

**Air Products**

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from the desk of

H. JOSEPH SMITH

H.L. WATSON

CHANGES IN EPA SAMPLING  
METHODS WILL HAVE NO EFFECT  
ON INDUSTRIAL HYGIENE MONITORING  
PROGRAMS.

Joe Smith  
1/27



WAT 12-15-UCM

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## FOR SALE

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economies of getting their power and steam from the same lump of coal, ambivalence toward cogeneration is widespread, both within the chemical process industries and among utilities. Although Amoco operates cogeneration units that fill 50-75% of the electrical requirements at various plants, it is by no means bullish on such projects. "We've looked at the idea of selling electricity to utilities," says an Amoco spokesman, "but we couldn't see any payback on it." Ashland Oil could not justify cogeneration for its refinery at Catlettsburg, Ky., where the power tab is \$1 million/month.

**Two disparate views.** Midwestern utilities such as Commonwealth Edison (Chicago) and Cleveland Electric Illuminating see limited growth in cogeneration, especially where payout depends

### In terms of planning power supplies and decade-long lead times, it's 1992 now

on selling surplus power to the nearest utility. In contrast is the scene on the West Coast.

Southern California Edison, the nation's fourth-largest utility, is banking heavily on cogeneration, says M. Douglas Whyte, manager of electric-system planning. Of the 6,000 Mw of new capacity slated to come on line between now and 1992, he calculates that one-sixth will be from cogeneration. No less optimistic is PG&E. Except for its 2,190-Mw nuclear complex at Diablo Canyon, the utility will depend entirely on renewable resources, geothermal and cogeneration for the rest of this decade. PG&E estimates that the ceiling on its payments for purchased cogenerative power will be in the range of 9.4-12.6¢/kwh by 1990.

Utilities and chemical companies alike caution that it's folly to rely on PURPA's stipulations mandating utility purchases of power at the avoided cost of that power. A federal court has already ruled that 100% of such costs is not required, that 85-90% should be enough. And what Congress can give, Congress can take away. A negotiated deal is much safer, says PPG's Steder.

As Whyte of Southern California Edison sees it, cogeneration's growth in the chemical industry will depend mainly on how fast hydrocarbon prices continue to rise. If anything shows a possibility of dampening the explosion in power prices, however, chemical companies will be more than willing to run it through the computer. □

SEP 21 1982

**EPA seeks to curb metal-finishing pollution**  
The Environmental Protection Agency is seeking industrial and environmental reaction to a proposal that would impose new water-pollution controls on about 13,000 electroplating and metal-finishing plants. Agency officials are proposing effluent limitations for existing plants, performance standards for new plants, and pretreatment standards for new and existing plants. Among the pollutants that would be regulated are toxic metals—such as cadmium, chromium, copper, nickel, lead, silver and zinc—solvent degreasers, paint strippers, cyanide oil and grease.

**North Dakota get its first Superfund money**

The Environmental Protection Agency has allocated \$245,000 in Superfund money to North Dakota, which will investigate arsenic contamination in three towns. Announcement of the grant was made in EPA's Denver region and in Washington as agency officials seek to counter the perception that hazardous-waste cleanup funds are not being used fast enough (CW, Sept. 8, p. 10). The North Dakota award is the first the state has received under Superfund, and state officials will spend it studying water supplies of Lidgerwood City, Rutland and Wyndmere. Arsenic trioxide-based pesticides were used extensively in North Dakota during the 1930s to control an infestation of grasshoppers. An EPA spokesman says that pesticide containers were later buried near shallow aquifers, left in unmarked buildings, hauled to abandoned gravel pits, or thrown onto low, unproductive waste land.

**EPA outlines tests to detect vinyl chloride**

The Environmental Protection Agency has finalized testing rules for detecting vinyl chloride. One of the designated test methods published in the Sept. 7 Federal Register measures vinyl chloride in stack gases created by ethylene dichloride, vinyl chloride, and polyvinyl chloride. Bag samples of stack gas are to be analyzed with a gas chromatograph and a flame-ionization detector. EPA warns that inexperienced personnel should not use this highly technical method because vinyl chloride is a carcinogen. The next testing plan will be judicially reviewed if petitions are submitted to the U.S. Circuit Court of Appeals in Washington in the next two months.

