OREGON ADMINISTRATIVE RULES
DEPARTMENT OF HUMAN SERVICES, PUBLIC HEALTH DIVISION
CHAPTER 333

DIVISION 120

STANDARDS FOR PROTECTION AGAINST RADIATION

General Provisions

333-120-0015
Definitions
(1) "Absorbed dose" means the energy imparted by ionizing radiation per unit mass of irradiated material. The units of absorbed dose are the gray (Gy) and the rad.
(2) "Activity" is the rate of disintegration (transformation) or decay of radioactive material. The units of activity are the becquerel (Bq) and the Curie (Ci). The becquerel is equal to one disintegration per second (dps) and the Curie is equal to 3.7x1010 dps.
(3) "Adult" means an individual 18 or more years of age.
(4) "Airborne radioactive material" means radioactive material dispersed in the air in the form of dusts, fumes, particulates, mists, vapors, or gases.
(5) "Airborne radioactivity area" means a room, enclosure, or area in which the airborne radioactive materials, composed wholly or partly of licensed material, exist in concentrations:
(a) In excess of the derived air concentrations (DACs) specified in 10 CFR 20 Appendix B; or
(b) To such a degree that an individual present in the area without respiratory protective equipment could exceed, during the hours present in a week, and intake of 0.6 percent of the annual limit of intake (ALI) or 12 DAC hours.
(6) "Air-purifying respirator" means a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.
(7) "ALARA" (acronym for "as low as is reasonably achievable") means making every reasonable effort to maintain exposures to radiation as far below the dose limits in this division as is practical consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to the use of licensed materials in the public interest.
(8) "Annual limit on intake" (ALI) means the derived limit for the amount of radioactive material taken into the body of an adult worker by inhalation or ingestion in a year. ALI is the smaller value of intake of a given radionuclide in a year by the reference man that would result in a committed effective dose equivalent of 0.05 Sv (5 rem) or a committed dose equivalent of 0.5 Sv (50 rem) to any individual organ or tissue. ALI values for intake by ingestion and by inhalation of selected radionuclides are given in Table I, Columns 1 and 2, of **Appendix B**.

(9) "Assigned protection factor (APF)" means the expected workplace level of respiratory protection that would be provided by a properly functioning respirator or a class of respirators to properly fitted and trained users. Operationally, the inhaled concentration can be estimated by dividing the ambient airborne concentration by the APF.
(10) "Atmosphere supplying respirator" means a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.
(11) "Background radiation" means radiation from cosmic sources; naturally occurring radioactive material, including radon (except as a decay product of source or special nuclear material); and global fallout as it exists in the environment from the testing of nuclear explosive devices or from past nuclear accidents such as Chernobyl that contribute to background radiation and are not under the control of the licensee. "Background radiation" does not include radiation from radioactive or special nuclear materials regulated by the Agency.
(12) "Bioassay" (radiobioassay) means the determination of kinds, quantities or concentrations, and, in some cases, the locations of radioactive material in the human body, whether by direct measurement (in vivo counting) or by analysis and evaluation of materials excreted or removed from the human body.
(13) "Class" means a classification scheme for inhaled material according to its rate of clearance from the pulmonary region of the lung. Materials are classified as D, W, or Y, which applies to a range of clearance half-times: for Class D, Days, of less than 10 days; for Class W, Weeks, from 10 to 100 days; and for Class Y, Years, of greater than 100 days. For purposes of these regulations, "lung class" and "inhalation class" are equivalent terms.
(14) "Collective dose" is the sum of the individual doses received in a given period of time by a specified population from exposure to a specified source of radiation.
(15) "Committed dose equivalent" (HT,50)means the dose equivalent to organs or tissues of reference (T) that will be received from an intake of radioactive material by an individual during the 50- year period following the intake.
(16) "Committed effective dose equivalent" (HE,50) is the sum of the products of the weighting factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to these organs or tissues (HE,50) = The Sum of WTHT,50.
(17) "Controlled area" means an area, outside of a restricted area but inside the site boundary, access to which can be limited by the licensee for any reason.
(18) Constraint (dose constraint) means a value above which specified licensee actions are required.
(19) "Critical Group" means the group of individuals reasonably expected to receive the greatest exposure to residual radioactivity for any applicable set of circumstances.
(20) "Declared pregnant woman" means a woman who has voluntarily informed the licensee, in writing, of her pregnancy and the estimated date of conception. The declaration remains in effect until the declared pregnant woman withdraws the declaration in writing or is no longer pregnant.
(21) "Decommission" means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits:

(a) Release of the property for unrestricted use and termination of the license; or
(b) Release of the property under restricted conditions and termination of the license.
(22) "Deep-dose equivalent" (Hd), which applies to external whole-body exposure, is the dose equivalent at a tissue depth of one~~1~~ cm (1000 mg/cm2).
(23) "Demand respirator" means an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.
(24) "Derived air concentration" (DAC) means the concentration of a given radionuclide in air which, if breathed by the reference man for a working year of 2,000 hours under conditions of light work, results in an intake of one ALI. For purposes of these regulations, the condition of light work is an inhalation rate of 1.2 cubic meters of air per hour for 2,000 hours in a year. DAC values are given in Table I, Column 3, of 10 CFR 20 Appendix B.
(25) "Derived air concentration-hour" (DAC-hour) means the product of the concentration of radioactive material in air, expressed as a fraction or multiple of the derived air concentration for each radionuclide, and the time of exposure to that radionuclide, in hours. A licensee or registrant may take 2,000 DAC-hours to represent one ALI, equivalent to a committed effective dose equivalent of 0.05 Sv (5 rem).
(26) "Disposable respirator" means a respirator for which maintenance is not intended and that is designed to be discarded after excessive breathing resistance, sorbent exhaustion, physical damage, or end-of-service-life renders it unsuitable for use. Examples of this type of respirator are a disposable half-mask respirator or a disposable escape-only self-contained breathing apparatus (SCBA).
(27) "Distinguishable from background" means that the detectable concentration of a radionuclide is statistically different from the background concentration of that radionuclide in the vicinity of the site or, in the case of structures, in similar materials using adequate measurement technology, survey, and statistical techniques.
(28) "Dose or radiation dose" is a generic term that means absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, or total effective dose equivalent, as defined in this rule.
(29) "Dose equivalent" (HT) means the product of the absorbed dose in tissue, quality factor, and all other necessary modifying factors at the location of interest. The units of dose equivalent are the rem and sievert (Sv).
(30) "Dosimetry processor" means an individual or an organization that processes and evaluates individual monitoring devices in order to determine the radiation dose delivered to the monitoring devices.
(31) "Effective Dose Equivalent" (HE) is the sum of the products of the dose equivalent to the organ or tissue (HT) and the weighting factor (WT) applicable to each of the body organs or tissues that are irradiated (HE = The Sum of WTHT).
(32) "Embryo/fetus" means the developing human organism from conception until the time of birth.
(33) "Entrance or access point" means any location through which an individual could gain access to radiation areas or to radioactive materials. This includes entry or exit portals of sufficient size to permit human entry, irrespective of their intended use.
(34) "Exposure" means being exposed to ionizing radiation or to radioactive material.

(35) "External dose" means that portion of the dose equivalent received from radiation sources outside the body.
(36) "Extremity" means hand, elbow, arm below the elbow, foot, knee, or leg below the knee.
(37) "Eye dose equivalent" applies to the external exposure of the lens of the eye and is taken as the dose equivalent at a tissue depth of 0.3 centimeter (300 mg/cm 2). (See "lens dose equivalent").
(38) "Filtering facepiece (dust mask)" means a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium, not equipped with elastomeric sealing surfaces and adjustable straps.
(39) "Fit factor" means a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.
(40) "Fit test" means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.
(41) "Generally applicable environmental radiation standards" means standards issued by the Environmental Protection Agency (EPA) under the authority of the Atomic Energy Act of 1954, as amended, that impose limits on radiation exposures or levels, or concentrations or quantities of radioactive material, in the general environment outside the boundaries of locations under the control of persons possessing or using radioactive material.
(42) "Helmet" means a rigid respiratory inlet covering that also provides head protection against impact and penetration.
(43) "High radiation area" means an area, accessible to individuals, in which radiation levels from radiation sources external to the body could result in an individual receiving a dose equivalent in excess of one mSv (0.1 rem) in one hour at 30 centimeters from the radiation source or 30 centimeters from any surface that the radiation penetrates.
(44) "Hood" means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.
(45) "Individual" means any human being.
(46) "Individual monitoring" means:
(a) The assessment of dose equivalent by the use of devices designed to be worn by an individual;
(b) The assessment of committed effective dose equivalent by bioassay (see Bioassay) or by determination of the time-weighted air concentrations to which an individual has been exposed, ~~i.e~~ i.e. DAC-hours; or
(c) The assessment of dose equivalent by the use of survey data.
(47) "Individual monitoring devices" (individual monitoring equipment) means devices designed to be worn by a single individual for the assessment of dose equivalent such as film badges, thermoluminescence dosimeters (TLDs), pocket ionization chambers, and personal ("lapel") air sampling devices.
(48) "Internal dose" means that portion of the dose equivalent received from radioactive material taken into the body.
(49) "Lens dose equivalent (LDE)" applies to the external exposure of the lens of the eye and is taken as the dose equivalent at a tissue depth of 0.3 centimeter (300 mg/cm 2).

