(B) Past history of hepatitis;

(C) Work history and past exposure to potential hepatotoxic agents, including drugs and chemicals;

(D) Past history of occupational exposures; and

(E) Past history of occupational exposures, including specifically the carcinogenic hazard;

(iii) A serum specimen shall be obtained and determined:

(A) Total bilirubin;

(B) Alkaline phosphatase (SGPT);

(C) Serum glutamate aminase (SGOT);

(D) Serum glutamate aminase (SGPT); and

(E) Gamma glutamate aminase (SGPT);

(2) Examinations shall be conducted with this part of the program at least:

(i) Every 6 months for employees who have been exposed to vinyl chloride or polyvinyl chloride for 10 years or long

(ii) Annually for other employees

(3) Each employee shall be provided with a medical surveillance program

(4) A statement of suitability for work with vinyl chloride in the employee's equipment shall be obtained from the physician promptly after a physical examination of the physician's employee

(5) If any employee is materially impaired by exposure, such as to be drawn from position or removed from work

(6) Laboratory examinations shall be conducted in accordance with the requirements of the State of New York for laboratories licensed to perform such examinations

(7) If the employee's condition is such that it is determined that the employee is not in the best condition to perform the work, the employee shall be removed from work until such time as the employee is able to perform the work

(k) (1) of this section shall be at least equal to the condition to which the employee is exposed

(k) (1) of this section shall be at least equal to the condition to which the employee is exposed

(k) (1) of this section shall be at least equal to the condition to which the employee is exposed

(k) (1) of this section shall be at least equal to the condition to which the employee is exposed

(k) (1) of this section shall be at least equal to the condition to which the employee is exposed

nature of the health hazard
due to exposure to vinyl chloride
specifically the carcinogenic

specific nature of operations
which result in exposure to vinyl
chloride in excess of the permissible
exposure limits; necessary protective steps;
purpose for, proper use, and
effectiveness of respiratory protective

fire hazard and acute toxic
effects of vinyl chloride, and the necessary
steps;

purpose for and a description
of the monitoring program;

purpose for, and a descrip-
tion of the medical surveillance

emergency procedures;
specific information to aid the
employee in recognition of conditions
which result in the release of vinyl
chloride.

Review of this standard at the
first training and indoctrina-
tion, and annually thereafter.
Materials relating to the pro-
gram shall be provided upon request to
the Assistant Secretary and the Director.
Medical surveillance. A program
of medical surveillance shall be insti-
tuted for each employee exposed, with-
out the use of respirators, to
provide in excess of the action
program shall provide each
employee with an opportunity for
physical examinations and tests in accordance
with paragraph. All medical ex-
aminations and procedures shall be per-
formed under the supervision of a
physician, and shall be provided
free of charge to the employee.

At the time of initial assignment,
institution of medical surveil-

General physical examination
performed, with specific atten-
tion to the following: enlargement of liver,
spleen, or dysfunction in these
organs; abnormalities in skin,
tissues and the pulmonary
system (Appendix A).

Medical history shall be taken,
including the following topics:

alcohol intake;
history of hepatitis;
work history and past exposure
to hepatotoxic agents, includ-
ing chemicals;

Chapter XVII—Occupational Safety and Health Admin.

§ 1910.1017

(D) Past history of blood transfu-
sions; and

(E) Past history of hospitalizations.
(iii) A serum specimen shall be ob-
tained and determinations made of:

(A) Total bilirubin;
(B) Alkaline phosphatase;
(C) Serum glutamic oxalacetic trans-
aminase (SGOT);

(D) Serum glutamic pyruvic transam-
inase (SGPT); and

(E) Gamma glutamyl transpeptidase.

(2) Examinations provided in accord-
ance with this paragraph shall be per-
formed at least:

(i) Every 6 months for each employee
who has been employed in vinyl chlo-
ride or polyvinyl chloride manufacturing
for 10 years or longer; and

(ii) Annually for all other employees.