**A challenge to reduced spending for energy data**

Proposed budget cuts at the Energy Dept.'s Energy Information Administration will seriously impede the government's ability to analyze pricing and pro-

duction strategies of the Organization of Petroleum Exporting Countries, to forecast U.S. industrial fuel demand, to project regional fuel consumption, to locate future supply, and to deal with energy disruptions. Those findings, contained in an analysis from the Congressional Joint Economic Committee, challenge the Reagan Administration's free-market strategy. The analytical role for which Congress created EIA has not diminished, the report points out, even though DOE's role is being scaled back. The EIA budget has been reduced from \$90.4 million in Fiscal Year 1981, to \$78.9 million in FY 1982, and to \$54.5 million in FY 1983. If EIA is forced to cut its operations, "this important source of information on the competitive structure of the industry based on official data will disappear," the report says.

**The lead industry battles gasoline restrictions**

The Lead Industries Assn., teamed with the nation's major oil refineries, has become the chief opponent of the Environmental Protection Agency's Aug. 27 proposal to further restrict the amount of tetraethyl lead that refiners can put in leaded gasoline. The New York-based Lead Manufacturers, Smelters and Refiners Assn. told an EPA hearing on Sept. 7 that EPA has failed to prove that leaded gasoline, and not lead-based paints, is the prime contributor to lead poisoning in young children. "EPA's conclusions are contradicted in every particular by materials in the record of this proceeding," argues Robert D. Putnam, the association's director of environmental health. Putnam, whose group includes major lead manufacturers Du Pont, PPG and Ethyl, says that EPA's proposed tightening of the seven-year-old restrictions wouldn't necessarily further clean the air but would hike gasoline costs.

**New PCB regulations may be contested in court**

The Natural Resources Defense Council is ready to file a petition for court review of the new federal rule on the use of polychlorinated biphenyls (PCBs) in electrical equipment. NRDC attorney Jacqueline Warren says that the regulation's transformer provisions are inadequate. The Environmental Protection Agency has ordered an Oct. 1, 1985 ban on PCBs in transformers that threaten human food or animal feed (CW, Sept. 1, p. 48). All other transformers, however, can be used until they go out of service. Warren says that "transformers [filled with PCBs] are still essentially unregulated, except for [equipment near] food or feed, which is less than 1% of the total. This rule doesn't really reduce the risk of serious transformer spills."

*Howard - These are revised methods for analyzing for VCM in wastewater, soil, resin, and emissions under the DEHP rule. Cabinet and EPA are reviewing the changes from previous methods and will implement them - Jay*

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A Goodrich spokesman says Mrs. Grasso's suit is the "first and only suit" brought Goodrich that charges that someone developed angiosarcoma because they lived near a plant emitting vinyl chloride gas, rather than from exposure in the workplace.

⑤  
mat lls.  
Vinyl chloride

## SUBPART Z—OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL 381

as appropriate, methods of self-

the purpose for an application of  
mination practices and purposes;  
the purpose for and significance  
practices and procedures;  
the employee's specific role in  
the procedures;

specific information to aid the  
in recognition and evaluation  
of hazards and situations which may  
be the release of H-Nitrosodimethyl-

the purpose for and application  
of first aid procedures and prac-

review of this section at the annual  
training and indoctrination  
and annually thereafter.

specific emergency procedures  
prescribed, and posted, and con-  
shall be familiarized with their  
and rehearsed in their applica-

all materials relating to the pro-  
will be provided upon request to  
representatives of the Adminis-  
tration and the Director.

Section 1017(c)(2) Operations. Not later  
than 1, 1978, the information re-  
quired in this section, (a), (b), and  
(c) shall be reported

to the nearest OSHA Area  
Any changes in such informa-  
tion shall be reported in writing  
calendar days of such change,  
of description and in-plant in-  
formation as to the presence of  
the area(s) regulated and the

each regulated area;  
(b) name(s) and other identity  
information as to the presence of  
the area(s) regulated in each regu-

ated area;  
(c) number of employees in each  
area, during normal operations

maintenance activities and  
the manner in which H-Nitro-  
sodimethylamine is present in each  
area; e.g., whether it is manu-

factured, stored, repackaged,  
or otherwise handled.

Incidents which result  
in the release of H-Nitrosodimethyl-  
amine or any area where employees may  
be exposed shall be reported

conform with this subparagraph.  
The report of the occurrence of the  
incident and the facts obtainable at that  
time shall be reported on any medical  
report of any medical treatment

of affected employees shall be  
submitted 24 hours to the nearest  
OSHA Area Director.

