

or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of the table, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table.

(c) If the variations in noise level involve maxima at intervals of 1 second or less, it is to be considered continuous.

(d) In all cases where the sound levels exceed the values shown herein, a continuing, effective hearing conservation program shall be administered.

TABLE I
PERMISSIBLE NOISE EXPOSURES¹

Duration per day, hours	Sound level dBA slow re- sponse
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
¼ or less	115

¹When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: $C_1/T_1 + C_2/T_2 + \dots + C_n/T_n$ exceeds unity, then, the mixed exposure should be considered to exceed the limit value. C_n indicates the total time of exposure at a specified noise level, and T_n indicates the total time of exposure permitted at that level.

Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

[34 FR 7946, May 20, 1969, as amended at 35 FR 1015, Jan. 24, 1970]

Subpart C—Radiation Standards

§ 50-204.20 Radiation—definitions.

As used in this subpart:

(a) *Radiation* includes alpha rays, beta rays, gamma rays, X-rays, neutrons, high-speed electrons, high-speed protons, and other atomic particles; but such term does not include sound or radio waves, or visible light, or infrared or ultraviolet light.

(b) *Radioactive material* means any material which emits, by spontaneous nuclear disintegration, corpuscular or electromagnetic emanations.

(c) *Restricted area* means any area access to which is controlled by the employer for purposes of protection of in-

dividuals from exposure to radiation or radioactive materials.

(d) *Unrestricted area* means any area access to which is not controlled by the employer for purposes of protection of individuals from exposure to radiation or radioactive materials.

(e) *Dose* means the quantity of ionizing radiation absorbed, per unit of mass, by the body or by any portion of the body. When the provisions in this subpart specify a dose during a period of time, the dose is the total quantity of radiation absorbed, per unit of mass, by the body or by any portion of the body during such period of time. Several different units of dose are in current use. Definitions of units used in this subpart are set forth in paragraphs (f) and (g) of this section.

(f) *Rad* means a measure of the dose of any ionizing radiation to body tissues in terms of the energy absorbed per unit of mass of the tissue. One rad is the dose corresponding to the absorption of 100 ergs per gram of tissue (1 millirad (mrad) = 0.001 rad).

(g) *Rem* means a measure of the dose of any ionizing radiation to body tissue in terms of its estimated biological effect relative to a dose of 1 roentgen (r) of X-rays (1 millirem (mrem) = 0.001 rem). The relation of the rem to other dose units depends upon the biological effect under consideration and upon the conditions for irradiation. Each of the following is considered to be equivalent to a dose of 1 rem:

(1) A dose of 1 rad due to X- or gamma radiation;

(2) A dose of 1 rad due to X-, gamma, or beta radiation;

(3) A dose of 0.1 rad due to neutrons or high energy protons;

(4) A dose of 0.05 rad due to particles heavier than protons and with sufficient energy to reach the lens of the eye;

(5) If it is more convenient to measure the neutron flux, or equivalent, than to determine the neutron dose in rads, as provided in paragraph (g)(3) of this section, 1 rem of neutron radiation may, for purposes of the provisions in this subpart be assumed to be equivalent to 14 million neutrons per square centimeter incident upon the body; or, if there is sufficient information to estimate with reasonable accuracy the

approximate distribution in energy of the neutrons, the incident number of neutrons per square centimeter equivalent to 1 rem may be estimated from the following table:

NEUTRON FLUX DOSE EQUIVALENTS

Neutron energy (million electron volts [Mev])	Number of neutrons per square centimeter equivalent to a dose of 1 rem (neutrons/cm ²)	Average flux to deliver 100 millirem in 40 hours (neutrons/cm ² per sec.)
Thermal	970 × 10 ⁶	670
0.0001	720 × 10 ⁶	500
0.005	820 × 10 ⁶	570
0.02	400 × 10 ⁶	280
0.1	120 × 10 ⁶	80
0.5	43 × 10 ⁶	30
1.0	26 × 10 ⁶	18
2.5	29 × 10 ⁶	20
5.0	26 × 10 ⁶	18
7.5	24 × 10 ⁶	17
10	24 × 10 ⁶	17
10 to 30	14 × 10 ⁶	10

(h) For determining exposures to X- or gamma rays up to 3 Mev., the dose limits specified in this part may be assumed to be equivalent to the "air dose". For the purpose of this subpart "air dose" means that the dose is measured by a properly calibrated appropriate instrument in air at or near the body surface in the region of the highest dosage rate.

