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Readopt with amendment He-P 4003.01, effective 5/23/14 (Document #10604), as amended effective 2/3/17 (Document #12100), cited and to read as follows:

PART He-P 4003 DEFINITIONS

He-P 4003.01 Definitions.

(a) "A_1" means the maximum activity of special form radioactive material permitted in a Type A package, as defined in He-P 4037.

(b) "A_2" means the maximum activity of radioactive material, other than special form radioactive material, permitted in a Type A package, as defined in He-P 4037.

(c) "Absorbed dose" means the energy imparted by ionizing radiation per unit mass of irradiated material, expressed in units of the gray (Gy) or the rad.

(d) "Accelerator" means any machine capable of accelerating electrons, protons, deuterons, or other charged particles in a vacuum and of discharging the resultant particulate or other radiation into a medium at energies usually in excess of one million electron volts (1MeV). This term includes "particle accelerator."

(e) "Accelerator-produced radioactive material" means any material made radioactive by a particle accelerator.

(f) "Act" means state of New Hampshire Revised Statutes Annotated (RSA), Chapter 125-F, Sections 1-25, Radiological Health Program.

(g) "Activity" means the rate of disintegration or transformation or decay of radioactive material in units of the Becquerel (Bq) or the curie (Ci).

(h) "Adult" means an individual 18 or more years of age.

(i) "Agreement state" means any state with which the U.S. Nuclear Regulatory Commission or the U.S. Atomic Energy Commission has entered into an effective agreement under subsection 274b. of the Atomic Energy Act of 1954, as amended (73 Stat. 689).

(j) "Airborne radioactive material" means any radioactive material dispersed in the air in the form of dusts, fumes, particulates, mists, vapors, or gases.

(k) "Airborne radioactivity area" means a room, enclosure, or area in which airborne radioactive materials, composed wholly or partly of licensed material, exist in concentrations:

(1) That are in excess of the derived air concentrations (DACs) specified in He-P 4090 or 10 CFR 20 Appendix B; or

(2) To such a degree that an individual present in the area without respiratory protective equipment could exceed, during the hours an individual is present in a week, an intake of 0.6 percent of the annual limit on intake (ALI) or 12 DAC-hours.

(l) "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.

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(m) "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 and 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.

(n) "As low as is reasonably achievable (ALARA)" means making every reasonable effort to maintain exposures to radiation as far below the dose limits in these regulations as is practical, consistent with the purpose for which the licensed or registered 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 socio-economical considerations, and in relation to utilization of nuclear energy and licensed or registered sources of radiation in the public interest.

(o) "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 trained and fitted users.

(p) "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.

(q) "Background radiation" means:

(1) Radiation from cosmic sources;

(2) Naturally occurring radioactive materials, which have not been technologically enhanced, including radon, except as a decay product of source or special nuclear material;

(3) Global fallout as it exists in the environment from the testing of nuclear explosive devices or from past nuclear accidents that contribute to background radiation and are not under the control of the licensee or registrant; and

(4) Not radiation from sources or byproduct materials regulated by the department of health and human services radiological health section (DHHS/RHS).

(r) "Becquerel (Bq)" means a unit of activity where one becquerel is equal to one disintegration per second (dps) or transformation per second (tps).

(s) "Bioassay" means the determination of kinds, quantities or concentrations, and 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. This term includes "radiobioassay."

(t) "Brachytherapy" means a method of radiation therapy in which sealed sources are utilized to deliver a radiation dose at a distance of up to a few centimeters, by surface, intracavitary, or interstitial application.

(u) "Bureau of radiological health (BRH)" means the former name of the radiological health program of the department of health and human services.

(v) "Byproduct material" means:

(1) "Byproduct material" as defined in RSA 125-F:3,II, namely "any radioactive material, except special nuclear material, yielded in or made radioactive by, exposure to the radiation incident to the process of producing or utilizing special nuclear material";

(2) The tailings or wastes produced by the extraction or concentration of uranium or thorium from ore processed primarily for its source material content, including discrete surface wastes resulting from uranium or thorium solution extraction processes except underground ore bodies depleted by these solution extraction operations;

(3) Any discrete source of radium-226 that is produced, extracted, or converted after extraction for use for a commercial, medical, or research activity;

(4) Any material that has been made radioactive by use of a particle accelerator and that is produced, extracted, or converted after extraction for use for a commercial, medical, or research activity; and

(5) Any discrete source of naturally occurring radioactive material, other than source material, that:

a. The governor declares by order to be byproduct material after the United States Nuclear Regulatory Commission, in consultation with the Administrator of the Environmental Protection Agency, the Secretary of Energy, the Secretary of Homeland Security, and the head of any other appropriate federal agency, determines would pose a threat similar to the threat posed by a discrete source of radium-226 to the public health and safety or the common defense and security; and

b. Is extracted or converted after extraction for use in a commercial, medical, or research activity.

(w) "Calibration" means the determination of:

(1) The response or reading of an instrument relative to a series of known radiation values over the range of the instrument, or

(2) The strength of a source of radiation relative to a standard.

(x) "Chelating agent" means amine polycarboxylic acids, hydroxycarboxylic acids, gluconic acid, and polycarboxylic acids.

(y) "Class" means a classification scheme for inhaled material according to its rate of clearance from the pulmonary region of the lung. This term includes "inhalation class" or "lung class."

(z) "Class D" means a class having a range of clearance half-times of less than 10 days.

(aa) "Class W" means a class having a range of clearance half-times of 10 to 100 days.

(ab) "Class Y" means a class having a range of clearance half-times of greater than 100 days.

(ac) "Clearance half time" means the time required for activity in the pulmonary region of the lung to be reduced by radioactive decay and biological processes to one half its value.