(50) "Loose fitting facepiece" means a respiratory inlet covering that is designed to form a partial seal with the face.
(51) "Member of the public" means any individual except when that individual is receiving an occupational dose.
(52) "Minor" means an individual less than 18 years of age.
(53) "Monitoring (radiation monitoring, radiation protection monitoring)" means the measurement of radiation levels, concentrations, surface area concentrations or quantities of radioactive material and the use of the results of these measurements to evaluate potential exposures and doses.
(54) "Nationally Tracked Source" means a sealed source containing a quantity equal to or greater than Category 1 or Category 2 levels of radioactive material listed in 10 CFR Part 20, Appendix E.
(~~54~~55) "Negative pressure respirator (tight fitting)" means a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.
(~~55~~56) "Nonstochastic effect" means a health effect, the severity of which varies with the dose and for which a threshold is believed to exist. Radiation-induced cataract formation is an example of a nonstochastic effect. For purposes of these regulations, "deterministic effect" is an equivalent term.
(~~56~~57) "Occupational dose" means the dose received by an individual in the course of employment in which the individual's assigned duties involve exposure to radiation or to radioactive material from licensed and unlicensed sources of radiation, whether in the possession of the licensee or other person. Occupational dose does not include dose received from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material for medical purposes and released under OAR 333-116-0260, from voluntary participation in medical research programs, or as a member of the public.
(~~57~~58) "Planned special exposure" means an infrequent exposure to radiation, separate from and in addition to the annual occupational dose limits.
(~~58~~59) "Positive pressure respirator" means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.
(~~59~~60) "Pressure demand respirator" means a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.
(~~60~~61) "Public dose" means the dose received by a member of the public from exposure to radiation or radioactive material released by a licensee, or to any other source of radiation under the control of a licensee. Public dose does not include occupational dose or doses received from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material for medical purposes and released under OAR 333-116-0260, or from voluntary participation in medical research programs.
(~~61~~62) "Qualitative fit test (OLFT)" means a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.
(~~62~~63) "Quantitative fit test (QNFT)" means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

(~~63~~64) "Quarter" means a period of time equal to one-fourth of the year observed by the licensee, approximately 13 consecutive weeks, providing that the beginning of the first quarter in a year coincides with the starting date of the year and that no day is omitted or duplicated in consecutive quarters.

(~~64~~65) "Radiation" (ionizing radiation) means alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. Radiation, as used in this part, does not include non-ionizing radiation, such as radio- or microwaves, or visible, infrared, or ultraviolet light.

(~~65~~66) "Radiation area" means an area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.05 mSv (0.005 rem) in one hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.

(~~66~~67) "Reference man" means a hypothetical aggregation of human physical and physiological characteristics determined by international consensus. These characteristics may be used by researchers and public health employees to standardize results of experiments and to relate biological insult to a common base. A description of the reference man is contained in the International Commission on Radiological Protection report, ICRP Publication 23, "Report of the Task Group on Reference Man."

(~~67~~68) "Residual radioactivity" means radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's control. This includes radioactivity from all licensed and unlicensed sources used by the licensee, but excludes background radiation. It also includes radioactive materials remaining at the site as a result of routine or accidental releases of radioactive material at the site and previous burials at the site.

(~~68~~69) "Restricted area" means an area, access to which is limited by the licensee for the purpose of protecting individuals against undue risks from exposure to radiation and radioactive materials. Restricted area does not include areas used as residential quarters, but separate rooms in a residential building may be set apart as a restricted area.

(~~69~~70) "Respiratory protective equipment" means an apparatus, such as a respirator, used to reduce an individual's intake of airborne radioactive materials.

(~~70~~71) "Sanitary sewerage" means a system of public sewers for carrying off waste water and refuse, but excluding sewage treatment facilities, septic tanks, and leach fields owned or operated by the licensee or registrant.

(~~71~~72) "Self-contained breathing apparatus (SCBA)" means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

(~~72~~73) "Shallow-dose equivalent" (HS), which applies to the external exposure of the skin of the whole body or the skin of an extremity, is taken as the dose equivalent at a tissue depth of 0.007 centimeter (7 mg/cm2) averaged over an area of one square centimeter.

(~~73~~74) "Site boundary" means that line beyond which the land or property is not owned, leased, or otherwise controlled by the licensee.

(~~74~~75) "Stochastic effect" means a health effect that occurs randomly and for which the probability of the effect occurring, rather than its severity, is assumed to be a linear function of dose without threshold. Hereditary effects and cancer incidence are examples of stochastic effects. For purposes of these regulations, "probabilistic effect" is an equivalent term.

(~~75~~76) "Supplied-air respirator (SAR)" or airline respirator means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.
(~~76~~77) "Survey" means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation. When appropriate, such an evaluation includes a physical survey of the location of radioactive material and measurements or calculations of levels of radiation, or concentrations or quantities of radioactive material present.
(~~77~~78) "Tight-fitting facepiece" means a respiratory inlet covering that forms a complete seal with the face.
(~~78~~79) "Total Effective Dose Equivalent" (TEDE) means the sum of the deep-dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures).
(~~79~~80) "Unrestricted area" means an area, access to which is neither limited nor controlled by the licensee.
(~~80~~81) "User seal check" means an action conducted by the respirator user to determine if the respirator is properly seated to the face. Examples include negative pressure check, positive pressure check, irritant smoke check, or isoamyl acetate check.
(~~81~~82) "Very high radiation area" means an area, accessible to individuals, in which radiation levels from radiation sources external to the body could result in an individual receiving an absorbed dose in excess of five Gray (500 rad) in one hour at one meter from a source of radiation or from any surface that the radiation penetrates. At very high doses received at high dose rates, units of absorbed dose, gray and rad, are appropriate, rather than units of dose ~~equivalent~~ equivalent, sievert and rem.
(~~82~~83) "Weighting factor" (WT) for an organ or tissue (T) means the proportion of the risk of stochastic effects resulting from irradiation of that organ or tissue to the total risk of stochastic effects when the whole body is irradiated uniformly. For calculating the effective dose equivalent, the values of WT are:
Organ Dose Weighting Factors
Organ or Tissue -- WT
Gonads -- 0.25
Breast -- 0.15
Red bone marrow -- 0.12
Lung -- 0.12
Thyroid -- 0.03
Bone surfaces -- 0.03
Remainder -- 0.30(a)
Whole Body -- 1.00(b)
(a) 0.30 results from 0.06 for each of five "remainder" organs, excluding the skin and the lens of the eye that receives the highest doses.
(b) For the purpose of weighting the external whole body dose, for adding it to the internal dose, a single weighting factor, WT = 1.0, has been specified. The use of other weighting factors for external exposure will be approved on a case-by-case basis until such time as specific guidance is issued.
(~~83~~84) "Whole body" means, for purposes of external exposure, head, trunk (including male gonads), arms above the elbow, or legs above the knee.

(8485) "Working level" (WL) is any combination of short-lived radon daughters (for radon-222: polonium-218, lead-214, bismuth-214, and polonium-214; and for radon-220: polonium-216, lead-212, bismuth-212, and polonium-212) in one liter of air that will result in the ultimate emission of 1.3x105 MeV of potential alpha particle energy.
(8586) "Working level month" (WLM) means an exposure to one working level for 170 hours (2,000 working hours per year/12 months per year equals approximately 170 hours per month).
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0017
Implementation.
(1) Any existing license or registration condition that is more restrictive than OAR 333-120 remains in force until there is an amendment or renewal of the license or registration.
(2) If a license or registration condition exempts a licensee or registrant from a provision of OAR 333-120 in effect on or before July 1, 2006, it also exempts the licensee or registrant from the corresponding provision of OAR 333-120.
(3) If a license or registration condition cites provisions of OAR 333-120 in effect prior to July 1, 2006, which do not correspond to any provisions of OAR 333-120, the license or registration condition remains in force until there is an amendment or renewal of the license or registration that modifies or removes this condition.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0020
Radiation Protection Programs
(1) Each licensee or registrant must develop, document, and implement a radiation protection program commensurate with the scope and extent of licensed or registered activities and sufficient to ensure compliance with the provisions of this division. (See OAR 333-120-0610 for record keeping requirements relating to these programs.)
(2) Each licensee or registrant must use, to the extent practicable, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public that are as low as is reasonably achievable (ALARA).
(3) Each licensee or registrant must periodically (at least annually) review the radiation protection program content and implementation.
(4) To implement the ALARA requirements of section (2) of this rule, and notwithstanding the requirements in OAR 333-120-0180, a constraint on air emissions of radioactive material to the environment, excluding Radon-222 and its daughters, must be established by licensees such that the individual member of the public likely to receive the highest dose will not be expected to receive a total effective dose equivalent in excess of ten mrem (0.1 mSv) per year from these emissions. If a licensee subject to this requirement exceeds this dose constraint, the licensee must report the excess as provided in OAR 333-120-0720 and promptly take appropriate corrective action to ensure against recurrence.

Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

Radiation Dose Limits

333-120-0100
Occupational Dose Limits ~~F~~for Adults
(1) Each licensee or registrant must control the occupational dose to individual adults, except for planned special exposures under OAR 333-120-0150, to the following dose limits:
(a) An annual limit, which is the more limiting of:
(A) The total effective dose equivalent being equal to 0.05 Sv (5 rem); or
(B) The sum of the deep-dose equivalent and the committed dose equivalent to any individual organ or tissue other than the lens of the eye being equal to 0.5 Sv (50 rem).
(b) The annual limits to the lens of the eye, to the skin, and to the ~~extremities which~~extremities that are:
(A) A lens dose equivalent of 0.15 Sv (15 rem); and
(B) A shallow-dose equivalent of 0.50 Sv (50 rem) to the skin of the whole body or to the skin of any extremity.
(2) Doses received in excess of the annual limits, including doses received during accidents, emergencies, and planned special exposures, must be subtracted from the limits for planned special exposures, as defined in OAR 333-100-0005, that the individual may receive during the current year OAR 333-120-0150(5)(a) and during the individual's lifetime OAR 333-120-0150(5)(b).
NOTE: A licensee or registrant may permit a radiation worker to receive more than 0.05 Sv (5 rem) per year TEDE or 0.5 Sv (50 rem) to the skin, extremities, or organ, or 0.15 Sv (15 rem) to the lens of the eye during a planned special exposure (PSE) only if: (a) there are no other alternatives available or practical; (b) the PSE is authorized in writing before it occurs; (c) the individuals who will be exposed are told the reason for the PSE, the dose they are expected to receive, the risks from that dose and the conditions under which they will be working (e.g. radiation or contamination levels), and how to keep their doses ALARA; (d) the licensee or registrant determines the worker's prior doses (lifetime history); (e) the total dose expected from the PSE plus any previous doses over the annual limit do not exceed the standard annual dose limits, or five times the standard limits in the worker's lifetime; (f) the licensee or registrant maintains the appropriate records and files the appropriate reports; and (g) after the PSE, the licensee or registrant records the dose received and notifies the worker in writing of the dose received within 30 days after the PSE. The dose received from the PSE does not affect the worker's ability to receive the standard annual doses but is included in the worker's lifetime history and added to any future PSEs.
(3) The assigned deep-dose equivalent must be for the part of the body receiving the highest exposure. The assigned shallow-dose equivalent must be the dose averaged over the contiguous ten square centimeters of skin receiving the highest exposure. The deep-dose equivalent, lens-dose equivalent, and shallow-dose equivalent may be assessed from surveys or other radiation measurements for the purpose of demonstrating compliance with the occupational dose limits, if the individual monitoring device was not in the

region of highest potential exposure, or the results of individual monitoring are unavailable:
(a) The deep-dose equivalent, lens dose equivalent and shallow-dose equivalent may be assessed from surveys or other radiation measurements for the purpose of demonstrating compliance with the occupational dose limits, if the individual monitoring device was not in the region of highest potential exposure, or the results of individual monitoring are unavailable; or
(b) When a protective apron is worn while working with medical fluoroscopic equipment and monitoring is conducted as specified in OAR 333-120-0210(1)(e) the effective dose equivalent for external radiation must be determined as follows:
(A) When only one individual monitoring device is used and it is located at the neck outside the protective apron, the reported deep dose equivalent must be the effective dose equivalent for external radiation; or
(B) When only one individual monitoring device is used and it is located at the neck outside the protective apron, and the reported dose exceeds 25 percent of the limit specified in section (1) of this rule the reported deep dose equivalent value multiplied by 0.3 must be the effective dose equivalent for external radiation; or
(C) When individual monitoring devices are worn, both under the protective apron at the waist and outside the protective apron at the neck, the effective dose equivalent for external radiation must be assigned the value of the sum of the deep dose equivalent reported for the individual monitoring device located at the waist under the protective apron multiplied by 1.5 and the deep dose equivalent reported for the individual monitoring device located at the neck outside the protective apron multiplied by 0.04.
(4) Derived air concentration (DAC) and annual limit on intake (ALI) values are presented in 10 CFR Part 20 Table 1 of **Appendix B** to 20.1001 to 20.2401 and may be used to determine the individual's dose (OAR 333-120-0650) and to demonstrate compliance with the occupational dose limits.
(5) In addition to the annual dose limits, the licensee must limit the soluble uranium intake by an individual to ~~ten~~10 milligrams in a week in consideration of chemical toxicity (see 10 CFR Part 20 footnote 3 of **Appendix B** to 20.1001 to 20.2401).
(6) When monitoring is required by OAR 333-120-0210 each licensee or registrant must reduce the dose that an individual may be allowed to receive in the current year by the amount of occupational dose received while employed by any other person (OAR 333-120-0630(5)).
(7) The licensee must reduce the dose that an individual may be allowed to receive in the current year by the amount of occupational dose received while employed by any other person.
[ED. NOTE: Appendices referenced are available from the agency.]
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0110
Compliance with Requirements for Summation of External and Internal Doses
(1) If the licensee is required to monitor under OAR 333-120-0210(1) and (2), the licensee must demonstrate compliance with the dose limits by summing external and internal doses. If the licensee is required to monitor only under OAR 333-120-0210(1) or

only under 333-120-0210(2), then summation is not required to demonstrate compliance with the dose limits. The licensee may demonstrate compliance with the requirements for summation of external and internal doses by meeting one of the conditions specified in section (2) of this rule and the conditions in sections (3) and (4) of this rule.
NOTE: The dose equivalents for the lens of the eye, the skin, and the extremities are not included in the summation, but are subject to separate limits.
(2) Intake by Inhalation. If the only intake of radionuclides is by inhalation, the total effective dose equivalent limit is not exceeded if the sum of the deep-dose equivalent divided by the total effective dose equivalent limit, and one of the following, does not exceed unity:
(a) The sum of the fractions of the inhalation ALI for each radionuclide; or
(b) The total number of derived air concentration-hours (DAC-hours) for all radionuclides divided by 2,000; or
(c) The sum of the calculated committed effective dose equivalents to all significantly irradiated organs or tissues (T) calculated from bioassay data using appropriate biological models and expressed as a fraction of the annual limit.
NOTE: An organ or tissue is deemed to be significantly irradiated if, for that organ or tissue, the product of the weighting factors, WT, and the committed dose equivalent, HT,50, per unit intake is greater than ten percent of the maximum weighted value of HT50 (~~i.e~~ i.e. WTHT50) per unit intake for any organ or tissue.
(3) Intake by Oral Ingestion. If the occupationally exposed individual also receives an intake of radionuclides by oral ingestion greater than ten percent of the applicable oral ALI, the licensee must account for this intake and include it in demonstrating compliance with the limits.
(4) Intake Through Wounds or Absorption Through Skin. The licensee must evaluate and, to the extent practical, account for intakes through wounds or skin absorption. The intake through intact skin has been included in the calculation of DAC for hydrogen-3 and does not need to be further evaluated.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0120
Determination of External Dose from Airborne Radioactive Material
Licensees must, when determining the dose from airborne radioactive material, include the contribution to the deep-dose equivalent, lens dose equivalent, and shallow-dose equivalent from external exposure to the radioactive cloud (10 CFR, Part 20, Appendix B, Footnotes 1 and 2 to 20.1001 to 20.2401).
NOTE: Airborne radioactivity measurements and DAC values should not be used as the primary means to assess the deep-dose equivalent when the airborne radioactive material includes radionuclides other than noble gases or if the cloud of airborne radioactive material is not relatively uniform. The determination of the deep-dose equivalent to an individual should be based upon measurements using instruments or individual monitoring devices.
[Publications: Publications referenced are available from the agency.]
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0130
Determination of Internal Exposure
(1) For purposes of assessing dose used to determine compliance with occupational dose equivalent limits, the licensee must, when required under OAR 333-120-0210, take suitable and timely measurements of:
(a) Concentrations of radioactive materials in air in work areas; or
(b) Quantities of radionuclides in the body; or
(c) Quantities of radionuclides excreted from the body; or
(d) Combinations of these measurements.
(2) Unless respiratory protective equipment is used, as provided in OAR 333-120-0320 or the assessment of intake is based in bioassays, the licensee must assume that an individual inhales radioactive material at the airborne concentration in which the individual is present.
(3) When specific information on the physical and biochemical properties of the radionuclides taken into the body or the behavior or the material in an individual is known, the licensee may:
(a) Use that information to calculate the committed effective dose equivalent, and, if used, the licensee must document that information in the individual's record; and
(b) Upon prior approval of the Agency, adjust the DAC or ALI values to reflect the actual physical and chemical characteristics of airborne radioactive material (~~e.g~~ e.g. aerosol size distribution or density); and
(c) Separately assess the contribution of fractional intakes of Class D, W, or Y compounds of given radionuclide (see 10 CFR Part 20 Appendix B to 20.1001 to 20.2401) to the committed effective dose equivalent.
(4) If the licensee chooses to assess intakes of Class Y material using the measurements given in sections (1), (2) or (3) of this rule, the licensee may delay the recording and reporting of the assessments for periods up to seven months, unless otherwise required by OAR 333-120-0710 or 333-120-0720, in order to permit the licensee to make additional measurements basic to the assessments.
(5) If the identity and concentration of each radionuclide in a mixture are known, the fraction of the DAC applicable to the mixture for use in calculating DAC-hours must be either:
(a) The sum of the ratios of the concentration to the appropriate DAC value (e.g. D, W, Y) from 10 CFR Part 20 Appendix B to 20.1001 to 20.2401 for each radionuclide in the mixture; or
(b) The ratio of the total concentration for all radionuclides in the mixture to the most restrictive DAC value for any radionuclide in the mixture.
(6) If the identity of each radionuclide in a mixture is known, but the concentration of one or more of the radionuclides in the mixture is not known, the DAC for the mixture must be the most restrictive DAC of any radionuclide in the mixture.
(7) When a mixture of radionuclides in air exists, licensees may disregard certain radionuclides in the mixture if:
(a) The licensee uses the total activity of the mixture in demonstrating compliance with the dose limits in OAR 333-120-0100 and in complying with the monitoring requirements in OAR 333-120-0210(2); and