§ 50-204.21 Exposure of individuals to radiation in restricted areas.

(a) Except as provided in paragraph (b) of this section, no employer shall possess, use, or transfer sources of ionizing radiation in such a manner as to cause any individual in a restricted area to receive in any period of one calendar quarter from sources in the employer's possession or control a dose in excess of the limits specified in the following table:

	Rems per calendar quarter
1. Whole body: Head and trunk; active blood-forming organs; lens of eyes; or gonads	1 ¹ / ₄
2. Hands and forearms; feet and ankles	18 ³ / ₄
3. Skin of whole body	7 ¹ / ₂

(b) An employer may permit an individual in a restricted area to receive doses to the whole body greater than those permitted under paragraph (a) of this section, so long as:

(1) During any calendar quarter the dose to the whole body shall not exceed 3 rems; and

(2) The dose to the whole body, when added to the accumulated occupational dose to the whole body, shall not exceed 5 (N-18) rems, where "N" equals the individual's age in years at his last birthday; and

(3) The employer maintains adequate past and current exposure records which show that the addition of such a dose will not cause the individual to exceed the amount authorized in this paragraph. As used in this paragraph "Dose to the whole body" shall be deemed to include any dose to the whole body, gonad, active bloodforming organs, head and trunk, or lens of the eye.

(c) No employer shall permit any employee who is under 18 years of age to receive in any period of one calendar quarter a dose in excess of 10 percent of the limits specified in the table in paragraph (a) of this section.

(d) *Calendar quarter* means any 3-month period determined as follows:

(1) The first period of any year may begin on any date in January: *Provided*, That the second, third, and fourth periods accordingly begin on the same date in April, July, and October, respectively, and that the fourth period extends into January of the succeeding year, if necessary to complete a 3-month quarter. During the first year of use of this method of determination, the first period for that year shall also include any additional days in January preceding the starting date for the first period; or

(2) The first period in a calendar year of 13 complete, consecutive calendar weeks; the second period in a calendar year of 13 complete, consecutive calendar weeks; the third period in a calendar year of 13 complete, consecutive calendar weeks; the fourth period in a calendar year of 13 complete, consecutive calendar weeks. If at the end of a calendar year there are any days not falling within a complete calendar week of that year, such days shall be included within the last complete calendar week of that year. If at the beginning of any calendar year there are days not falling within a complete calendar week of that year, such days

shall be included within the last complete calendar week of the previous year; or

(3) The four periods in a calendar year may consist of the first 14 complete, consecutive calendar weeks; the next 12 complete, consecutive calendar weeks, the next 14 complete, consecutive calendar weeks, and the last 12 complete, consecutive calendar weeks. If at the end of a calendar year there are any days not falling within a complete calendar week of that year, such days shall be included (for purposes of this part) within the last complete calendar week of the year. If at the beginning of any calendar year there are days not falling within a complete calendar week of that year, such days shall be included (for purposes of this part) within the last complete week of the previous year.

(e) No employer shall change the method used by him to determine calendar quarters except at the beginning of a calendar year.

§ 50-204.22 Exposure to airborne radioactive material.

(a) No employer shall possess, use or transport radioactive material in such a manner as to cause any employee, within a restricted area, to be exposed to airborne radioactive material in an average concentration in excess of the limits specified in Table I of appendix B to 10 CFR part 20. The limits given in Table I are for exposure to the concentrations specified for 40 hours in any workweek of 7 consecutive days. In any such period where the number of hours of exposure is less than 40, the limits specified in the table may be increased proportionately. In any such period where the number of hours of exposure is greater than 40, the limits specified in the table shall be decreased proportionately.