Written report shall be filed with  
the OSHA Area Director within  
30 days thereafter and shall in-  
clude: (a) A specification of the amount  
of release, the amount of time  
of release, and an explanation of the pro-

cedure in determining this figure;  
(b) description of the area involved,  
extent of release, and possible  
exposure and area contamina-

tion;  
(c) This section applies to the trans-  
portation of vinyl chloride or polyvinyl  
chloride except to the extent that the

(d) An analysis of the circumstances  
of the incident, and measures taken or  
to be taken, with specific completion  
dates, to avoid further similar releases.

(e) Medical surveillance. At no cost to  
the employee, a program of medical sur-  
veillance shall be established and imple-  
mented for employees considered for as-  
sessment to enter regulated areas, and  
for authorized employees. (1) Examina-

tions. (i) Before an employee is as-  
signed to enter a regulated area, a preas-  
sessment physical examination by a phy-  
sician shall be provided. The examination  
shall include the personal history of the  
employee, family and occupational back-

ground, including genetic and environ-  
mental factors.  
(ii) Authorized employees shall be  
provided periodic physical examinations,  
not less often than annually, following  
the preassessment examination.

(iii) In all physical examinations, the  
examining physician shall consider  
whether there exist conditions of in-  
creased risk, including reduced immu-

nological competence, those undergoing  
treatment with steroids or cytotoxic  
agents, pregnancy, and cigarette smoking.

(iv) Records. (i) Employment of em-  
ployees examined pursuant to this para-  
graph shall cause to be maintained com-  
plete and accurate records of all such  
medical examinations. Records shall be

maintained for the duration of the em-  
ployee'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 employees, designated  
representatives, and the Assistant  
Secretary in accordance with 29 CFR

1910.20 (a)-(e) and (g)-(i). These records  
shall also be provided upon request to  
the Director.

[§1910.1016(g)(2)(ii) amend-  
ed at 45 F.R. 35282, May 23,  
1980; effective August 21,  
1980.]

(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 Ab-

stracts Service Registry No. 75015.  
(2) This section applies to the manu-  
facture, reaction, packaging, repackag-

ing, storage, handling or use of vinyl  
chloride or polyvinyl chloride, but does  
not apply to the handling or use of fabri-

cated products made of polyvinyl chlo-

ride.  
(3) This section applies to the trans-  
portation of vinyl chloride or polyvinyl  
chloride except to the extent that the

Department of Transportation may  
regulate the hazards covered by this sec-

tion.  
(b) Definitions. (1) "Action level"  
means a concentration of vinyl chloride  
of 5 ppm averaged over an 8-hour work  
day.

(2) "Assistant Secretary" means the  
Assistant Secretary of Labor for Occu-  
pational Safety and Health, U.S. Depart-  
ment of Labor, or his designee.

(3) "Authorized person" means any  
person specifically authorized by the em-  
ployer whose duties require him to enter  
a regulated area or any person entering  
such an area as a designated representa-

ative of employees for the purpose of ex-  
ercising an opportunity to observe moni-  
toring 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 occur-  
rence such as, but not limited to, equip-  
ment failure, or operation of a relief  
device which is likely to, or does, result in  
mass 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 tempera-

ture, 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 acci-

dent 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 establish-

ment is located.  
(9) "Polyvinyl chloride" means poly-  
vinyl chloride homopolymer or copoly-  
mer before such is converted to a fabri-

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

(c) Permissible exposure limit. (1) No  
employee may be exposed to vinyl chlo-  
ride 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 establish-  
ment to determine if there is any em-  
ployee exposure 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 exposure, without  
regard to the use of respirators, in ex-

cess of the action level, a program for de-  
termining exposures for each such em-  
ployee shall be established. Such a pro-

gram:  
(i) Shall be repeated at least monthly  
where any employee is exposed, without  
regard to the use of respirators, in ex-

cess 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 em-  
ployee only when at least two consecu-

tive monitoring determinations, made not  
less than 5 working days apart, show ex-

posures for that employee at or below  
the action level.

(3) Whenever there has been a pro-  
duction, 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 em-

ployee 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 30 percent  
from 0.5 through 0.5 ppm, plus or minus

25 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.  
[§1910.1017(e)(2) amended  
at 43 F.R. 49747, October  
24, 1978.]