(b) The concentration of any radionuclide disregarded is less than 10~~ten~~ percent of its DAC; and
(c) The sum of these percentages for all of the radionuclides disregarded in the mixture does not exceed 30 percent.
(8) When determining the committed effective dose equivalent, the following information may be considered:
(a) In order to calculate the committed effective dose equivalent, the licensee may assume that the inhalation of one ALI, or an exposure of 2,000 DAC-hours, results in a committed effective dose equivalent of 0.05 Sv (5 rem) for radionuclides that have their ALIs or DACs based on the committed effective dose equivalent.
(b) When the ALI (and the associated DAC) is determined by the nonstochastic organ dose limit of 0.50 Sv (50 rem), the intake of radionuclides that would result in a committed effective dose equivalent of 0.05 Sv (5 rem) (the stochastic ALI) is listed in parentheses in 10 CFR Part 20 Table 1 of Appendix B to 20.1001 to 20.2401. In this case, the licensee may, as a simplifying assumption, use the stochastic ALIs to determine committed effective dose equivalent. However, if the licensee uses the stochastic ALIs, the licensee also must demonstrate that the limit in OAR 333-120-0100(1)(a)(B) is met.
[ED. NOTE: Appendices referenced are available from the agency.]
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0160
Occupational Dose Limits for Minors
The annual occupational dose limits for minors are ~~ten~~10 percent of the annual dose limits specified for adult workers in OAR 333-120-0100.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0170
Dose to an Embryo/Fetus
(1) The licensee or registrant must ensure that the dose equivalent to an embryo/fetus during the entire pregnancy, due to occupational exposure of a declared pregnant woman does not exceed five mSv (0.5 rem). Records must be kept in accordance with OAR 333-120-0650.
NOTE: A woman is not a declared pregnant woman unless she says so in writing without being coerced. Unless a woman, who also is a radiation worker, has declared her pregnancy as required, she is to be treated as any other radiation worker. Pursuant to Title VII of the Civil Rights Act of 1964, as amended, no employer may restrict a fertile female's job because of concern for the health of the fetus that a woman might conceive. The court held that sex-specific fetal-protection policies are forbidden. Additionally, a female worker legally can declare pregnancy if she does not yet have documented medical proof. The document, "Instruction Concerning Prenatal Radiation Exposure," discusses declared pregnancy. It is available from Public Health Division~~Services~~, Radiation Protection Services Suite 640, 800 N.E. Oregon St., Portland, OR 97232, phone (971) 673-0490.

(2) The licensee or registrant must make efforts to avoid substantial variation above a uniform monthly exposure rate to a declared pregnant woman so as to satisfy the limit in section (1) of this rule.
(3) The dose equivalent to an embryo/fetus must be taken as the sum of:
(a) The deep-dose equivalent to the declared pregnant woman; and
(b) The dose equivalent to the embryo/fetus from radionuclides in the embryo/fetus and radionuclides in the declared pregnant woman, If the dose equivalent to the embryo/fetus is found to have exceeded 0.5 rem (5 mSv), or is within 0.05 rem (0.5 mSv) of this dose, by the time the woman declares the pregnancy to the licensee, the licensee shall be deemed to be in compliance with subsection (3)(a) of this rule if the additional dose equivalent to the embryo/fetus does not exceed 0.05 rem (0.5 mSv) during the remainder of the pregnancy.
(4) If the dose equivalent to the embryo/fetus is found to have exceeded five mSv (0.5 rem), or is within 0.5 mSv (0.05 rem), by the time the woman declares the pregnancy to the licensee or registrant, the licensee or registrant shall be deemed to be in compliance with section (1) of this rule if the additional dose to the embryo/fetus does not exceed 0.5 mSv (0.05 rem) during the remainder of the pregnancy.
NOTE: If a pregnant radiation worker declares in writing to the licensee that she is pregnant, the dose limit to the embryo/fetus is five mSv (0.5 rem) during the entire pregnancy. The dose that is controlled is the dose to the embryo/fetus, not the dose to the woman, although for external penetrating radiation, the two are virtually synonymous.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0180
Dose Limits for Individual Members of the Public
(1) Each licensee or registrant must conduct operations so that:
(a) The total effective dose equivalent to individual members of the public from the licensed or registered operation does not exceed one mSv (0.1 rem) in a year, exclusive of the dose contributions from background, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released in accordance with OAR 333-116-0260, from voluntary participation in medical research programs, and the licensee's disposal of radioactive material into sanitary sewerage in accordance with OAR 333-120-0520; and
(b) The dose in any unrestricted area from external sources, exclusive of the dose contributions from patients administered radioactive material and released in accordance with OAR 333-116-0260, does not exceed 0.02 mSv (0.002 rem) in any one hour.
(2) If the licensee or registrant permits members of the public to have access to controlled areas, the limits for members of the public continue to apply to those individuals.
(3) Notwithstanding subsection (1)(a) of this rule, a licensee may permit visitors to an individual who cannot be released, under OAR 333-116-0260, to receive a radiation dose greater than 0.1 rem (1 mSv) if:
(a) The radiation dose received does not exceed 0.5 rem (5 mSv); and
(b) The authorized user, as defined in OAR 333-116-0020, has determined prior to the visit that it is appropriate.

(4) A licensee, registrant or applicant may apply for prior Agency authorization to operate up to an annual dose limit for an individual member of the public of five mSv (0.5 rem). The licensee, registrant or applicant must include the following information in this application:
(a) Demonstration of the need for and the expected duration of operations in excess of the limit in section (1) of this rule; and
(b) The licensee's or registrant's program to assess and control dose within the five mSv (0.5 rem) annual limit; and
(c) The procedures to be followed to maintain the dose as low as is reasonably achievable.
(5) In addition to the requirements of this division, a licensee or registrant subject to the provisions of EPA's generally applicable environmental radiation standards in 40 CFR Part 190 must comply with those standards.
(6) The Agency may impose additional restrictions on radiation levels in unrestricted areas and on the total quantity of radionuclides that a licensee or registrant may release in effluents in order to restrict the collective dose.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

Surveys and Monitoring

333-120-0200
General
(1) Each licensee or registrant must make or cause to be made, surveys that:
(a) Are necessary for the licensee or registrant to comply with the rules in this division; and
(b) Are reasonable under the circumstances to evaluate:
(A) The magnitude and extent of radiation levels; and
(B) The concentrations or quantities of radioactive material; and
(C) The potential radiological hazards that could be present.
(2) The licensee or registrant must ensure that instruments and equipment used for quantitative radiation measurements (~~e.g~~ e.g. dose rate and effluent monitoring) are calibrated at intervals not to exceed 12 months for the radiation measured, except when a more frequent interval is specified in another applicable division or a license condition.
(3) All personnel dosimeters (except for direct and indirect reading pocket ionization chambers and those dosimeters used to measure the dose to the extremities) that require processing to determine the radiation dose and that are used by licensees or registrants to comply with OAR 333-120-0100, with other applicable provisions of this division or with conditions specified in a license must be processed and evaluated by a dosimetry processor:
(a) Holding current personnel dosimetry accreditation from the National Voluntary Laboratory Accreditation Program (NVLAP) of the National Institute of Standards and Technology; and
(b) Approved in this accreditation process for the type of radiation or radiations included in the NVLAP program that most closely approximates the type of radiation or radiations for which the individual wearing the dosimeter is monitored.