(b) No employer shall possess, use, or transfer radioactive material in such a manner as to cause any individual within a restricted area, who is under 18 years of age to be exposed to airborne radioactive material in an average concentration in excess of the limits specified in Table II of Appendix B to 10 CFR part 20. For purposes of this paragraph, concentrations may be

averaged over periods not greater than 1 week.

(c) *Exposed* as used in this section means that the individual is present in an airborne concentration. No allowance shall be made for the use of protective clothing or equipment, or particle size, except as authorized by the Director, Bureau of Labor Standards.

§ 50-204.23 Precautionary procedures and personnel monitoring.

(a) Every employer shall make such surveys as may be necessary for him to comply with the provisions in this subpart. "Survey" means an evaluation of the radiation hazards incident to the production, use, release, disposal, or presence of radioactive materials or other sources of radiation under a specific set of conditions. When appropriate, such evaluation includes a physical survey of the location of materials and equipment, and measurements of levels of radiation or concentrations of radioactive material present.

(b) Every employer shall supply appropriate personnel monitoring equipment, such as film badges, pocket chambers, pocket dosimeters, or film rings, to, and shall require the use of such equipment by:

(1) Each employee who enters a restricted area under such circumstances that he receives, or is likely to receive, a dose in any calendar quarter in excess of 25 percent of the applicable value specified in paragraph (a) of § 50-204.21; and

(2) Each employee under 18 years of age who enters a restricted area under such circumstances that he receives, or is likely to receive, a dose in any calendar quarter in excess of 5 percent of the applicable value specified in paragraph (a) of § 50-204.21; and

(3) Each employee who enters a high radiation area.

(c) As used in this subpart:

(1) "Personnel monitoring equipment" means devices designed to be worn or carried by an individual for the purpose of measuring the dose received (e.g., film badges, pocket chambers, pocket dosimeters, film rings, etc.);

(2) "Radiation area" means any area, accessible to personnel, in which there exists radiation at such levels that a

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major portion of the body could receive in any one hour a dose in excess of 5 millirem, or in any 5 consecutive days a dose in excess of 100 millirem; and

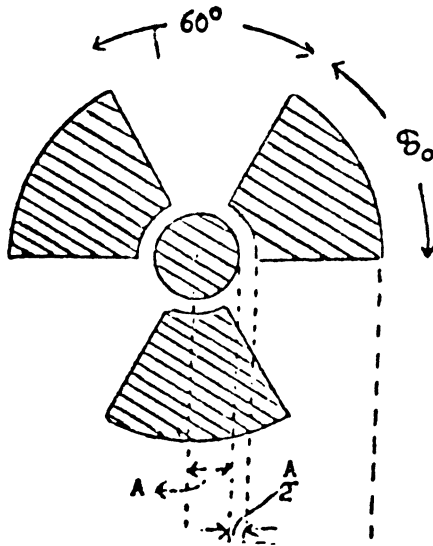
(3) "High radiation area" means any area, accessible to personnel, in which there exists radiation at such levels that a major portion of the body could receive in any one hour a dose in excess of 100 millirem.

§ 50-204.24 Caution signs, labels, and signals.

(a) *General.* (1) Symbols prescribed by this section shall use the conventional radiation caution colors (magenta or purple on yellow background). The symbol prescribed by this section is the conventional three-bladed design:

RADIATION SYMBOL

1. Cross-hatched area is to be magenta or purple.
2. Background is to be yellow.



(2) In addition to the contents of signs and labels prescribed in this section, employers may provide on or near such signs and labels any additional information which may be appropriate in aiding individuals to minimize exposure to radiation or to radioactive material.

(b) *Radiation areas.* Each radiation area shall be conspicuously posted with

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a sign or signs bearing the radiation caution symbol and the words:

CAUTION²

RADIATION AREA

(c) *High radiation area.* (1) Each high radiation area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

CAUTION²

HIGH RADIATION AREA

(2) Each high radiation area shall be equipped with a control device which shall either cause the level of radiation to be reduced below that at which an individual might receive a dose of 100 millirems in 1 hour upon entry into the area or shall energize a conspicuous visible or audible alarm signal in such a manner that the individual entering and the employer or a supervisor of the activity are made aware of the entry. In the case of a high radiation area established for a period of 30 days or less, such control device is not required.