(f) Methods of compliance. Employee  
exposures to vinyl chloride shall be con-  
trolled to at or below the permissible ex-

posure limit provided in paragraph (c)  
of this section by engineering, work prac-  
tice, 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) Whenever feasible engineering and  
work practice controls which can be in-  
stituted immediately are not sufficient to  
reduce exposures to at or below the per-

missible exposure limit, they shall none-  
theless be used to reduce exposures to  
the lowest practicable level, and shall be  
supplemented by respiratory protection  
in accordance with paragraph (g) of this

1017(m)(2)

section. A program shall be established and implemented to reduce exposure to as low as 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.

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

(i) 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, 1978, 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 use, and limitations of respiratory devices.

[Effective date of §1910.1017(g)(1) extended from December 31, 1975 to April 1, 1976 at 40 F.R. 13211, March 25, 1975.]

(3) 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.

(4) A respiratory protection program meeting the requirements of §1910.124 shall be established and maintained.

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

| Atmospheric concentration of vinyl chloride | Required respirator                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (i) Unknown, or above 1,000 ppm.....        | Open-circuit, self-contained breathing apparatus, pressure demand type, with full facepiece.                                                                                                                                                                                                                                                                                           |
| (ii) Not over 1,000 ppm.....                | (A) Combination type C supplied air respirator, pressure demand type, with full or half facepiece, and auxiliary self-contained air supply; or<br>(B) Combination type supplied air respirator continuous flow type, with full or half facepiece, and auxiliary self-contained air supply.                                                                                             |
| (iii) Not over 1,000 ppm.....               | Type C, supplied air respirator, continuous flow type, with full or half facepiece, helmet or hood.                                                                                                                                                                                                                                                                                    |
| (iv) Not over 100 ppm.....                  | (A) Combination type C supplied air respirator demand type, with full facepiece, and auxiliary self-contained air supply; or<br>(B) Open-circuit self-contained breathing apparatus with full facepiece, in demand mode; or<br>(C) Type C supplied air respirator, demand type, with full facepiece.                                                                                   |
| (v) Not over 25 ppm.....                    | (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<br>(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.                         |
| (vi) Not over 10 ppm.....                   | (A) Combination type C supplied-air respirator, demand type, with half facepiece, and auxiliary self-contained air supply; or<br>(B) Type C supplied-air respirator, demand type, with half facepiece; or<br>(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. |

(2)(i) Entry into unknown concentrations or concentrations greater than 30,000 ppm (lower explosive limit) may be made only for purposes of life rescue; and

(ii) Entry into concentrations of less than 30,000 ppm, but greater than 3,000 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.

(3) 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 device in use. Such system shall be used to alert employees when vinyl chloride concentrations exceed the allowable concentrations for the device in use.

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

(8) 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 (4) and (5) 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.

(3) 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:

(i) Employees engaged in hazardous operations or correcting situations of existing hazardous release shall be equipped as required in paragraph (4) 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 (4) of this section and the emergency is abated.

(1) Training. In vinyl chloride operations, a program of vinyl chloride safety shall be:

(i) The purpose of the program shall be to prevent a greater hazard from release of vinyl chloride.

(ii) The program shall include training in the use of respiratory protection.

(iii) The program shall include training in the use of protective equipment.

(iv) The program shall include training in the use of the monitoring system.

(v) The program shall include training in the use of the alarm system.

(vi) The program shall include training in the use of the emergency plan.

(vii) The program shall include training in the use of the monitoring system.

(viii) The program shall include training in the use of the alarm system.

(ix) The program shall include training in the use of the monitoring system.

(x) The program shall include training in the use of the alarm system.

(xi) The program shall include training in the use of the monitoring system.

(xii) The program shall include training in the use of the alarm system.

(xiii) The program shall include training in the use of the monitoring system.

(xiv) The program shall include training in the use of the alarm system.

(xv) The program shall include training in the use of the monitoring system.

(xvi) The program shall include training in the use of the alarm system.

(xvii) The program shall include training in the use of the monitoring system.

(xviii) The program shall include training in the use of the alarm system.

(xix) The program shall include training in the use of the monitoring system.

(xx) The program shall include training in the use of the alarm system.

