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(b) The material approved for incorporation by reference in this subpart and the sections affected are as follows:

American National Standards Institute (ANSI)

11 West 42nd Street, New York, NY 10036

ANSI Z 88.2—1980—Practices for Respiratory Protection .....§197.550

[CGD 88-040, 56 FR 52135, Oct. 17, 1991, as amended by CGD 95-072, 60 FR 50469, Sept. 29, 1995; CGD 96-041, 61 FR 50735, Sept. 27, 1996; 61 FR 52497, Oct. 7, 1996]

**§ 197.515 Permissible exposure limits (PELs).**

The permissible exposure limits (PELs) for personal exposure are as follows:

(a) The time-weighted average exposure limit (TWA).

(b) The short-term exposure limit (STEL). Exposures at the STEL must not be repeated more than four times a day. There must be at least 60 minutes between successive exposures at the STEL.

**§ 197.520 Performance standard.**

No person may be subjected to a personal exposure in excess of the permissible exposure limits unless respiratory protection is used.

**§ 197.525 Responsibility of the person in charge.**

Unless otherwise specified, the person in charge shall ensure that the performance standard and other requirements of this subpart are complied with on that person's vessel.

**§ 197.530 Persons other than employees.**

(a) Before a nonemployee (other than Federal, state, and local government personnel) engages in a benzene operation on a vessel in which the person is likely to be exposed to benzene in ex-

cess of the PELs, that person must certify that—

(1) That person has had, within the previous 12 months, at least one medical examination in compliance with § 197.560 or 29 CFR 1910.1028;

(2) The physician who performed or who supervised the latest medical examination in compliance with paragraph (a)(1) of this section did not recommend that that person be excluded from areas where personal exposure may exceed the action level;

(3) All respirators and personal protective clothing and equipment that will be used by that person while on the vessel meet the requirements of § 197.550(b) and § 197.555(c) or of 29 CFR 1910.1028; and

(4) All respirators that will be used by that person while on the vessel have been fitted and fit tested in accordance with § 197.550 (c) and (d) or with 29 CFR 1910.1028.

NOTE: The employer need not furnish the required respirators and personal protective clothing and equipment to nonemployees.

(b) The certification required by paragraph (a) of this section must be in writing, list the items in paragraphs (a)(1) through (a)(4) of this section, reference 46 CFR 197.530, state the date of the certification, and be signed by the person making the certification. A sample certification form is contained in appendix F of this subpart.

(c) Before the nonemployee making the certification engages in a benzene operation on a vessel, that person or a representative of the entity which employs that person must show a copy of the certification to the person in charge of the vessel and the person in charge must examine the certification to ensure compliance with the requirements of this section.

**§ 197.535 Regulated areas.**

(a) Based on the employer's evaluation of the environmental monitoring, whenever the airborne concentration of benzene within an area exceeds or reasonably can be expected to exceed the permissible exposure limits, the person in charge shall mark the area as a regulated area.

(b) The person in charge shall restrict access to regulated areas to authorized persons wearing an appropriate respirator in compliance with § 197.550 and the personal protective clothing and equipment in compliance with § 197.555. The person in charge shall not allow any person to enter a regulated area without another individual in the vicinity to perform rescue or call for help. The second individual must maintain communication with the one entering the regulated area or keep that individual in sight. Also, the second individual must be located at the point of access during confined space entry.

(c) The boundaries of regulated areas must be indicated by barricades, other devices, or by painted areas on the vessel. A sign bearing the following legend in letters at least three inches high (except for the words "DANGER—BENZENE", which must be printed in letters at least 50 percent larger than the other words) must be posted at each access to the regulated areas:

DANGER—BENZENE  
REGULATED AREA  
CANCER CAUSING AGENT  
FLAMMABLE—NO SMOKING  
AUTHORIZED PERSONNEL ONLY  
RESPIRATOR REQUIRED

**§ 197.540 Determination of personal exposure.**

(a) *General.* (1) The employer shall ensure that one or more persons in each type of operation conducted on the vessel which involves the handling of or potential exposure to benzene are monitored. The monitoring must be conducted so as to determine the representative personal exposure of all persons engaged in each particular operation involving benzene. Monitoring one vessel of a class is sufficient for all vessels of that class provided the procedures, equipment, work practices, cargo, and control equipment are substantially the same.

(2) For long duration operations, such as cargo loading or tank entry, the persons monitored must be monitored to determine the representative TWA for all persons engaged in the op-

eration. The monitoring must be based on breathing zone air samples taken for the duration of the operation or for eight hours, whichever is less.

(3) For short duration operations, such as tank gauging or hose connection and disconnection, the persons monitored must be monitored to determine the representative short term exposure level for all persons engaged in the operation. The monitoring must be based on 15 minute breathing zone air samples. Brief period measuring devices may be used to determine whether monitoring for the short term exposure level is needed.

(4) If cargoes with different benzene concentrations are being carried on the vessel, an operation involving the lower concentration cargoes need not be monitored if the same type of operation involving the highest concentration cargo is monitored and found to be below the action level.

(5) Initial monitoring must be conducted during weather conditions typical in the geographic area and during the time of day the operation is normally conducted. If the benzene level is above half the action level for the operation, additional monitoring must be conducted under those weather conditions that will maximize benzene exposure, such as low wind, stable air, and high temperature.

(6) The monitoring method used must be accurate to a confidence level of 95 percent to within plus or minus 25 percent for airborne concentrations of benzene equal to or greater than 0.5 ppm.

(b) *Initial exposure monitoring.* When benzene is first loaded as a cargo on board a vessel, an initial monitoring of each type of operation must be conducted to determine accurately the representative personal exposure of persons involved in the operation.

(c) *Periodic exposure monitoring.* The monitoring must be repeated each July or August if benzene containing cargoes are carried during those months; monitoring must be conducted under those weather conditions that will maximize benzene exposure, such as low wind, stable air, and high temperature. If benzene containing cargoes are not carried during those months, monitoring must be conducted at the time