(d) *Airborne radioactivity area.* (1) As used in the provisions of this subpart, "airborne radioactivity area" means (i) any room, enclosure, or operating area in which airborne radioactive materials, composed wholly or partly of radioactive material, exist in concentrations in excess of the amounts specified in column 1 of Table 1 of appendix B to 10 CFR part 20 or (ii) any room, enclosure, or operating area in which airborne radioactive materials exist in concentrations which, averaged over the number of hours in any week during which individuals are in the area, exceed 25 percent of the amounts specified in column 1 of the described Table 1.

(2) Each airborne radioactivity area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

²Or "Danger".

CAUTION²

AIRBORNE RADIOACTIVITY AREA

(e) *Additional requirements.* (1) Each area or room in which radioactive material is used or stored and which contains any radioactive material (other than natural uranium or thorium) in any amount exceeding 10 times the quantity of such material specified in appendix C to 10 CFR part 20 shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

CAUTION²

RADIOACTIVE MATERIALS

(2) Each area or room in which natural uranium or thorium is used or stored in an amount exceeding 100 times the quantity specified in appendix C to 10 CFR part 20 shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

CAUTION²

RADIOACTIVE MATERIALS

(f) *Containers.* (1) Each container in which is transported, stored, or used a quantity of any radioactive material (other than natural uranium or thorium) greater than the quantity of such material specified in appendix C to 10 CFR part 20 shall bear a durable, clearly visible label bearing the radiation caution symbol and the words:

CAUTION²

RADIOACTIVE MATERIALS

(2) Each container in which natural uranium or thorium is transported, stored, or used in a quantity greater than 10 times the quantity specified in appendix C to 10 CFR part 20 shall bear a durable, clearly visible label bearing the radiation caution symbol and the words:

CAUTION²

RADIOACTIVE MATERIALS

(3) Notwithstanding the provisions of paragraphs (f) (1) and (2) of this section a label shall not be required:

(i) If the concentration of the material in the container does not exceed that specified in column 2 of the described Table 1, or

(ii) For laboratory containers, such as beakers, flasks, and test tubes, used transiently in laboratory procedures, when the user is present.

(4) Where containers are used for storage, the labels required in this paragraph shall state also the quantities and kinds of radioactive materials in the containers and the date of measurement of the quantities.

§ 50-204.25 Exceptions from posting requirements.

Notwithstanding the provisions of § 50-204.24:

(a) A room or area is not required to be posted with a caution sign because of the presence of a sealed source, provided the radiation level 12 inches from the surface of the source container or housing does not exceed 5 millirem per hour.

(b) Rooms or other areas in on-site medical facilities are not required to be posted with caution signs because of the presence of patients containing radioactive material, provided that there are personnel in attendance who shall take the precautions necessary to prevent the exposure of any individual to radiation or radioactive material in excess of the limits established in the provisions of this subpart.

(c) Caution signs are not required to be posted at areas or rooms containing radioactive materials for periods of less than 8 hours: *Provided*, That (1) the materials are constantly attended during such periods by an individual who shall take the precautions necessary to prevent the exposure of any individual to radiation or radioactive materials in excess of the limits established in the provisions of this subpart; and (2) such area or room is subject to the employer's control.

²Or "Danger".

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§ 50-204.26 Exemptions for radioactive materials packaged for shipment.

Radioactive materials packaged and labeled in accordance with regulations of the Department of Transportation shall be exempt from the labeling and posting requirements during shipment, provided that the inside containers are labeled in accordance with the provisions of § 50-204.24.

§ 50-204.27 Instruction of personnel posting.

Employers regulated by the AEC shall be governed by “§ 20.206” (10 CFR part 20) standards. Employers in a State named in § 50-204.34(c) shall be governed by the requirements of the laws and regulations of that State. All other employers shall be regulated by the following:

(a) All individuals working in or frequenting any portion of a radiation area shall be informed of the occurrence of radioactive materials or of radiation in such portions of the radiation area; shall be instructed in the safety problems associated with exposure to such materials or radiation and in precautions or devices to minimize exposure; shall be instructed in the applicable provisions of this subpart for the protection of employees from exposure to radiation or radioactive materials; and shall be advised of reports of radiation exposure which employees may request pursuant to the regulations in this part.