(4) The licensee or registrant must ensure that adequate precautions are taken to prevent a deceptive exposure of an individual monitoring device.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0210
Conditions Requiring Individual Monitoring of External and Internal Occupational Dose
Each licensee or registrant must monitor exposures to radiation and radioactive material at levels sufficient to demonstrate compliance with the occupational dose limits of this division. As a minimum:
(1) Each licensee or registrant must monitor occupational exposure to radiation and must supply and require the use of individual monitoring devices by:
(a) Adults likely to receive, in one year from sources external to the body, a dose in excess of ~~ten~~10 percent of the limits in OAR 333-120-0100(1); and
(b) Minors likely to receive, in one year from sources external to the body, a dose in excess of ~~ten~~10 percent of any of the applicable limits in OAR 333-120-0160 or 333-120-0170; and
(c) Declared pregnant women likely to receive during the entire pregnancy, from radiation sources external to the body, a deep dose equivalent in excess of one mSv (0.1 rem); and
(d) Individuals entering a high or very high radiation area.
(e) Individuals working with medical fluoroscopic equipment.
(A) An individual monitoring device used for the dose to an embryo/fetus of a declared pregnant woman, pursuant to OAR 333-120-0170(1), must be located under the protective apron at the waist.
(B) An individual monitoring device used for lens dose equivalent must be located at the neck, or an unshielded location closer to the lens, outside the protective apron.
(C) When only one individual monitoring device is used to determine the effective dose equivalent for external radiation pursuant to OAR 333-120-0100(3)(b) it must be located at the neck outside the protective apron. When a second individual monitoring device is used, for the same purpose, it must be located under the protective apron at the waist. The second individual monitoring device is required for a declared pregnant woman.
(2) Each licensee or registrant must monitor (OAR 333-120-0130) the occupational intake of radioactive material by and assess the committed effective dose equivalent to:
(a) Adults likely to receive, in one year, an intake in excess of ~~ten~~10 percent of the applicable ALI(s) in 10 CFR Part 20 Table 1, Columns 1 and 2, of Appendix B to 20.1001 to 20.2401; and
(b) Minors likely to receive, in one year, from radiation sources external to the body, a deep dose equivalent in excess of one mSv (0.1 rem), a lens dose equivalent in excess of 0.15 rem (1.5 mSv), or a shallow dose equivalent to the skin or to the extremities in excess of 0.5 rem (5 mSv).
(c) Declared pregnant women likely to receive, during the entire pregnancy, from radiation sources external to the body, a committed effective dose equivalent in excess of 0.1 rem (1 mSv).
[ED. NOTE: Appendices referenced are available from the agency.]

Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0215
Location of Individual Monitoring Devices
Each licensee or registrant must ensure that individuals who are required to monitor occupational doses in accordance with OAR 333-120-0210(1) wear individual monitoring devices as follows:
(1) An individual monitoring device used for monitoring the dose to the whole body must be worn at the unshielded location of the whole body likely to receive the highest exposure. When a protective apron is worn, the location of the individual monitoring device is typically at the neck (collar);
(2) An individual monitoring device used for monitoring the dose to an embryo/fetus of a declared pregnant woman, pursuant to OAR 333-120-0170(1), must be located at the waist under any protective apron being worn by the woman;
(3) An individual monitoring device used for monitoring the lens dose equivalent, to demonstrate compliance with OAR 333-120-0100(1)(b)(A), must be located at the neck (collar), outside any protective apron being worn by the monitored individual, or at an unshielded location closer to the eye;
(4) An individual monitoring device used for monitoring the dose to the extremities, to demonstrate compliance with OAR 333-120-0100(1)(b)(B), must be worn on the extremity likely to receive the highest exposure. Each individual monitoring device must be oriented to measure the highest dose to the extremity being monitored.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

Control of Exposure from External Sources in Restricted Areas

333-120-0230
Control of Access to Very High Radiation Areas
(1) In addition to the requirements in OAR 333-120-0220, the licensee or registrant must institute additional measures to ensure that an individual is not able to gain unauthorized or inadvertent access to areas in which radiation levels could be encountered at five Gray (500 ~~Rad~~ rad) –or more in one hour at one meter from a radiation source or any surface through which the radiation penetrates.
(2) The licensee or registrant is not required to control entrance or access to rooms or other areas containing sources of radiation capable of producing a very high radiation area as described in OAR 333-120-0220 if the licensee or registrant has met all the specific requirements for access and control specified in other applicable divisions of chapter 333, such as, 333-105 for industrial radiography, 333-106 for x-rays in the healing arts, and 333-109 for particle accelerators.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0240
Control of Access to Very High Radiation Areas -- Irradiators

This rule applies to licensees or registrants with sources of radiation in non-self-shielded irradiators. It does not apply to sources of radiation that are used in teletherapy, in industrial radiography, or in completely self-shielded irradiators in which the source of radiation is both stored and operated within the same shielding radiation barrier and, in the designed configuration of the irradiator, is always physically inaccessible to any individual and cannot create high levels of radiation in an area that is accessible to any individual.

(1) Each area in which there may exist radiation levels in excess of five Gray (500 rad) in one hour at one meter from a sealed radioactive source that is used to irradiate materials must meet the following requirements.

(a) Each entrance or access point must be equipped with entry control devices which:

(A) Function automatically to prevent any individual from inadvertently entering the area when very high radiation levels exist; and

(B) Permit deliberate entry into the area only after a control device is actuated that causes the radiation level within the area, from the sealed source, to be reduced below that at which it would be possible for an individual to receive a deep-dose equivalent in excess of one mSv (0.1 rem) in one hour; and

(C) Prevent operation of the source if the source would produce radiation levels in the area that could result in a deep-dose equivalent to an individual in excess of one mSv (0.1 rem) in one hour.

NOTE: This rule applies to radiation from accelerators, and byproduct, source, NARM, or special nuclear radioactive materials that are used in sealed sources in non-self-shielded irradiators. This rule does not apply to radioactive or x-ray sources that are used in teletherapy or medical accelerators, in radiography, or in completely self-shielded irradiators in which the source is both stored and operated within the same shielding radiation barrier and, in the designed configuration of the irradiator, is always physically inaccessible to any individual and cannot create high levels of radiation in an area that is accessible to any individual. This rule also does not apply to sources from which the radiation is incidental to some other use.

(b) Additional control devices must be provided so that, upon failure of the entry control devices to function as required by subsection (1)(a) of this rule:

(A) The radiation level within the area, from the sealed source, or radiation source is reduced below that at which it would be possible for an individual to receive a deep-dose equivalent in excess of one mSv (0.1 rem) in one hour; and

(B) Conspicuous visible and audible alarm signals are generated to make an individual attempting to enter the area aware of the hazard and at least one other authorized individual, who is physically present, familiar with the activity, and prepared to render or summon assistance, aware of the failure of the entry control devices.

(c) The licensee or registrant must provide control devices so that, upon failure or removal of physical radiation barriers other than the radiation source's shield or shielded storage container:

(A) The radiation level from the radiation source is reduced below that at which it would be possible for an individual to receive a deep-dose equivalent in excess of one mSv (0.1 rem) in one hour; and

(B) Conspicuous visible and audible alarm signals are generated to make potentially affected individuals aware of the hazard and the licensee/registrant or at least one other

individual, who is familiar with the activity and prepared to render or summon assistance, aware of the failure or removal of the physical barrier.
(d) When the shield for the stored source is a liquid, the licensee or registrant must provide means to monitor the integrity of the shield and to signal, automatically, loss of adequate shielding.
(e) Physical radiation barriers that comprise permanent structural components, such as walls, that have no credible probability of failure or removal in ordinary circumstances need not meet the requirements of subsections (1)(c) and (1)(d) of this rule.
(f) Each area must be equipped with devices that will automatically generate conspicuous visible and audible alarm signals to alert personnel in the area before the source can be put into operation and in sufficient time for any individual in the area to operate a clearly identified control device, which must be installed in the area and which can prevent the source from being put into operation.
(g) Each area must be controlled by use of such administrative procedures and such devices as are necessary to ensure that the area is cleared of personnel prior to each use of the radiation source.
(h) Each area must be checked by a radiation measurement to ensure that, prior to the first individual's entry into the area after any use of the source, the radiation level from the source in the area is below that at which it would be possible for an individual to receive a deep-dose equivalent in excess of one mSv (0.1 rem) in one hour.
(i) The entry control devices required in subsection (1)(a) of this rule must have been tested for proper functioning. Records of required testing must be maintained in accordance with OAR 333-120-0680.
(A) Testing must be conducted prior to initial operation with the source of radiation on any day (unless operations were continued uninterrupted from the previous day); and
(B) Testing must be conducted prior to resumption of operation of the source of radiation after any unintended interruption; and
(C) The licensee or registrant must submit and adhere to a schedule for periodic tests of the entry control and warning systems.
(j) The licensee or registrant may not conduct operations, other than those necessary to place the source in safe condition or to effect repairs on controls, unless control devices are functioning properly.
(k) Entry and exit portals that are used in transporting materials to and from the irradiation area, and that are not intended for use by individuals, must be controlled by such devices and administrative procedures as are necessary to physically protect and warn against inadvertent entry by any individual through these portals. Exit portals for processed materials must be equipped to detect and signal the presence of any loose radiation sources that are carried toward such an exit and to automatically prevent loose radiation sources from being carried out of the area.
(2) Persons holding licenses or registrations or applicants for licenses or registrations for radiation sources that are within the purview of section (1) of this rule and that will be used in a variety of positions or in locations, such as open fields or forests, that make it impracticable to comply with certain requirements of section (1) of this rule, such as those for the automatic control of radiation levels, may apply to the Agency for approval of the use of alternative safety measures. Any alternative safety measures must provide a degree of personnel protection at least equivalent to those specified in section (1) of this

rule. At least one of the alternative measures must include an entry-preventing interlock control based on a measurement of the radiation that ensures the absence of high radiation levels before an individual can gain access to the area where such radiation sources are used.
(3) The entry control devices required by sections (1) and (2) of this rule must be established in such a way that no individual will be prevented from leaving the area.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

Respiratory Protection and Controls to Restrict Internal Exposure in Restricted Areas

333-120-0320
Use of Individual Respiratory Protection Equipment
(1) If the licensee uses respiratory protection equipment to limit intakes pursuant to OAR 333-120-0310:
(a) The licensee must use only respiratory protection equipment that is tested and certified or had certification extended by the National Institute for Occupational Safety and Health/Mine Safety and Health Administration (NIOSH/MSHA).
(b) The licensee may use equipment that has not been tested or certified by NIOSH/MSHA, has not had certification extended by NIOSH/MSHA, or for which there is no schedule for testing or certification, the licensee must submit an application for authorized use of that equipment, including a demonstration by testing, or a demonstration on the basis of reliable test information, that the material and performance characteristics of the equipment are capable of providing the proposed degree of protection under anticipated conditions of use.
(c) The licensee must implement and maintain a respiratory protection program that includes:
(A) Air sampling sufficient to identify the potential hazard, permit proper equipment selection, and estimate exposures; and
(B) Surveys and bioassays, as appropriate, to evaluate actual intakes; and
(C) Testing of respirators for operability immediately prior to each use; and
(D) Written procedures regarding:
(i) Monitoring, including air sampling and bioassays;
(ii) Supervision and training of respirator users;
(iii) Fit testing;
(iv) Respirator selection;
(v) Breathing air quality;
(vi) Inventory and control;
(vii) Storage, issuance, maintenance, repair, testing, and quality assurance of respiratory protection equipment;
(viii) Recordkeeping; and
(ix) Limitations on periods of respirator use and relief from respirator use; and
(E) Determination by a physician prior to initial fitting and use of respirators, and at least every 12 months thereafter, that the individual user is physically able to use the respiratory protection equipment.