(ad) "Collective dose" means 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.

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(ae) "Commencement of construction" means taking any action defined as "construction" or any other activity at the site of a facility subject to the rules in this part that has a reasonable nexus to radiological health and safety.

(af) "Commissioner" means the commissioner of the New Hampshire department of health and human services, or his or her designee.

(ag) "Committed dose equivalent ($H_{T,50}$)" 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.

(ah) "Committed effective dose equivalent ($H_{E,50}$)" is the sum of the products of the weighting factors (w_T) applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent ($H_{T,50}$) to each of these organs or tissues ($H_{E,50} = \Sigma W_T H_{T,50}$).

(ai) "Condition of light work" means an inhalation rate of 1.2 cubic meters of air per hour for 2,000 hours in a year.

(aj) "Consortium" means an association of medical use licensees and a Positron Emission Tomography (PET) radionuclide production facility in the same geographical area that jointly own or share in the operation and maintenance cost of the PET radionuclide production facility that produces PET radionuclides for use in producing radioactive drugs within the consortium for noncommercial distributions among its associated members for medical use. The geographic area of a PET radionuclide production facility within the consortium is located at an educational institution or a Federal facility or a medical facility.

(ak) "Constraint" means a value above which specified license actions are required. This term includes "dose constraint."

(al) "Controlled area" means an area, outside of a restricted area but inside the site boundary, access to which can be limited by the licensee or registrant for any reason.

(am) "Critical group" means the group of individuals reasonably expected to receive the greatest exposure to residual radioactivity for any applicable set of circumstances.

(an) "Curie" means a unit of quantity of radioactivity in which one curie (Ci) is that quantity of radioactive material which decays at the rate of 3.7E+10 transformations per second (tps).

(ao) "Cyclotron" means a particle accelerator in which the charged particles travel in an outward spiral or circular path. A cyclotron accelerates charged particles at energies usually in excess of 10 megaelectron volts and is commonly used for production of short half-life radionuclides for medical use.

(ap) "Declared pregnant woman" means a woman who has voluntarily informed her employer, 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.

(aq) "Decommission" means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits:

(1) Release of the property for unrestricted use and termination of the license; or

(2) Release of the property under restricted conditions and termination of the license.

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(ar) "Decommissioning plan" means a written document that includes the licensee's planned procedures and activities for decommissioning of the facility or site.

(as) "Deep dose equivalent (H_d)," applicable to external whole-body exposure, means the dose equivalent at a tissue depth of one centimeter (1000 mg/cm^2).

(at) "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.

(au) "Depleted uranium" means the source material uranium in which the isotope uranium-235 is less than 0.711 weight percent of the total uranium present exclusive of special nuclear material.

(av) "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.

(aw) "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.

(ax) "Discrete source" means a radionuclide that has been processed so that its concentration within a material has been purposely increased for use for commercial, medical, or research activities.

(ay) "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).

(az) "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.

(ba) "Dose" means a generic term that includes absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, or total effective dose equivalent. This term includes "radiation dose."

(bb) "Dose equivalent (H_T)" means the product of the absorbed dose in tissue, quality factor, and all other necessary modifying factors at the body location of interest in units of the sievert (Sv) or rem.

(bc) "Dose limits" means the permissible upper bounds of radiation doses established in accordance with these rules.

(bd) "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.

(be) "Effective dose equivalent (H_E)" means the sum of the products of the dose equivalent to each organ or tissue (H_T) and the weighting factor (w_T) applicable to each of the body organs or tissues that are irradiated.

(bf) "Embryo" means the developing human organism from conception until the time of birth. This term includes fetus.

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(bg) "Entrance or access point" means any opening through which an individual or extremity of an individual could gain access to radiation areas or to licensed radioactive materials which include entry or exit portals of sufficient size to permit human entry.

(bh) "Explosive material" means any chemical compound, mixture, or device which produces a substantial instantaneous release of gas and heat spontaneously or by contact with sparks or flame.

(bi) "Exposure" means being exposed to ionizing radiation or to radioactive material.

(bj) "Exposure rate" means the exposure per unit of time.

(bk) "External dose" means that portion of the dose equivalent received from any source of radiation outside the body.

(bl) "Extremity" means hand, elbow, arm below the elbow, foot, knee, and leg below the knee.

(bm) "Facility" means the location within one building, vehicle, or under one roof and under the same administrative control at which:

(1) The possession, use, processing, or storage of radioactive material is or was authorized; or

(2) One or more radiation-producing machines or radioactivity-inducing machines are installed or located.

(bn) "Filtering facepiece" 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. This term includes "dust mask."

(bo) "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.

(bp) "Fit test" means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.

(bq) "Final radiation survey" means the survey of the facility or site after decommissioning activities have been completed during which the determination is made by the licensee that the facility or site meets the DHHS/RHS's release criteria.

(br) "Former U.S. Atomic Energy Commission (AEC) or U.S. Nuclear Regulatory Commission (NRC) licensed facilities" means nuclear reactors, nuclear fuel reprocessing plants, uranium enrichment plants, or critical mass experimental facilities where AEC or NRC licenses have been terminated.

(bs) "Generally applicable environmental radiation standards" means standards issued by the U.S. 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.

(bt) "Gray (Gy)" means the SI unit of absorbed dose where one gray is equal to an absorbed dose of one joule per kilogram which is equal to 100 rad.

(bu) "Hazardous waste" means those wastes designated as hazardous by U.S. Environmental Protection Agency regulations in 40 CFR 261.

(bv) "Healing arts" means the diagnosis and treatment of ailments for humans.

(bw) "Helmet" means a rigid respiratory inlet covering that also provides head protection against impact and penetration.