(b) Each employer to whom this subpart applies shall post a current copy of its provisions and a copy of the operating procedures applicable to the work under contract conspicuously in such locations as to ensure that employees working in or frequenting radiation areas will observe these documents on the way to and from their place of employment, or shall keep such documents available for examination of employees upon request.

§ 50-204.28 Storage of radioactive materials.

Radioactive materials stored in a nonradiation area shall be secured against unauthorized removal from the place of storage.

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§ 50-204.29 Waste disposal.

No employer shall dispose of radioactive material except by transfer to an authorized recipient, or in a manner approved by the Atomic Energy Commission or a State named in § 50-204.34(c).

§ 50-204.30 Notification of incidents.

(a) *Immediate notification.* Each employer shall immediately notify the Regional Director of the appropriate Wage and Labor Standards Administration, Office of Occupational Safety of the Bureau of Labor Standards of the U.S. Department of Labor, for employees not protected by AEC by means of 10 CFR part 20, § 50-204.34(b) of this part, or the requirements of the laws and regulations of States named in § 50-204.34(c), by telephone or telegraph of any incident involving radiation which may have caused or threatens to cause:

(1) Exposure of the whole body of any individual to 25 rems or more of radiation; exposure of the skin of the whole body of any individual to 150 rems or more of radiation; or exposure of the feet, ankles, hands, or forearms of any individual to 375 rems or more of radiation; or

(2) The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 5,000 times the limit specified for such materials in Table II of appendix B to 10 CFR part 20.

(3) A loss of 1 working week or more of the operation of any facilities affected; or

(4) Damage to property in excess of \$100,000.

(b) *Twenty-four hour notification.* Each employer shall within 24 hours following its occurrence notify the Regional Director of the appropriate Wage and Labor Standards Administration, Office of Occupational Safety of the Bureau of Labor Standards of the U.S. Department of Labor, for employees not protected by AEC by means of 10 CFR part 20, § 50-204.34(b) of this part, or the requirements of the laws and applicable regulations of States named in § 50-204.34(c), by telephone or telegraph of any incident involving radiation which may have caused or threatens to cause:

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(1) Exposure of the whole body of any individual to 5 rems or more of radiation; exposure of the skin of the whole body of any individual to 30 rems or more of radiation; or exposure of the feet, ankles, hands, or forearms to 75 rems or more of radiation; or

(2) A loss of 1 day or more of the operation of any facilities; or

(3) Damage to property in excess of \$10,000.

§ 50-204.31 Reports of overexposure and excessive levels and concentrations.

(a) In addition to any notification required by § 50-204.30 each employer shall make a report in writing within 30 days to the Regional Director of the appropriate Wage and Labor Standards Administration, Office of Occupational Safety of the Bureau of Labor Standards of the U.S. Department of Labor, for employees not protected by AEC by means of 10 CFR part 20, or under § 50-204.34(b) of this part, or the requirements of the laws and regulations of States named in § 50-204.34(c), of each exposure of an individual to radiation or concentrations of radioactive material in excess of any applicable limit in this subpart. Each report required under this paragraph shall describe the extent of exposure of persons to radiation or to radioactive material; levels of radiation and concentrations of radioactive material involved, the cause of the exposure, levels of concentrations; and corrective steps taken or planned to assure against a recurrence.

(b) In any case where an employer is required pursuant to the provisions of this section to report to the U.S. Department of Labor any exposure of an individual to radiation or to concentrations of radioactive material, the employer shall also notify such individual of the nature and extent of exposure. Such notice shall be in writing and shall contain the following statement: "You should preserve this report for future reference."

§ 50-204.32 Records.

(a) Every employer shall maintain records of the radiation exposure of all employees for whom personnel monitoring is required under § 50-204.23 and advise each of his employees of his in-

dividual exposure on at least an annual basis.