(3) Each employee exposed to an
emergency shall be afforded appropriate
medical surveillance.

(4) A statement of each employee's
suitability for continued exposure to
vinyl chloride including use of protec-
tive equipment and respirators, shall be
obtained from the examining physician
promptly after any examination. A copy
of the physician's statement shall be pro-
vided each employee.

(5) If any employee's health would be
materially impaired by continued ex-
posure, such employee shall be with-
drawn from possible contact with vinyl
chloride.

(6) Laboratory analyses for all bio-
logical specimens included in medical
examinations shall be performed in labo-
ratories licensed under 42 CFR Part 74.

(7) If the examining physician deter-
mines that alternative medical examina-
tions to those required by paragraph
(k)(1) of this section will provide at
least equal assurance of detecting med-
ical conditions pertinent to the exposure
to vinyl chloride, the employer may ac-
cept such alternative examinations as
meeting the requirements of paragraph
(k)(1) of this section, if the employer
obtains a statement from the examining
physician setting forth the alternative
examinations and the rationale for sub-
stitution. This statement shall be avail-
able upon request for examination and
copying to authorized representatives of
the Assistant Secretary and the Director.

(l) Signs and labels. (1) Entrances to
regulated areas shall be posted with leg-
ible signs bearing the legend:

CANCER-SUSPECT AGENT AREA AUTHORIZED PERSONNEL ONLY

(2) Areas containing hazardous oper-
ations or where an emergency currently
exists shall be posted with legible signs
bearing the legend:

CANCER-SUSPECT AGENT IN THIS AREA PROTECTIVE EQUIPMENT REQUIRED AUTHORIZED PERSONNEL ONLY

(3) Containers of polyvinyl chloride
resin waste from reactors or other waste
contaminated with vinyl chloride shall
be legibly labeled:

CONTAMINATED WITH VINYL CHLORIDE CANCER-SUSPECT AGENT

(4) Containers of polyvinyl chloride
shall be legibly labeled:

POLYVINYL CHLORIDE (OR TRADE NAME) CONTAINS

VINYL CHLORIDE

VINYL CHLORIDE IS A CANCER-SUSPECT AGENT

(5) Containers of vinyl chloride shall
be legibly labeled either:

(i)

VINYL CHLORIDE

EXTREMELY FLAMMABLE GAS UNDER PRESSURE
CANCER-SUSPECT AGENT

or (ii) In accordance with 49 CFR Parts
170-189, with the additional legend:

CANCER-SUSPECT AGENT

applied near the label or placard.

(6) No statement shall appear on or
near any required sign, label or instruc-
tion which contradicts or detracts from
the effect of, any required warning,
information or instruction.

(m) Records. (1) All records main-
tained in accordance with this section
shall include the name and social secu-
rity number of each employee where
relevant.

(2) Records of required monitoring
and measuring, medical records, and au-
thorized personnel rosters, shall be made
and shall be available upon request for
examination and copying to authorized
representatives of the Assistant Secre-
tary and the Director.

(i) Monitoring and measuring records
shall:

(A) State the date of such monitor-
ing and measuring and the concentra-
tions determined and identify the instru-
ments and methods used;

(B) Include any additional informa-
tion necessary to determine individual

employee exposures where such exposures are determined by means other than individual monitoring of employees; and

(C) Be maintained for not less than 30 years.

(ii) Authorized personnel rosters shall be maintained for not less than 30 years.

(iii) Medical records shall be maintained for the duration of the employment of each employee plus 20 years, or 30 years, whichever is longer.

(3) In the event that the employer ceases to do business and there is no successor to receive and retain his records for the prescribed period, these records shall be transmitted by registered mail to the Director, and each employee individually notified in writing of this transfer.

(4) Employees or their designated representatives shall be provided access to examine and copy records of required monitoring and measuring.

(5) Former employees shall be provided access to examine and copy required monitoring and measuring records reflecting their own exposures.

(6) Upon written request of any employee, a copy of the medical record of that employee shall be furnished to any physician designated by the employee.