(bx) "High radiation area" means an area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of one millisievert (mSv) or "0.1 rem" in one hour at 30 centimeters from any source of radiation or from any surface that the radiation penetrates.

(by) "Hood" means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

(bz) "Human use" means the internal or external administration of radiation or radioactive material to human beings.

(ca) "Individual" means any human being.

(cb) "Individual monitoring" means the assessment of:

(1) Dose equivalent by the use of individual monitoring devices or by the use of survey data; or

(2) Committed effective dose equivalent by bioassay or by determination of the time-weighted air concentrations to which an individual has been exposed, that is, DAC-hours.

(cc) "Individual monitoring devices" means devices designed to be worn by a single individual for the assessment of dose equivalent, and includes film badges, thermoluminescent dosimeters (TLDs), pocket ionization chambers, optically stimulated luminescence (OSL) dosimeters, and personal air sampling equipment. This term includes "personnel monitoring equipment."

(cd) "Inspection" means an official examination or observation to determine compliance with rules and orders of the DHHS/RHS.

(ce) "Instrument traceability" means the ability to show for ionizing radiation measurements that an instrument has been calibrated at specified time intervals using a national standard or a transfer standard which was calibrated at a laboratory accredited by a program which requires continuing participation in measurement quality assurance with the National Institute of Standards and Technology, or other equivalent national or international program.

(cf) "Interlock" means a device arranged or connected such that the occurrence of an event or condition is required before a second event or condition can occur or continue to occur.

(cg) "Internal dose" means that portion of the dose equivalent received from radioactive material taken into the body.

(ch) "International System of Units (SI)" means the modern form of the metric system. As used in this rule, "SI" means that the measurement is in the International System of Units.

(ci) "Lens dose equivalent (LDE)" means the external exposure to the lens of the eye as the dose equivalent at a tissue depth of 0.3 centimeter (300 mg/cm^2).

(cj) "License" means a "license" as defined in RSA 125-F:3 IX, namely, "general or specific: (a) "General license" means a license pursuant to rules adopted by the program without the filing of an

application with the program, or the issuance of licensing documents to particular persons to transfer, acquire, own, possess or use quantities of, or devices or equipment utilizing, radioactive material. (b) "Specific license" means a license issued to a name person upon application filed pursuant to the rules adopted under this chapter, to use, manufacture, produce, transfer, receive, acquire, own or possess quantities of, or devices or equipment utilizing, radioactive material."

(ck) "Licensed material" means source material, special nuclear material, or byproduct material received, possessed, used, transferred, or disposed of under a license issued by the DHHS/RHS.

(cl) "Licensee" means:

(1) Any person who is licensed by the DHHS/RHS in accordance with the Act and He-P 4000; or

(2) Any person who is responsible for decommissioning by being registered with the DHHS/RHS, being subject to a record of possession of a radiation source or device under general license, or being otherwise legally obligated to conduct decommissioning activities in accordance with these regulations and the Act.

(cm) "Licensing State" means any state with regulations or rules for the regulatory control of radiation.

(cn) "Limits" means the permissible upper bounds of radiation doses.

(co) "Loose-fitting facepiece" means a respiratory inlet covering that is designed to form a partial seal with the face.

(cp) "Lost or missing licensed material or sources of radiation" means licensed or registered sources of radiation whose location is unknown or that has been shipped but has not reached its planned destination and whose location cannot be readily traced in the transportation system.

(cq) "Lost or missing sources of radiation" means licensed or registered sources of radiation whose location is unknown or that have been shipped but has not reached its planned destination and whose location cannot be readily traced.

(cr) "Major processor" means a user processing, handling, or manufacturing radioactive material exceeding Type A quantities as defined in 10 CFR 71.4 as unsealed sources or material, or exceeding 4 times Type B quantities as defined in 10 CFR Part 71.4 as sealed sources, exclusive of nuclear medicine programs, universities, or industrial radiography.

(cs) "Member of the public" means any individual, except an individual who is performing assigned duties for a licensee or registrant involving exposure to sources of radiation.

(ct) "Minor" means an individual less than 18 years of age.

(cu) "Monitoring" means the measurement of radiation levels, radioactive material concentrations, surface area activity or quantities of radioactive material and the use of the results of these measurements to evaluate potential exposures and doses.

(cv) "NARM" means any naturally occurring or accelerator-produced radioactive material other than byproduct, source, or special nuclear material.

(cw) "Nationally tracked source" means a sealed source containing a quantity equal to or greater than Category 1 or Category 2 levels of any radioactive material listed in He-P 4097. In this context a

sealed source is defined as radioactive material that is sealed in a capsule or closely bonded, in a solid form and which is not exempt from regulatory control. It does not mean material encapsulated solely for disposal, or nuclear material contained in any fuel assembly, subassembly, fuel rod, or fuel pellet. Category 1 nationally tracked sources are those containing radioactive material at a quantity equal to or greater than the category 1 threshold. Category 2 nationally tracked sources are those containing radioactive material at a quantity equal to or greater than the Category 2 threshold but less than the Category 1 threshold.

(cx) "Natural radioactivity" means radioactivity of naturally occurring nuclides.

(cy) "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. This term includes "tight fitting negative pressure respirator."

(cz) "Nonstochastic effect" means a health effect, the severity of which varies with the dose and for which a threshold is believed to exist.

(da) "NORM" means any naturally occurring radioactive material, and excludes byproduct, source, or special nuclear material.

(db) "Nuclear facility" means any facility that uses radioactive material.

(dc) "Nuclear Regulatory Commission (NRC)" means the U.S. Nuclear Regulatory Commission or its duly authorized representatives.