1017(g)(3)

# SUBPART Z—OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL 383

Entry into unknown concentrations greater than 100 ppm (lower explosive limit) may only for purposes of life rescue;

entry into concentrations of less than 100 ppm, but greater than 3,400 ppm, shall be made only for purposes of rescue, firefighting, or securing out as in to prevent a greater release of vinyl chloride; use of air-purifying respirators;

air-purifying respirators or scrubbers shall be replaced prior to the end of their service life or the use shift in which they are first removed; continuous monitoring and alarm shall be provided where concentrations of vinyl chloride exceed the allowable concentration for the device in use. Such systems shall be used to alert employees when chloride concentrations exceed the concentrations for the device;

operating procedures for higher concentrations may be used for any lower concentrations;

hazardous operations. (1) Employees engaged in hazardous operations, entry of vessels to clean polyvinyl chloride residue from vessel walls, provided and required to wear respiratory protection in accordance with paragraphs (a) and (g) of this section;

protective garments to prevent contact with liquid vinyl chloride or polyvinyl chloride residue from walls. The protective garments selected for the operation and the exposure conditions;

protective garments shall be worn and dry for each emergency situation. A written plan for emergency situations shall be developed for each facility handling, or otherwise using, vinyl chloride as a liquid or compressed gas; portions of the plan implemented in the event of an emergency. The plan shall specifically include:

employees engaged in hazardous operations or correcting situations of emergency releases shall be equipped as required in paragraph (b) of this section;

employees not so equipped shall be equipped with the area and not return to the area until the area is controlled by the required in paragraph (f) of this section and the emergency is abated.

(f) 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.

(a) 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.

(3) 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 blood transfusions; and

(E) Past history of hospitalizations.

(iii) A serum specimen shall be obtained and determinations made of:

(A) Total bilirubin;

(B) Alkaline phosphatase;

(C) Serum glutamic oxalacetic transaminase (SGOT);

(D) Serum glutamic pyruvic transaminase (SGPT); and

(E) Gamma glutamyl transpeptidase.

(2) Examinations provided in accordance with this paragraph shall be performed at least:

(i) Every 6 months for each employee who has been employed in vinyl chloride 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 protective equipment and respirators, shall be obtained from the examining physician promptly after any examination. A copy of the physician's statement shall be provided each employee.

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

(6) Laboratory analyses for all biological specimens included in medical examinations shall be performed in laboratories licensed under 42 CFR Part 74.

(7) If the examining physician determines that alternative medical examinations to those required by paragraph (2)(i) of this section will provide at least equal assurance of detecting medical conditions pertinent to the exposure to vinyl chloride, the employee may elect such alternative examinations as meeting the requirements of paragraph (2)(i) of this section, if the employee obtains a statement from the examining physician setting forth the alternative examinations and the rationale for substitution. This statement shall be available upon request for examination and copying to authorized representatives of the Assistant Secretary and the Director.

(8) Signs and labels. (i) Entrances to regulated areas shall be posted with legible signs bearing the legend:

Cancer-Susceptible Area

Authorized Personnel Only

(ii) Areas containing hazardous operations or where an emergency currently exists shall be posted with legible signs bearing the legend:

Cancer-Susceptible Area in This Area

Protective Equipment Required

Authorized Personnel Only

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

CONTAMINATED WITH VINYL CHLORIDE

Cancer-Susceptible Area

Authorized Personnel Only

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

POLYVINYL CHLORIDE (See Table 1)

Cancer-Susceptible Area

Authorized Personnel Only

(11) Containers of vinyl chloride shall be legibly labeled:

VINYL CHLORIDE

Cancer-Susceptible Area

Authorized Personnel Only

(12) Containers of vinyl chloride shall be legibly labeled:

VINYL CHLORIDE

Cancer-Susceptible Area

Authorized Personnel Only

(13) Containers of vinyl chloride shall be legibly labeled:

VINYL CHLORIDE

Cancer-Susceptible Area

Authorized Personnel Only

be legibly labeled either:

(1) Vinyl Chloride

Cancer-Susceptible Area

Authorized Personnel Only

or (2) In accordance with 42 CFR Part 170-180 with the additional legend

Cancer-Susceptible Area

applied near the label or placard.

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

(4) Records. (i) All records maintained in accordance with this section shall include the name and social security number of each employee where relevant.

(2) Records of required monitoring and measuring and medical records shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.20 (a)-(e) and (g)-(i). These records shall be provided upon request to the Director. Authorized personnel rosters shall also be provided upon request to the Assistant Secretary and the Director.

(3) Monitoring and measuring records shall:

(A) State the date of such monitoring and measuring and the concentrations determined and identify the instruments and methods used;

(B) Include any additional information 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.

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

(5) 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. The employer shall also comply with any additional requirements set forth in 29 CFR 1910.20(h).

[[§1910.1017(m)(2) and (3) amended; (m)(4-6) revoked at 45 F.R. 35282, May 23, 1980; effective August 21, 1980.]

(6) Reports. (i) 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.

1017(n)(1)

[illegible][illegible]