(b) Every employer shall maintain records in the same units used in tables in § 50-204.21 and appendix B to 10 CFR part 20.

§ 50-204.33 Disclosure to former employee of individual employee's record.

(a) At the request of a former employee an employer shall furnish to the employee a report of the employee's exposure to radiation as shown in records maintained by the employer pursuant to § 50-204.32(a). Such report shall be furnished within 30 days from the time the request is made, and shall cover each calendar quarter of the individual's employment involving exposure to radiation or such lesser period as may be requested by the employee. The report shall also include the results of any calculations and analysis of radioactive material deposited in the body of the employee. The report shall be in writing and contain the following statement: "You should preserve this report for future reference."

(b) The former employee's request should include appropriate identifying data, such as social security number and dates and locations of employment.

§ 50-204.34 AEC licensees—AEC contractors operating AEC plants and facilities—AEC agreement State licensees or registrants.

(a) Any employer who possesses or uses source material, byproduct material, or special nuclear material, as defined in the Atomic Energy Act of 1954, as amended, under a license issued by the Atomic Energy Commission and in accordance with the requirements of 10 CFR part 20 shall be deemed to be in compliance with the requirements of this subpart with respect to such possession and use.

(b) AEC contractors operating AEC plants and facilities: Any employer who possesses or uses source material, byproduct material, special nuclear material, or other radiation sources under a contract with the Atomic Energy Commission for the operation of

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AEC plants and facilities and in accordance with the standards, procedures, and other requirements for radiation protection established by the Commission for such contract pursuant to the Atomic Energy Act of 1954 as amended (42 U.S.C. 2011 *et seq.*), shall be deemed to be in compliance with the requirements of this subpart with respect to such possession and use.

(c) AEC-agreement State licensees or registrants:

(1) *Atomic Energy Act sources.* Any employer who possesses or uses source material, byproduct material, or special nuclear material, as defined in the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 *et seq.*), and has either registered such sources with, or is operating under a license issued by, a State which has an agreement in effect with the Atomic Energy Commission pursuant to section 274(b) (42 U.S.C. 2021(b)) of the Atomic Energy Act of 1954, as amended, and in accordance with the requirements of that State's laws and regulations shall be deemed to be in compliance with the radiation requirements of this part, insofar as his possession and use of such material is concerned, unless the Secretary of Labor, after conference with the Atomic Energy Commission, shall determine that the State's program for control of these radiation sources is incompatible with the requirements of this part. Such agreements currently are in effect only in the States of Alabama, Arkansas, California, Kansas, Kentucky, Florida, Mississippi, New Hampshire, New York, North Carolina, Texas, Tennessee, Oregon, Idaho, Arizona, Colorado, Louisiana, Nebraska, and Washington.

(2) *Other sources.* Any employer who possesses or uses radiation sources other than source material, byproduct material, or special nuclear material, as defined in the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 *et seq.*), and has either registered such sources with, or is operating under a license issued by a State which has an agreement in effect with the Atomic Energy Commission pursuant to section 274(b) (42 U.S.C. 2021(b)) of the Atomic Energy Act of 1954, as amended, and in accordance with the requirements of that State's laws and regulations shall be

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deemed to be in compliance with the radiation requirements of this part, insofar as his possession and use of such material is concerned, provided the State's program for control of these radiation sources is the subject of a currently effective determination by the Secretary of Labor that such program is compatible with the requirements of this part. Such determinations currently are in effect only in the States of Alabama, Arkansas, California, Kansas, Kentucky, Florida, Mississippi, New Hampshire, New York, North Carolina, Texas, Tennessee, Oregon, Idaho, Arizona, Colorado, Louisiana, Nebraska, and Washington.

§ 50–204.35 Application for variations from radiation levels.