(dd) "Occupational dose" means the dose received by an individual in the course of employment in which the individual's assigned duties for the licensee or registrant involve exposure to sources of radiation, or to radioactive material from licensed and unlicensed sources of radiation, whether or not the sources of radiation are in the possession of the licensee, registrant or other person, exclusive of dose received:

(1) From background radiation;

(2) As a patient from medical practices;

(3) From exposure to individuals administered radioactive material and released under He-P 4035.25;

(4) From voluntary participation in medical research programs; or

(5) As a member of the public.

(de) "Package" means packaging plus its radioactive contents as presented for transport.

(df) "Particle accelerator" means any machine capable of accelerating electrons, protons, deuterons, or other charged particles in a vacuum and of discharging the resultant particulate or other radiation into a medium at energies usually in excess of one megaelectron volt. For purposes of this definition, "accelerator" is an equivalent term.

(dg) "Person" means "person" as defined in RSA 125-F:3, XII, namely "any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, agency of this state other than the program, political subdivision of this state, any other state or political subdivision or agency, and any legal successor, representative, or agent of the foregoing, other than federal government agencies".

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(dh) "Pharmacist" means "licensed pharmacist or pharmacist" as defined in RSA 318:1, VII, namely, "when not otherwise limited, means a person holding a license under RSA 318:18 and who is, therefore, legally authorized to practice the profession of pharmacy in this state."

(di) "Physician" means an individual licensed in this state to practice medicine.

(dj) "Planned special exposure" means an infrequent exposure to radiation, separate from and in addition to the annual occupational dose limits.

(dk) "Positive pressure respirator" means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

(dl) "Powered air-purifying respirator (PAPR)" means an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

(dm) "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.

(dn) "Principal activity" means an activity authorized by the license which is essential to achieving the purpose(s) for which the license was issued or amended, and excludes storage during which no licensed material is accessed for use or disposal and activity incidental to decontamination or decommissioning.

(do) "Protective apron" means an apron made of radiation-attenuating materials used to reduce exposure to radiation.

(dp) "Public dose" means the dose received by a member of the public from exposure to radiation or to radioactive material released by licensed or registered operators or to any other source of radiation under the control of a licensee or registrant. Public dose does not include occupational dose, dose received from background radiation, dose received as a patient from medical administration, dose from exposure to individuals administered radioactive material and released under He-P 4035.25, or dose from voluntary participation in medical research programs.

(dq) "Pyrophoric liquid" means any liquid that ignites spontaneously in dry or moist air at or below 130° F (54.4° C).

(dr) "Pyrophoric solid" means any solid material, or spontaneously combustible and water-reactive other than one classed as an explosive, which under normal conditions is liable to cause fires through friction, retained heat from manufacturing or processing, or which can be ignited readily and, when ignited, burns so vigorously and persistently as to create a serious transportation, handling, or disposal hazard.

(ds) "Qualified expert" means an individual having the knowledge and training to measure ionizing radiation, to evaluate safety techniques, and to advise regarding radiation protection needs, for example, individuals certified in the appropriate field by the American Board of Radiology, or the American Board of Health Physics, or the American Board of Medical Physics, or those having equivalent qualifications. With reference to the calibration of radiation therapy equipment, this term includes an individual having, in addition to the above qualifications, training and experience in the clinical applications of radiation physics to radiation therapy, for example, individuals certified in radiation oncology by the American Board of Radiology, or those having equivalent qualifications.

(dt) "Qualitative fit test (QLFT)" means a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

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(du) "Quality factor (Q)" means the modifying factor, listed in Tables 4001.1 and 4001.2 of He-P 4001.09, that is used to derive dose equivalent from absorbed dose.

(dv) "Quantitative fit test (QNFT)" means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

(dw) "Quarter" means not less than 12 consecutive weeks nor more than 14 consecutive weeks arranged so that the first calendar quarter begins in January and that in subsequent calendar quarters no day is included in more than one calendar quarter and no day in any one year is omitted from inclusion within a calendar quarter. This term includes "calendar quarter."

(dx) "Rad" means the special unit of absorbed dose where one rad is equal to an absorbed dose of 100 ergs per gram or 0.01 joule per kilogram.

(dy) "Radiation" means "radiation" as defined in RSA 125-F:3, XIV, namely, "ionizing radiation and nonionizing radiation: (a) 'Ionizing radiation' means gamma rays and x-rays, alpha and beta particles, high speed electrons, neutrons, protons, and other nuclear particles, but not sound or radio waves or visible, infrared or ultraviolet light; (b) 'Nonionizing radiation' means: (1) Any electromagnetic radiation other than ionizing radiation which the program determines by rule to present a biological hazard to the occupational or public health and safety; and (2) Any sonic, ultrasonic, or infrasonic wave which the program determines by rule to present a biological hazard to the occupational or public health or safety."

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

(ea) "Radiation equipment" means "radiation equipment" as defined in RSA 125-F:3, XV, namely, "any manufactured product or device, the component part of such product or device, or any machine or system which during operation is able to generate or emit radiation, except those which emit radiation only from radioactive material." The term includes "radiation machine".

(eb) "Radiation safety officer" means an individual who:

(1) Has the knowledge and responsibility to apply appropriate radiation protection rules and has been assigned such responsibility by the licensee or registrant;

(2) Meets the requirements in both He-P 4035.08 and He-P 4035.61, or meets the requirements in He-P 4035.62; or

(3) Is identified as a radiation safety officer on an Agency license, a Nuclear Regulatory Commission license, or Agreement State license or other equivalent permit or license recognized by the Agency for similar types and uses of byproduct material.

(ec) "Radioactive material" means "radioactive material" as defined in RSA 125-F:3, XVI, namely, "any material, whether solid, liquid, or gas, which emits radiation spontaneously. It includes artificially produced, byproduct, naturally occurring, source, and special nuclear materials." The term includes byproduct material.