(n) *Reports.* (1) Not later than 1 month after the establishment of a regulated area, the following information shall be reported to the OSHA Area Director. Any changes to such information shall be reported within 15 days.

(i) The address and location of each establishment which has one or more regulated areas; and

(ii) The number of employees in each regulated area during normal operations, including maintenance.

(2) Emergencies, and the facts obtainable at that time, shall be reported within 24 hours to the OSHA Area Director. Upon request of the Area Director, the employer shall submit additional information in writing relevant to the nature and extent of employee exposures and measures taken to prevent future emergencies of similar nature.

(3) Within 10 working days following any monitoring and measuring which discloses that any employee has been exposed, without regard to the use of respirators, in excess of the permissible exposure limit, each such employee shall be notified in writing of the results of the exposure measurement and the steps

being taken to reduce the exposure to within the permissible exposure limit.

(o) *Effective dates.* (1) Until April 1, 1975, the provisions currently set forth in § 1910.93q of this Part shall apply.

(2) Effective April 1, 1975, the provisions set forth in § 1910.93q of this Part shall apply.

APPENDIX A—SUPPLEMENTARY MEDICAL INFORMATION

When required tests under paragraph (k) (1) of this section show abnormalities, the tests should be repeated as soon as practicable, preferably within 3 to 4 weeks. If tests remain abnormal, consideration should be given to withdrawal of the employee from contact with vinyl chloride, while a more comprehensive examination is made.

Additional tests which may be useful:

A. For kidney dysfunction: urine examination for albumin, red blood cells, and exfoliative abnormal cells.

B. Pulmonary system: Forced vital capacity, Forced expiratory volume at 1 second, and chest roentgenogram (posterior-anterior, 14 x 17 inches).

C. Additional serum tests: Lactic acid dehydrogenase, lactic acid dehydrogenase isoenzyme, protein determination, and protein electrophoresis.

D. For a more comprehensive examination on repeated abnormal serum tests: Hepatitis B antigen, and liver scanning.

(Secs. 6 and 8, 84 Stat. 1596, 1599 (29 U.S.C. 655, 657); Secretary of Labor's Order No. 12-71, 36 FR 8754; [39 FR 35898, Oct. 4, 1974; 39 FR 41848, Dec. 3, 1974, as amended at 40 FR 13211, Mar. 25, 1975. Redesignated at 40 FR 23073, May 28, 1975]

§ 1910.1499 Source of standards.

Section 1910.1000... 41 CFR 50-204.50, except for Table Z-2, the source of which is American National Standards Institute, Z37 series.

[40 FR 23073, May 28, 1975]

§ 1910.1500 Standards organizations.

Specific standards of the following organizations have been referred to in this subpart. Copies of the standards may be obtained from the issuing organization.

American Conference of Governmental Industrial Hygienists
1014 Broadway
Cincinnati, Ohio 45202
American National Standards Institute
1430 Broadway
New York, New York 10018
National Fire Protection Association
470 Atlantic Avenue
Boston, Massachusetts 02210
[40 FR 23073, May 28, 1975]

A-Frame Derrick
Abrasive Blasting
Air Compress
Air Supply, I
Blast Cleanin
Cleaning No
Dust Hazard
Personal Pro
Abrasive Wheel
Blotter
Definitions
Effective Da
Excluded Al
Flanges
Guard Desig
Specific
Guard Expe
Band T
Bench a
Cup Wt
Cylindr
Dimens
Materia
Snaggr
Surface
Swing
Guarding
Mounting
Arbor
Blotter
Bushin
Inspe
Multi
Repla
Ring
Surfa
Standards
Work Res
Abrasive Whe
Definitio
Guarding
Cup
Gene
Other
Varti
Inspectio
Mounting
Abrasive Wh
Access
Bulk Ox
Crat
Indu
Proc
Roo
Spru
Spri
Typ
Accident Pr
Effectiv
Standar
2-Acetylami