(a) In accordance with policy expressed in the Federal Radiation Council's memorandum concerning radiation protection guidance for Federal agencies (25 FR 4402), the Director, Bureau of Labor Standards may from time to time grant permission to employers to vary from the limitations contained in §§ 50–204.21 and 50–204.22 when the extent of variation is clearly specified and it is demonstrated to his satisfaction that (1) such variation is necessary to obtain a beneficial use of radiation or atomic energy, (2) such benefit is of sufficient value to warrant the variation, (3) employees will not be exposed to an undue hazard, and (4) appropriate actions will be taken to protect the health and safety of such employees.

(b) Applications for such variations should be filed with the Director, Bureau of Labor Standards, U.S. Department of Labor, Washington, DC 20210.

§ 50–204.36 Radiation standards for mining.

(a) For the purpose of this section, a "working level" is defined as any combination of radon daughters in 1 liter of air which will result in the ultimate emission of 1.3×10^5 million electron volts of potential alpha energy. The numerical value of the "working level" is derived from the alpha energy released by the total decay of short-lived radon daughter products in equilibrium with 100 pico-curies of radon 222 per liter of air. A working level month is

defined as the exposure received by a worker breathing air at one working level concentration for 4½ weeks of 40 hours each.

(b)(1) Occupational exposure to radon daughters in mines shall be controlled so that no individual will receive an exposure of more than 2 working level months in any calendar quarter and no more than 4 working level months in any calendar year. Actual exposures shall be kept as far below these values as practicable.

(2) In enforcing this section, the Director of the Bureau of Labor Standards may at any stage approve variations in individual cases from the limitation set forth in paragraph (b)(1) of this section to comply with the requirements of the Act upon a showing to the satisfaction of the Director by an employer having a mine with conditions resulting in an exposure of more than 4 working level months but not more than 12 working level months in any 12 consecutive months that (i) under the particular facts and circumstances involved the working conditions of the employees so exposed are such that their health and safety are protected, and (ii) the employer has a bona fide plan to reduce the levels of exposure to those specified in paragraph (b)(1) of this section as soon as practicable, but in no event later than January 1, 1971.

(3) Whenever a variation under paragraph (b)(2) of this section is sought, a request therefor should be submitted in writing to the Director of the Bureau of Labor Standards, U.S. Department of Labor, Washington, DC 20210, within 90 days following the end of the calendar quarter or year, as the case may be.

(c)(1) For uranium mines, records of environmental concentrations in the occupied parts of the mine, and of the time spent in each area by each person involved in underground work shall be established and maintained. These records shall be in sufficient detail to permit calculations of the exposures, in units of working level months, of the individuals and shall be available for inspection by the Secretary of Labor or his authorized agents.

(2) For other than uranium mines and for surface workers in all mines,

paragraph (c)(1) of this section will be applicable: *Provided, however,* That if no environmental sample shows a concentration greater than 0.33 working level in any occupied part of the mine, the maintenance of individual occupancy records and the calculation of individual exposures will not be required.

(d)(1) At the request of an employee (or former employee) a report of the employee's exposure to radiation as shown in records maintained by the employer pursuant to paragraph (c) of this section, shall be furnished to him. The report shall be in writing and contain the following statement:

This report is furnished to you under the provisions of the U.S. Department of Labor, Radiation Safety and Health Standards (41 CFR 50-204.36). You should preserve this report for future reference.

(2) The former employee's request should include appropriate identifying data, such as social security number and dates and locations of employment.

Subpart D—Gases, Vapors, Fumes, Dusts, and Mists

§ 50-204.50 Gases, vapors, fumes, dusts, and mists.

(a) (1) Exposures by inhalation, ingestion, skin absorption, or contact to any material or substance (i) at a concentration above those specified in the "Threshold Limit Values of Airborne Contaminants for 1968" of the American Conference of Governmental Industrial Hygienists, except for the ANSI Standards listed in Table I of this section and except for the values of mineral dusts listed in Table II of this section, and (ii) concentrations above those specified in Tables I and II of this section, shall be avoided, or protective equipment shall be provided and used.

(2) The requirements of this section do not apply to exposures to airborne asbestos dust. Exposures of employees to airborne asbestos dust shall be subject to the requirements of 29 CFR 1910.93a.

(b) To achieve compliance with paragraph (a) of this section, feasible administrative or engineering controls