(ed) "Radioactivity" means the transformation of unstable atomic nuclei by the emission of radiation.

(ee) "Radiological health section (RHS)" means the radiological health section of the division of public health services in the New Hampshire department of health and human services (DHHS/RHS).

(ef) "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 workers to standardize results of experiments and to relate biological insult to a common base.

(eg) "Registrant" means any person who is registered with DHHS/RHS and is legally obligated to register with DHHS/RHS pursuant to these rules and the Act.

(eh) "Registration" means "registration" as defined in RSA 125-F:3, XVIII, namely, "registration in accordance with rules adopted pursuant to this chapter."

(ei) "Regulations of the U.S. Department of Transportation" means the regulations in 49 CFR 100-189.

(ej) "Rem" means the special unit of any of the quantities expressed as dose equivalent equal to the absorbed dose in rad multiplied by the quality factor.

(ek) "Research and development" means:

(1) Theoretical analysis, exploration, or experimentation; or

(2) The extension of investigative findings and theories of a scientific or technical nature into practical application for experimental and demonstration purposes, including the experimental production and testing of models, devices, equipment, materials, and processes but does not include the internal or external administration of radiation or radioactive material to human beings.

(el) "Residual radioactivity" means radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's control, but not background radiation, and includes:

(1) Radioactivity from all licensed and unlicensed sources used by the licensee; and

(2) Radioactive materials remaining at the site as a result of routine or accidental releases of radioactive materials at the site and previous burials at the site, even if those burials were made in accordance with the provisions of these regulations.

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

(en) "Restricted area" means an area, access to which is limited by the licensee or registrant for the purpose of protecting individuals against undue risks from exposure to sources of radiation and radioactive materials exclusive of areas used as residential quarters, other than separate rooms in a residential building which may be set apart as a restricted area.

(eo) "Restricted use" means that a limit or control has been placed on future use of the facility and the facility is no longer under the control of the licensee, registrant, of holder of the record of possession.

(ep) "Roentgen" means the special unit of exposure where one roentgen (R) equals 2.58E-4 coulombs per kilogram of air.

(eq) "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.

(er) "Sealed source" means radioactive material that is permanently bonded or fixed in a capsule or matrix designed to prevent release and dispersal of the radioactive material under the most severe conditions which are likely to be encountered in normal use and handling.

(es) "Sealed source and device registry (SSD)" means the national registry that contains the registration certificates, maintained by the Nuclear Regulatory Commission (NRC), that summarize the radiation safety information for sealed sources and devices, and describe the licensing and use conditions approved for the product.

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

(eu) "Shallow dose equivalent (Hs)" means the dose equivalent at a tissue depth of 0.007 centimeter (7 mg/cm^2) applicable to the external exposure of the skin of the whole body or the skin of an extremity.

(ev) "Short-lived radon daughters for radon-222" means polonium-218, lead-214, bismuth-214, and polonium-214.

(ew) "Short-lived radon daughters for radon-220" means polonium-216, lead-212, bismuth-212, and polonium-212.

(ex) "Sievert" means the SI unit of any of the quantities expressed as dose equivalent which in sieverts is equal to the absorbed dose in grays multiplied by the quality factor.

(ey) "Site" means the area contained within the boundary of a location under the control of persons generating or storing radioactive materials.

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

(fa) "Source material" means "source material" as defined in RSA 125-F:3, XIX, namely, "(a) uranium, thorium, or any other material which the governor declares by order to be source material after the United States Nuclear Regulatory Commission or its successor has determined the material to be source material; or (b) ores containing one or more of the foregoing materials in such concentration as the governor declares by order to be source material after the United States Nuclear Regulatory Commission or its successor has determined the material in such concentration to be source material."

(fb) "Source material milling" means any activity that results in the production of radioactive material as defined in He-P 4003.01(ea).

(fc) "Source of radiation" means "source of radiation" as defined in RSA 125-F:3, XX, namely, "collectively, radioactive material and radiation equipment."

(fd) "Source traceability" means the ability to show that a radioactive source has been calibrated either by the national standards laboratory of the National Institute of Standards and Technology, or by a laboratory which participates in a continuing measurement quality assurance program with the National Institute of Standards and Technology or an equivalent national or international program.

(fe) "Special form radioactive material" means radioactive material that satisfies the following conditions:

(1) It is either a single solid piece or is contained in a sealed capsule that can be opened only by destroying the capsule;

(2) The piece or capsule has at least one dimension not less than 5 millimeters or "0.2 inch"; and

(3) It satisfies the test requirements specified by the U.S. Nuclear Regulatory Commission.

(ff) "Special nuclear material" means "special nuclear material" as defined in RSA 125-F:3, XXI, namely, "(a) plutonium, uranium 233, uranium enriched in the isotope 233 or in the isotope 235, and any other material which the governor declares by order to be special nuclear material after the United States Nuclear Regulatory Commission or its successor has determined the material to be special nuclear material, but does not include source material; or (b) any material artificially enriched by any of the foregoing, but does not include source material."

(fg) "Special nuclear material in quantities not sufficient to form a critical mass" means:

(1) Uranium enriched in the isotope U-235 in quantities not exceeding 350 grams of contained U-235;

(2) Uranium-233 in quantities not exceeding 200 grams;

(3) Plutonium in quantities not exceeding 200 grams; or

(4) Any combination of them so that the ratio between the quantity of the special nuclear material on hand and the quantity specified above for the same kind of special nuclear material, summed for all of the kinds of special nuclear material in combination does not exceed one.

(fh) "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, such as hereditary effects and cancer incidence.

(fi) "Storage" means a condition in which a device or source is not being used for an extended period of time, and has been made inoperable.