(F) Fit testing, with fit factor > 10 times the APF for negative pressure devices, and a fit factor > 500 for any positive pressure, continuous flow, and pressure-demand devices, before the first field use of tight fitting, face-sealing respirators and periodically thereafter at a frequency not to exceed one year. Fit testing must be performed with the facepiece operating in the negative pressure mode.
(d) The licensee must issue a written policy statement on respirator usage covering:
(A) The use of process or other engineering controls, instead of respirators; and
(B) The routine, nonroutine, and emergency use of respirators; and
(C) The periods of respirator use and relief from respirator use.
(e) The licensee must advise each respirator user that the user may leave the area at any time for relief from respirator use in the event of equipment malfunction, physical or psychological distress, procedural or communication failure, significant deterioration of operating conditions, or any other conditions that might require such relief.
(f) The licensee must use equipment within limitations for type and mode of use and must provide proper visual, communication, low temperature work environments, the concurrent use of safety or radiological protection equipment and other special capabilities (such as adequate skin protection) when needed. The licensee must ensure equipment is used in such a way as not to interfere with the proper operation of the respirator.
(2) In estimating exposure of individuals to airborne radioactive materials, the licensee or registrant may make allowance for respiratory protection equipment used to limit intakes pursuant to OAR 333-120-0310, provided that the following conditions, in addition to those in section (1) of this rule, are satisfied:
(a) The licensee selects respiratory protection equipment that provides a protection factor (10 CFR Part 20 Appendix A to 20.1001 to 20.2401) greater than the multiple by which peak concentrations of airborne radioactive materials in the working area are expected to exceed the values specified in 10 CFR Part 20 Table 1, Column 3 of Appendix B to 20.1001 to 20.2401. If the selection of a respiratory protection device with a protection factor greater than the peak concentration is inconsistent with the goal specified in OAR 333-120-0310 of keeping the total effective dose equivalent ALARA, the licensee or registrant may select respiratory protection equipment with a lower protection factor only if such a selection would result in keeping the total effective dose equivalent ALARA. The concentration of radioactive material in the air that is inhaled when respirators are worn may be initially estimated by dividing the average concentration in air, during each period of uninterrupted use, by the protection factor. If the exposure is later found to be greater than estimated, the corrected value must be used; if the exposure is later found to be less than estimated, the corrected value may be used; and
(b) The licensee must obtain authorization from the Agency before assigning respiratory protection factors in excess of those specified in 10 CFR Part 20 Appendix A to 20.1001 to 20.2401. The Agency may authorize a licensee to use higher protection factors on receipt of an application that:
(A) Describes the situation for which a need exists for higher protection factors; and
(B) Demonstrates that the respiratory protection equipment provides these higher protection factors under the proposed conditions of use.

(3) The licensee must use as emergency devices only respiratory protection equipment that has been specifically certified or had certification extended for emergency use by NIOSH/MSHA.
(4) The licensee must notify the Agency, in writing, at least 30 days before the date that respiratory protection equipment is first used under the provisions of either sections (1) or (2) of this rule.
(5) Standby rescue persons are required whenever one-piece atmosphere-supplying suits, or any combination of supplied air respiratory protection device and personnel protective equipment are used from which an unaided individual would have difficulty extricating himself or herself. The standby persons must be equipped with respiratory protection devices or other apparatus appropriate for the potential hazards. The standby rescue persons must observe or otherwise maintain continuous communication with the workers (visual, voice, signal line, telephone, radio, or other suitable means), and be immediately available to assist them in case of a failure of the air supply or for any other reason that requires relief from distress. A sufficient number of standby rescue persons must be immediately available to assist all users of this type of equipment and to provide effective emergency rescue if needed.
(6) Atmosphere-supplying respirators must be supplied with respirable air of grade D quality or better as defined by the Compressed Gas Association in publication G-7.1, "Commodity Specification for Air," 1997. Grade D quality air criteria include:
(a) Oxygen content (v/v) of 19.5-23.5%;
(b) Hydrocarbon (condensed) content of five milligrams per cubic meter of air or less;
(c) Carbon monoxide (CO) content of ten ppm or less;
(d) Carbon dioxide content of 1,000 ppm or less; and
(e) Lack of ~~noticeable~~noticeable odor.
(7) The licensee must ensure that no objects, materials or substances, such as facial hair, or any conditions that interfere with the facepiece seal or valve function, and that are under the control of the respirator wearer, are present between the skin of the wearer's face and the sealing surface of a tight-fitting respirator facepiece.
(8) In estimating the dose to individuals from intake of airborne radioactive materials, the concentration of radioactive material in the air that is inhaled when respirators are worn is initially assumed to be the ambient concentration in air without respiratory protection, divided by the assigned protection factor. If the dose is later found to be greater than the estimated dose, the corrected value must be used. If the dose is later found to be less than the estimated dose, the corrected value may be used.
[Publications: Publications referenced are available from the agency.]
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0340
Application for Use of Higher Assigned Protection factors
(1) The licensee shall obtain authorization from the Agency before using assigned protection factors in excess of those specified in 10 CFR Part 20, Appendix A. The Agency may authorize a licensee to use higher assigned protection factors on receipt of an application that:
(a) Describes the situation for which a need exists for higher protection factors; and

(b) Demonstrates that the respiratory protection equipment provides these higher protection factors under the proposed conditions of use.
Stat. Auth: ORS 453.635
Stats. Implemented: ORS 453.635

Precautionary Procedures

333-120-0420
Exceptions to Posting Requirements
(1) A licensee is not required to post caution signs in areas or rooms containing radioactive materials for periods of less than ~~8~~eight hours, if all of the following conditions are met:
(a) The materials are constantly attended during these periods by an individual who takes the precautions necessary to prevent the exposure of individuals to radiation or radioactive materials in excess of the limits established in this division; and
(b) The area or room is subject to the licensee's control.
(2) Rooms or other areas in hospitals that are occupied by patients are not required to be posted with caution signs pursuant to OAR 333-120-0410 provided that:
(a) A patient being treated with a permanent implant or therapeutic radiopharmaceutical could be released from confinement pursuant to OAR 333-116-0260 and 333-116-0265 of this chapter; and
(b) There are personnel in attendance who will take the necessary precautions to prevent the exposure of individuals to radiation or radioactive material in excess of the limits established in this division and to operate within the ALARA provisions of the licensee's radiation protection program.
(3) A caution sign is not required to be posted in a room or area containing a sealed source, provided the radiation level at 30 centimeters from the surface of the source container or housing does not exceed 0.05 mSv (0.005 rem) per hour.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0450
Procedures for Receiving and Opening Packages
(1) Each licensee who expects to receive a package containing quantities of radioactive material in excess of a Type A quantity, as defined in 49 CFR 173.435 Table of A1 and A2 Values for Radionuclides, must make arrangements to receive:
(a) The package when the carrier offers it for delivery; or
(b) Notification of the arrival of the package at the carrier's terminal and to take possession of the package expeditiously.
(2) Each licensee must:
(a) Monitor the external surfaces of a labeled package for radioactive contamination unless the package contains only radioactive material in the form of a gas or in special form as defined in OAR 333-118-0020;
(b) Monitor the external surfaces of a labeled package for radiation levels; and

NOTE: Labeled with a Radioactive White I, Yellow II, or Yellow III label as specified in U.S. Department of Transportation regulations, 49 CFR 172.403 and 172.436-440.
(c) Monitor all packages known to contain radioactive material for radioactive contamination and radiation levels if there is evidence of degradation of package integrity, such as packages that are crushed, wet, or damaged.
(3) The licensee must perform the monitoring required by section (2) of this rule as soon as practicable after receipt of the package, but not later than three hours after the package is received at the licensee's facility if it is received during the licensee's normal working hours, or not later than three hours from the beginning of the next working day if it is received after working hours.
(4) The licensee must immediately notify the final delivery carrier and the Agency, by telephone when:
(a) Removable radioactive surface contamination exceeds the limits of OAR 333-118-0150 Table 3;
(b) External radiation levels exceed the limits of OAR 333-118-0150(11).
(5) Each licensee must:
(a) Establish, maintain, and retain written procedures for safely opening packages in which radioactive material is received; and
(b) Ensure that the procedures are followed and that due consideration is given to special instructions for the type of package being opened.
(6) Licensees transferring special form sources in licensee-owned or licensee-operated vehicles to and from a work site are exempt from the contamination monitoring requirements of section (2) of this rule, but are not exempt from the survey requirement in section (2) of this rule for measuring radiation levels, which is required to ensure that the source is still properly lodged in its shield.
[ED. NOTE: Tables referenced are available from the agency.]
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