(fj) "Supplied-air respirator (SAR)" means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user. This term includes "airline respirator."

(fk) "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.

(fl) "Test" means the process of verifying compliance with an applicable rule.

(fm) "Tight-fitting facepiece" means a respiratory inlet covering that forms a complete seal with the face.

(fn) "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.

(fo) "Total organ dose equivalent (TODE)" means the sum of the deep dose equivalent, as defined in He-P 4003.01(ar), and the committed dose equivalent, as defined in He-P 4003.01(af), and recorded for the maximally exposed organ.

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(fp) "Traceable to a national standard" means:

(1) The ability to show for ionizing radiation measurements that an instrument has been calibrated at specified time intervals using a national standard or a transfer standard which was calibrated at a laboratory accredited by a program which requires continuing participation in measurement quality assurance with the National Institute of Standards and Technology (NIST), or other equivalent national or international program; or

(2) The ability to show that a radioactive source has been calibrated either by the national standards laboratory of the NIST, or by a laboratory which participates in a continuing measurement quality assurance program with NIST or an equivalent national or international program.

(fq) "U.S. Department of Energy" means the Department of Energy established by Public Law 95-91, August 4, 1977, 91 Stat. 565, 42 U.S.C. 7101, to the extent that the Department exercises functions formerly vested in the U.S. Atomic Energy Commission, its chairman, members, officers and components and transferred to the U.S. Energy Research and Development Administration and to the administrator thereof pursuant to sections 104(b), (c) and (d) of the Energy Reorganization Act of 1974 established by Public Law 93-438, October 11, 1974, 88 Stat. 1233 at 1237, 42 U.S.C. 5814, effective January 19, 1975 and retransferred to the Secretary of Energy pursuant to section 301(a) of the Department of Energy Organization Act established by Public Law 95-91, August 4, 1977, 91 Stat. 565 at 577-578, 42 U.S.C. 7151, effective October 1, 1977.

(fr) "Unrefined and unprocessed ore" means ore in its natural form prior to any processing.

(fs) "Unrestricted area" means an area access to which is neither limited nor controlled by the licensee or registrant.

(ft) "Unrestricted use" means that the facility or area may be used by individuals for any purpose without limits or controls, and is no longer under the control of the licensee, registrant, or holder of the record of possession.

(fu) "User seal check (fit 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.

(fv) "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 5 Gy (500 rad) in one hour at one meter from a source of radiation or one meter from any surface that the radiation penetrates.

(fw) "Waste" means "low-level radioactive waste" as defined in RSA 125-F:3, X, namely, "radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclear fuel, or byproduct material as defined in paragraph II." This term includes radioactive waste not classified as byproduct material as defined in (v) above and includes radioactive wastes that are permissible for disposal in a land disposal facility.

(fx) "Waste handling licensees" mean persons licensed to receive and store radioactive wastes prior to disposal or persons licensed to dispose of radioactive waste.

(fy) "Week" means 7 consecutive days starting on Sunday.

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(fz) "Weighting factor (W_T) 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.

(ga) "Whole body" means external exposure of head, trunk including male gonads, arms above the elbow, or legs above the knee.

(gb) "Worker" means an individual engaged in activities under a license or registration issued by the DHHS/RHS and controlled by a licensee or registrant, but does not include the licensee or registrant.

(gc) "Working level (WL)" means any combination of short-lived radon daughters in one liter of air that will result in the ultimate emission of 1.3E+5 MeV of potential alpha particle energy.

(gd) "Working level month (WLM)" means an exposure to one working level for 170 hours and calculated as 2,000 working hours per year divided by 12 months per year and is approximately equal to 170 hours per month.

(ge) "Year" means the period of time beginning in January used to determine compliance with the provisions of these rules.

Readopt with amendment He-P 4020.05, He-P 4020.08, and He-P 4020.14, effective 5/23/14 (Document #10604), cited and to read as follows:

PART He-P 4020 STANDARDS FOR PROTECTION AGAINST RADIATION

He-P 4020.05 Occupational Dose Limits for Adults.

(a) The licensee or registrant shall control the occupational dose to individual adults, except for planned special exposures pursuant to He-P 4020.10, to the following dose limits:

(1) An annual limit, which shall be 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); and

(2) The annual limits to the lens of the eye, to the skin of the whole body, and to the skin of the extremities which shall be:

a. A lens dose equivalent of 0.15 Sv (15 rem); and

b. A shallow dose equivalent of 0.5 Sv (50 rem) to the skin of the whole body or to the skin of any extremity.

(b) Doses received in excess of the annual limits, including doses received during accidents, emergencies, and planned special exposures, shall be subtracted from the limits for planned special exposures that the individual may receive during the current year and during the individual's lifetime.

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(c) When the external exposure is determined by measurement with an external personal monitoring device, the deep-dose equivalent shall be used in place of the effective dose equivalent, unless the effective dose equivalent is determined by a dosimetry method acceptable by DHHS/RHS.

(d) The assigned deep dose equivalent shall be for the portion of the body receiving the highest exposure.

(e) The assigned shallow dose equivalent shall be for the dose averaged over the contiguous 10 square centimeters of skin receiving the highest exposure.

(f) The deep dose equivalent, the lens dose equivalent, and the 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.

(g) The effective dose equivalent for external radiation when a protective apron is worn while working with medical fluoroscopic equipment shall be determined as follows:

(1) When one individual monitoring device is used and it is located at the neck outside the protective apron, the reported deep dose equivalent shall be the effective dose equivalent for external radiation;

(2) When only one individual monitoring device is used and it is located at the neck outside the protective apron, and the reported dose equivalent exceeds 25 percent of the limit specified in He-P 4020.05(a), the reported dose equivalent value multiplied by 0.3 shall be the effective dose equivalent for external radiation; or

(3) 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 shall 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.

(h) Derived air concentration (DAC) and annual limit on intake (ALI) values shall be as stated in He-P 4090 or in 10 CFR 20 Appendix B and may be used to determine the individual's dose and to demonstrate compliance with the occupational dose limits.

(i) Notwithstanding the annual dose limits, the licensee shall limit the soluble uranium intake by an individual to 10 milligrams in a week in consideration of chemical toxicity.

(j) The licensee or registrant shall 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 during the current year.

He-P 4020.08 Determination of Internal Exposure.

(a) For purposes of assessing dose used to determine compliance with occupational dose equivalent limits, the licensee or registrant shall, when required pursuant to He-P 4022.02, take measurements of:

(1) Concentrations of radioactive materials in air in work areas;

(2) Quantities of radionuclides in the body;

(3) Quantities of radionuclides excreted from the body; or

(4) Any combinations of these measurements.

(b) Unless respiratory protective equipment is used, as provided in He-P 4022.08, or the assessment of intake is based on bioassays, the licensee or registrant shall assume that an individual inhales radioactive material at the airborne concentration in which the individual is present.

(c) When specific information on the physical and biochemical properties of the radionuclides taken into the body or the behavior of the material in an individual is known, the licensee or registrant may:

(1) Use that information to calculate the committed effective dose equivalent;

(2) Adjust the DAC or ALI values to reflect the actual physical and chemical characteristics of airborne radioactive material, only if:

a. The licensee or registrant submits the proposed adjustments to the DHHS/RHS for review;

b. The DHHS/RHS determines upon its review that the proposed adjustments are technically correct, appropriately applied, and consonant with the accepted principles and practices of health physics; and

c. The DHHS/RHS has granted its approval; and

(3) Separately assess the contribution of fractional intakes of Class D, W, or Y compounds of a given radionuclide to the committed effective dose equivalent in accordance with He-P 4090 or in 10 CFR 20 Appendix B.

(d) If the licensee or registrant uses specific information on the physical and biochemical properties of radionuclides taken into the body or the known behavior of material in an individual to calculate the committed dose equivalent for that individual, then the licensee or registrant shall document such information in the individual's record.

(e) If the licensee or registrant chooses to assess intakes of Class Y material using the measurements given in He-P 4020.08(a)(2) or (3) in order to make additional measurements basic to the assessments, the licensee or registrant may delay the recording and reporting of the assessments for periods up to 7 months, unless otherwise required by He-P 4021.13 or 4021.14.

(f) 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 shall be either:

(1) The sum of the ratios of the concentration to the appropriate DAC value, that is, D, W, or Y, from He-P 4090 or in 10 CFR 20 Appendix B for each radionuclide in the mixture; or

(2) The ratio of the total concentration for all radionuclides in the mixture to the most restrictive DAC value for any radionuclide in the mixture.

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(g) 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 shall be the most restrictive DAC of any radionuclide in the mixture.

(h) When a mixture of radionuclides in air exists, a licensee or registrant may disregard certain radionuclides in the mixture if:

(1) The licensee or registrant uses the total activity of the mixture in demonstrating compliance with the dose limits in He-P 4020.05 and in complying with the monitoring requirements in He-P 4022.02(c);

(2) The concentration of any radionuclide disregarded is less than 10 percent of its DAC; and

(3) The sum of these percentages for all of the radionuclides disregarded in the mixture does not exceed 30 percent.

(i) When determining the committed effective dose equivalent, the following information may be considered:

(1) 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 or "5 rem" for radionuclides that have their ALIs or DACs based on the committed effective dose equivalent;

(2) The licensee or registrant may use the stochastic ALI to determine committed effective dose equivalent; and

(3) If the licensee or registrant uses the stochastic ALI, the licensee or registrant shall also demonstrate that the limit in He-P 4020.05(a)(1)b. is met.

He-P 4020.14 Compliance with Dose Limits for Individual Members of the Public.

(a) The licensee or registrant shall make or cause to be made surveys of radiation levels in unrestricted areas and controlled areas and radioactive materials in effluents released to unrestricted areas and controlled areas to demonstrate compliance with the dose limits for individual members of the public in He-P 4020.13.

(b) A licensee or registrant shall show compliance with the annual dose limit in He-P 4020.13 by:

(1) Demonstrating by measurement or calculation that the total effective dose equivalent to the individual likely to receive the highest dose from the licensed or registered operation does not exceed the annual dose limit; or

(2) Demonstrating that:

a. The annual average concentrations of radioactive material released in gaseous and liquid effluents at the boundary of the unrestricted area do not exceed the values specified in He-P 4090, Table 4090.1, Table II; or the equivalent tables in 10 CFR 20 Appendix B; and

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b. If an individual were continuously present in an unrestricted area, the dose from external sources would not exceed 0.02 mSv (0.002 rem) in an hour and 0.5 mSv (0.05 rem) in a year.

(c) Upon approval from the DHHS/RHS in accordance with He-P 4030 and He-P 4040, the licensee or registrant may adjust the effluent concentration values in He-P 4090, Table 4090.1, Table II or the equivalent tables in 10 CFR 20 Appendix B for members of the public, to take into account the actual physical and chemical characteristics of the effluents, such as:

(1) Aerosol size distribution;

(2) Solubility;

(3) Density;

(4) Radioactive decay equilibrium; and

(5) Chemical form.

Readopt with amendment He-P 4022.02 and He-P 4022.15, effective 3/28/15 (Document #10805), cited and to read as follows:

PART He-P 4022 SURVEYS AND MONITORING

He-P 4022.02 Conditions Requiring Individual Monitoring of External and Internal Occupational Dose.