Waste Disposal

333-120-0520
Disposal by Release into Sanitary Sewerage
(1) A licensee may discharge licensed material into sanitary sewerage if each of the following conditions is satisfied:
(a) The material is readily soluble (or is readily dispersible biological material) in water; and
(b) The quantity of licensed or other radioactive material that the licensee releases into the sewer in one month divided by the average monthly volume of water released into the sewer by the licensee does not exceed the concentration listed in 10 CFR Part 20 Table 3 of Appendix B to 20.1001 to 20.2401; and
(c) If more than one radionuclide is released, the following conditions also must be satisfied:
(A) The licensee must determine the fraction of the limit in 10 CFR Part 20 Table 3 of Appendix B to 20.1001 to 20.2401 represented by discharges into sanitary sewerage by dividing the actual monthly average concentration of each radionuclide released by the

licensee into the sewer by the concentration of that radionuclide listed in 10 CFR Part 20 Table 3 of Appendix B to 20.1001 to 20.2401; and
(B) The sum of the fractions for each radionuclide required by ~~section~~paragraph (1)(c)(A) of this rule does not exceed unity; and
(d) The total quantity of licensed and other radioactive material that the licensee releases into the sanitary sewerage system in a year does not exceed 185 GBq (5 Curies) of hydrogen-3, 37 GBq (1 Curie) of carbon-14, and 37 GBq (1 Curie) of all other radioactive materials combined.
(2) Excreta from individuals undergoing medical diagnosis or therapy with radioactive material is not subject to the limitations contained in section (1) of this rule.
[ED. NOTE: Appendices referenced are available from the agency.]
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0540
Disposal of Specific Wastes
(1) A licensee may dispose of the following licensed material as if it were not radioactive:
(a) 1.85 kBq (0.05 uCi), or less, of hydrogen-3 or carbon-14 per gram of medium used for liquid scintillation counting; and
(b) 1.85 kBq (0.05 uCi), or less, of hydrogen-3 or carbon-14 per gram of animal tissue, averaged over the weight of the entire animal.
(2) A licensee may not dispose of tissue under subsection (1)(b) of this rule in a manner that would permit its use either as food for humans or as animal feed.
(3) The licensee must maintain records in accordance with OAR 333-120-0670.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

Records

333-120-0600
General Provisions
(1) Each licensee must use the SI units Becquerel, Gray, Sievert and coulomb per kilogram, or the special units Curie, rad, rem, including multiples and subdivisions, and must clearly indicate the units of all quantities on records required by this division.
(2) The licensee must make a clear distinction among the quantities entered on the records required by this division (e.g., total effective dose equivalent, shallow-dose equivalent, lens dose equivalent, deep-dose equivalent, committed effective dose equivalent).
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0610
Records of Radiation Protection Programs
(1) Each licensee must maintain records of the radiation protection program, including:
(a) The provisions of the program; and

(b) Audits and other reviews of program content and implementation.
(2) The licensee must retain the records required by subsection (1)(a) of this rule until the Agency terminates each pertinent license or registration requiring the record. The licensee must retain the records required by subsection (1)(b) of this rule for five years or until inspected by the Agency.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0620
Records of Surveys and Leak Tests
(1) Each licensee or registrant must maintain records showing the results of surveys, sealed source leak tests, and calibrations required by OAR 333-120-0200, 333-120-0450(2) and 333-120-0460. The licensee or registrant must retain these records in accordance with OAR 333-100-0057.
(2) The licensee or registrant must retain each of the following records until the Agency terminates each pertinent license or registration requiring the record:
(a) Records of the results of surveys to determine the dose from external sources and used, in the absence of or in combination with individual monitoring data, in the assessment of individual dose equivalents. This includes records of survey results to determine the dose from external sources and used, in the absence of or in combination with individual monitoring data, in the assessment of individual dose equivalents required under the standards for protection against radiation in effect prior to January 1, 1994; and
(b) Records of the results of measurements and calculations used to determine individual intakes of radioactive material and used in the assessment for internal dose. This includes records documenting the results of measurements and calculations used to determine individual intakes of radioactive material and used in the assessment of internal dose required under the standards for protection against radiation in effect prior to January 1, 1994; and
(c) Records showing the results of air sampling, surveys, and bioassays required pursuant to OAR 333-120-0320(1)(c)(A) and (B). This includes records documenting the results of air sampling, surveys, and bioassays required under the standards for protection against radiation in effect prior to January 1, 1994; and
(d) Records of the results of measurements and calculations used to evaluate the release of radioactive effluents to the environment. This includes records documenting the results of measurements and calculations used to evaluate the release of radioactive effluents to the environment required under the standards for protection against radiation in effect prior to January 1, 1994.
(3) Records of Tests for Leakage or Contamination of Sealed Sources. Records of tests for leakage or contamination of sealed sources required by OAR 333-120-0460, must be kept in units of becquerels or microcuries and maintained for inspection by the Agency in accordance with 333-100-0057.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0650
Records of Individual Monitoring Results

(1) Recordkeeping Requirement. Each licensee must maintain records of doses received by all individuals for whom monitoring was required pursuant to OAR 333-120-0210 and records of doses received during planned special exposures, accidents, and emergency conditions. These records must include, when applicable:
(a) The deep-dose equivalent to the whole body, lens dose equivalent, shallow-dose equivalent to the skin, and shallow-dose equivalent to the extremities; and
(b) The estimated intake or body burden of radionuclides (OAR 333-120-0110); and
(c) The committed effective dose equivalent assigned to the intake or body burden of radionuclides; and
(d) The specific information used to calculate the committed effective dose equivalent pursuant to OAR 333-120-0130(3); and
(e) The total effective dose equivalent when required by OAR 333-120-0110; and
(f) The total of the deep-dose equivalent and the committed dose to the organ receiving the highest total dose.
NOTE: Assessments of dose equivalent and records made using units in effect before the licensee's adoption of this division need not be changed.
(2) Recordkeeping Frequency: The licensee must make entries of the records specified in section (1) of this rule at least annually.
(3) Recordkeeping Format. The licensee must maintain the records specified in section (1) of this rule on Agency Form Z, in accordance with the instructions for Agency Form Z, or in clear and legible records containing all the information required by Agency Form Z.
(4) Privacy Protection. The records required under this rule are protected from public disclosure because of their personal privacy nature. These records are protected and if transferred to the Agency, are protected under ORS 192.
(5) The licensee must maintain the records of dose to an embryo/fetus with the records of dose to the declared pregnant woman, as defined in OAR 333-100-0005. The declaration of pregnancy must also be kept on file, but may be maintained separately from the dose records.
(6) The licensee must retain each required form or record until the Agency authorizes disposition.
NOTE: The following information is required on Form Z, Occupational Exposure Record for a Monitoring Period: Name; identification number and type (Social Security Number (SSN), Passport Number (PPN), Canadian Social Insurance Number (CSI), Work Permit Number (WPN), INDEX Identification Number (IND), or Other (OTH)); sex; date of birth; monitoring period; licensee name; license or registration number; is dose is official record or estimate; if dose is routine or planned special exposure; intake, list radionuclide, class, mode, total intake (Ci); external dose(s), DDE (Deep Dose Equivalent in ~~rem~~sieverts or remss), LDE (Lens Dose Equivalent in ~~rem~~sieverts or remss), SDE(WB) (Shallow Dose Equivalent Whole Body in ~~rem~~sieverts or remss), SED(ME) (Shallow Dose Equivalent Maximum Ext~~rem~~sieverts or remsity in ~~rem~~sieverts or remss), CEDE (Committed Effective Dose Equivalent in ~~rem~~sieverts or remss), CDE (Committed Dose Equivalent in ~~rem~~sieverts or remss), TEDE (Total Effective Dose Equivalent in ~~rem~~sieverts or remss) and TODE Total Organ Dose Equivalent in ~~rem~~sieverts or remss).
[ED. NOTE: Forms referenced are available from the agency.]

Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0680
Records of Testing Entry Control Devices for Very High Radiation Areas
(1) Each licensee must maintain records of tests made under OAR 333-120-0240(1)(i) on entry control devices for very high radiation areas. These records must include the date, time, and results of each such test of function.
(2) The licensee must retain the records required by section (1) of this rule in accordance with OAR 333-100-0057.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

Reports

333-120-0710
Notification of Incidents
(1) Immediate notification: Notwithstanding any other requirements for notification, each licensee, or registrant, must immediately report any event involving a device or licensed radioactive material possessed by the licensee, or registrant, that may have caused or threatens to cause any of the following conditions:
(a) An individual to receive:
(A) A total effective dose equivalent of 0.25 Sv (25 rem) or more; or
(B) A lens dose equivalent of 0.75 Sv (75 rem) or more; or
(C) A shallow-dose equivalent to the skin or extremities of 2.5 Gray (250 rad) or more; or
(b) The release of radioactive material, inside or outside of a restricted area, so that, had an individual been present for 24 hours, the individual could have received an intake five times the occupational annual limit on intake (the provisions of this rule do not apply to locations where personnel are not normally stationed during routine operations, such as hot-cells or process enclosures).
(2) Twenty-four hour notification: Each licensee or registrant must, within 24 hours of discovery of the event, report any event involving loss of control of a device or licensed material possessed by the licensee that may have caused, or threatens to cause, any of the following conditions:
(a) An individual to receive in a period of 24 hours:
(A) A total effective dose equivalent exceeding 0.05 Sv (5 ~~rem~~sieverts or rems); or
(B) A lens dose equivalent exceeding 0.15 Sv (15 ~~rem~~sieverts or rems); or
(C) A shallow-dose equivalent to the skin or ext~~rem~~sieverts or remsities exceeding 0.15 Sv (15 ~~rem~~sieverts or rems); or
(b) The release of radioactive material, inside or outside of a restricted area, so that, had an individual been present for 24 hours, the individual could have received an intake in excess of one occupational annual limit on intake (the provisions of this rule do not apply to locations where personnel are not normally stationed during routine operations, such as hot-cells or process enclosures).

(3) The licensee must prepare any report filed with the Agency pursuant to this rule so that names of individuals who have received exposure to radiation or radioactive material are stated in a separate and detachable part of the report.
(4) Reports made by licensees, or registrants, in response to the requiremsieverts or remsents of (1)(a) and (b) of this rule must be made by telephone and either by telegram, mail-gram, or facsimile to the Agency.
(5) The provisions of this rule do not include doses that result from planned special exposures, that are within the limits for planned special exposures, and that are reported under OAR 333-120-0730.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0720
Reports of Exposures, Radiation Levels, Leak Tests, and Concentrations of Radioactive Material Exceeding the Limits
(1) Reportable events: In addition to the notification required by OAR 333-120-0710, each licensee must submit a written report within 30 days after learning of any of the following occurrences:
(a) Any incident for which notification is required by OAR 333-120-0710; or
(b) Doses in excess of any of the following:
(A) The occupational dose limits for adults in OAR 333-120-0100; or
(B) The occupational dose limits for a minor in OAR 333-120-0160; or
(C) The limits for an embryo/fetus of a declared pregnant woman (as defined in OAR 333-100-0005) in OAR 333-120-0170; or
(D) The limits for an individual member of the public in OAR 333-120-0180; or
(E) Any applicable limit in the license; or
(F) The ALARA constraints for air emissions established under 333-120-0020(4); or
(c) Levels of radiation or concentrations of radioactive material in:
(A) A restricted area in excess of any applicable limit in the license; or
(B) An unrestricted area in excess of ten times any applicable limit set forth in this division or in the license (whether or not involving exposure of any individual in excess of the limits in OAR 333-120-0180); or
(d) For licensee subject to the provisions of EPA's generally applicable environmental radiation standards in 40 CFR Part 190, levels of radiation or releases of radioactive material in excess of those standards, or of license conditions related to those standards.
(e) Leaking or contaminated sealed sources in excess of limits in OAR 333-120-0460, must be reported within five days to the Agency describing the equipment involved, the test results and the corrective action taken.
(f) Erroneous overexposure dosimetry reports that resulted from non-personnel exposures;
(2) Contents of reports: Each report required by section (1) of this rule must describe the extent of exposure of individuals to radiation and radioactive material, including, as appropriate:
(a) Estimates of each individual's dose; and
(b) The levels of radiation and concentrations of radioactive material involved; and
(c) The cause of the elevated exposures, dose rates, or concentrations; and

(d) Corrective steps taken or planned to ensure against a recurrence, including the schedule for achieving conformance with applicable limits, generally applicable environmental standards, and associated license conditions; and
(e) For each individual exposed: the name, Social Security account number, and date of birth. The report must be prepared so that this information is stated in a separate and detachable part of the report.
Note: With respect to the limit for the embryo/fetus (OAR 333-120-0170) the identifiers should be those of the declared pregnant woman, as defined in OAR 333-100-0005.
(3) All licensees who make reports under section (1) this rule must submit the report in writing to the Agency.
(4) The Agency must prohibit the ~~rem~~sieverts or remsoval or expungement of any permanent dosimetry report submitted to the licensee or registrant. Evaluated erroneous personnel dose record changes to licensee or registrant records must be recorded only on Form Z and retained by the licensee or registrant.
[ED. NOTE: Forms referenced are available from the agency.]
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0740
Reports to Individuals Exceeding Dose Limits
When a licensee or registrant is required, pursuant to the provisions of OAR 333-120-0720 or 333-120-0730, to report to the Agency any exposure of an identified occupationally exposed individual~~,~~ or an identified member of the public~~,~~ to radiation or radioactive material, the licensee or registrant must also provide a copy of the report submitted to the Agency to the individual. This report must be transmitted at a time no later than the transmittal to the Agency.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.605 - 453.807

333-120-0800
Reports of Transactions Involving Nationally Tracked Sources
Each licensee who manufactures, transfers, receives, disassembles, or disposes of a nationally traced source shall complete and submit a National Source Tracking Transaction Report as specified in sections (1) through (5) of this rule~~section~~ for each type of transaction.
(1) Each licensee who manufactures a nationally tracked source shall complete and submit a National Source Tracking Transaction report. The report must include the following information:
(a) The name, address, and license number of the reporting licensee;
(b) The name of the individual preparing the report;
(c) The manufacturer, model, and serial number of the source;
(d) The radioactive material in the source;
(e) The initial source strength in becquerels (curies) at the time of manufacture;
(f) The manufacture date of the source.

(2) Each licensee that transfers a nationally tracked source to another person shall complete and submit a National Source Tracking Transaction report. The report must include the following information:
(a) The name, address, and license number of the reporting licensee;
(b) The name of the individual preparing the report;
(c) The name and license number of the recipient facility and the shipping address;
(d) The manufacturer, model, and serial number of the source or, if not available, other information to uniquely identify the sources;
(e) The radioactive material in the source;
(f) The initial or current source strength in becquerels (curies);
(g) The date for which the source strength is reported:
(h) The shipping date;
(i) The estimated time of arrival date; and
(j) For nationally tracked sources transferred as waste under a Uniform Low-Level Radioactive Waste Manifest, the waste manifest number and the container identification with the nationally tracked sources.
(3) Each licensee that receives a nationally tracked source shall complete and submit a National Source Tracking Transaction Report. The report must include the following information:
(a) The name, address, and license number of the reporting licensee;
(b) The name of the individual preparing the report;
(c) The name, address, and license number of the person that provided the source:
(d) The manufacturer, model, and serial number of the source or, if not available, other information to uniquely identify the source;
(e) The radioactive material in the source;
(f) The initial or current source strength in becquerels (curies);
(g) The date for which the source strength is reported;
(h) The date of receipt; and
(i) For material received under a Uniform Low-Level radioactive Waste Manifest, the waste manifest number and the container identification with the nationally tracked source.
(4) Each licensee that disassembles a nationally tracked source shall complete and submit a National Source Tracking Transaction Report. The report must include the following information:
(a) The name, address, and license number of the reporting licensee;
(b) The name of the individual preparing the report;
(c) The manufacturer, model, and serial number of the source or, if not available, other information to uniquely identify the source;
(d) The radioactive material in the source;
(e) The initial or current source strength in becquerels (curies);
(f) The date for which the source strength is reported;
(g) The disassemble date of the source.
(5) Each Licensee who disposes of a nationally tracked source shall complete and submit a National Source Tracking Transaction Report. The report must include the following information:
(a) The name, address, and license number of the reporting licensee;

(b) The name of the individual preparing the report;
(c) The waste manifest number;
(d) The container identification with the nationally tracked source;
(e) The date of disposal; and
(f) The method of disposal.
(6) The reports discussed in sections~~paragraphs~~ (1) through (5) of this rule~~section~~ must be submitted by the close of the next business day after the transactions. The report must be submitted to the National Source Tracking System by using:
(a) The online National Source Tracking System;
(b) Electronically using a computer readable format;
(c) By facsimile:
(d) By mail to the address on the National Source Tracking Transaction Report Form (NRC Form 748); or
(e) By telephone with follow up by facsimile or mail.
(7) Each licensee shall correct any error in previously filed reports or file a new report for any missed transaction within five business days of the discovery of the error or missed transaction. Such errors may be detected by a variety of methods such as administrative reviews or by physical inventories required by regulation. In addition, each licensee shall reconcile the inventory of nationally tracked sources possessed by the licensee against that licensee's data in the National Source Tracking System. The reconciliation must be conducted during the month of January in each year. The reconciliation process must include resolving any discrepancies between the National Source Tracking Ssystem and the actual inventory by filing the reports identified by sections~~paragraphs~~ (1) through (5) of this rule~~section~~. By January 31 of each year, each licensee must submit to the National Source Tracking System confirmation that the data in the National Source Tracking System is correct.
Stat. Auth.: ORS 453.635
Stats. Implemented: ORS 453.635