(a) Each licensee or registrant shall monitor occupational exposures from licensed and unlicensed sources of radiation at levels sufficient to demonstrate compliance with the occupational dose limits of He-P 4020 through He-P 4023.

(b) As a minimum, each licensee or registrant shall monitor occupational exposure to radiation from licensed and unlicensed radiation sources under its control and shall supply and require the use of individual monitoring devices by:

(1) Adults likely to receive, in one year from sources external to the body, a dose in excess of 10 percent of the limits in He-P 4020.05(a);

(2) Minors likely to receive, in one year from sources external to the body, a deep dose equivalent in excess of 1 mSv (0.1 rem), a lens dose equivalent in excess of 1.5 mSv (0.15

rem), or a shallow dose equivalent to the skin or to the extremities in excess of 5 mSv (0.5 rem);

(3) Declared pregnant women likely to receive during the entire pregnancy, from radiation sources external to the body, a deep dose equivalent in excess of 1 mSv ,0.1 rem);

(4) Individuals entering a high or very high radiation area; and

(5) Individuals working with medical fluoroscopic equipment.

(c) To determine compliance with He-P 4020.08, each licensee or registrant shall monitor the occupational intake of radioactive material by, and assess the committed effective dose equivalent to:

(1) Adults likely to receive, in one year, an intake in excess of 10 percent of the applicable ALI in Table 4090.1, Table I, Columns 1 and 2, of He-P 4090 or the equivalent tables in 10 CFR 20 Appendix B;

(2) Minors likely to receive, in one year, a committed effective dose equivalent in excess of 1 mSv (0.1 rem); and

(3) Declared pregnant women likely to receive, during the entire pregnancy, a committed dose equivalent in excess of 1 mSv (0.1 rem).

He-P 4022.15 Exemptions to Labeling Requirements.

(a) A licensee shall not be required to label:

(1) Containers holding licensed material in quantities less than the quantities listed in He-P 4092;

(2) Containers holding licensed material in concentrations less than those specified in Table 4090.1, Table III of He-P 4090 or the equivalent tables in 10 CFR 20 Appendix B;

(b) Each licensee shall:

(1) Monitor the external surfaces of a package 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 for radioactive contamination unless the package contains only radioactive material in the form of gas or in special form as defined in He-P 4003;

(2) Monitor the external surfaces of a package 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 for radiation levels unless the package contains quantities of radioactive material that are less than or equal to the Type A quantity, as defined in 10 CFR 71.4 and appendix A to 10 CFR 71; and

(3) 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.

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(c) The licensee shall perform the monitoring required by He-P 4022.16(b) as soon as practicable after receipt of the package, but not later than 3 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 3 hours from the beginning of the next working day if it is received after working hours.

(d) The licensee shall immediately notify the final delivery carrier and DHHS/RHS when:

(1) Removable radioactive surface contamination exceeds the limits of He-P 4037.04(a); or

(2) External radiation levels exceed the limits of He-P 4037.04(a).

(e) Notification required by He-P 4022.16(d) shall occur by telephone, mail, or facsimile.

(f) Each licensee shall:

(1) Establish, maintain, and retain written procedures for safely opening packages in which radioactive material is received; and

(2) Ensure that the procedures are followed and that due consideration is given to special instructions for the type of package being opened.

(g) Licensees transferring special form sources in vehicles owned or operated by the licensee to and from a work site are exempt from the contamination monitoring requirements of He-P 4022.16(b), but shall not be exempt from the monitoring requirement in He-P 4022.16(b) for measuring radiation levels that ensures that the source is still properly lodged in its shield.

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Readopt with amendment He-P 4023.03, effective 5/23/14 (Document #10604), cited and to read as follows:

PART He-P 4023 WASTE DISPOSAL

He-P 4023.03 Disposal by Release into Sanitary Sewerage.

(a) A licensee may discharge licensed material into sanitary sewerage if each of the following conditions is satisfied:

(1) The material is readily soluble, or is readily dispersible biological material, in water;

(2) 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 Table 4090.1, Table III of He-P 4090 or the equivalent tables in 10 CFR 20 Appendix B;

(3) If more than one radionuclide is released:

a. The licensee shall determine the fraction of the limit in Table 4090.1, Table III of He-P 4090 or the equivalent tables in 10 CFR 20 Appendix B 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 Table 4090.1, Table III of He-P 4090 or the equivalent tables in 10 CFR 20 Appendix B; and

b. The sum of the fractions for each radionuclide required by He-P 4023.03(a)(3)a. shall not exceed unity; and

(4) The total quantity of licensed and other radioactive material that the licensee releases into the sanitary sewerage in a year does not exceed 185 GBq (5 Ci) of hydrogen-3, 37 GBq (1 Ci) of carbon-14, and 37 GBq (1 Ci) of all other radioactive materials combined.

(b) Excreta from individuals undergoing medical diagnosis or therapy with radioactive material shall not be subject to the limitations contained in He-P 4023.03(a).

Appendix

Rule	**Specific State or Federal Statutes or Regulations the Rule Implements**
He-P 4003.01	10 CFR 20.1003 and 10 CFR 30.4
He-P 4003.01 (o), (v) intro., (v)(5) intro., (v)(5)a.,(ae), (co), (ed), (er),(fk), (fr) & (fw)	10 CFR 20.1003; 10 CFR 30.4; and 10 CFR 40.4
He-P 4020.05	10 CFR 20.1201
He-P 4020.08	10 CFR 20.1204
He-P 4020.14	10 CFR 20.1302
He-P 4022.02	10 CFR 20.1502
He-P 4022.15	10 CFR 20.1905
He-P 4023.03	10 CFR 20.2003

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