

BEFORE THE DEPARTMENT OF ENVIRONMENTAL QUALITY
OF THE STATE OF MONTANA

In the matter of the adoption of a new)	NOTICE OF PUBLIC HEARING
subchapter codifying New Rules I)	ON PROPOSED ADOPTION
through X for technologically)	
enhanced naturally occurring)	(SOLID WASTE MANAGEMENT)
radioactive material (TENORM) waste)	

TO: All Concerned Persons

1. On September 24, 2019, at 7:00 p.m., at the Glendive City Hall, 300 S. Merrill Avenue, Glendive, Montana, the department will hold a public hearing to consider the proposed adoption of the above-stated rules. Before the hearing, on the same day, at 6:00 p.m., the department will conduct an informal public meeting to discuss the proposed rules and answer questions pertaining to these rules. On October 10, 2019, at 10:00 a.m., in Room 111 of the Metcalf Building, 1520 East Sixth Avenue, Helena, Montana, the department will hold a public hearing to consider the proposed adoption of the above-stated rules. Before the hearing, on the same day, at 9:00 a.m., the department will conduct an informal public meeting to discuss the proposed rules and answer questions pertaining to these rules.

2. The department will make reasonable accommodations for persons with disabilities who wish to participate in this rulemaking process or need an alternative accessible format of this notice. If you require an accommodation, contact Sandy Scherer, Legal Secretary, no later than 5:00 p.m., September 17, 2019, to advise us of the nature of the accommodation that you need. Please contact Sandy Scherer at the Department of Environmental Quality, P.O. Box 200901, Helena, Montana 59620-0901; phone (406) 444-2630; fax (406) 444-4386; or e-mail sscherer@mt.gov.

3. GENERAL STATEMENT OF REASONABLE NECESSITY: Naturally occurring radioactive material occurs at low levels in soils and rocks and contains one or more radioactive isotopes, also called radionuclides. These radionuclides are present in different sources, such as geologic formations, ground water aquifers, and wastewater treatment bio-solids. Naturally occurring radioactive material generally consists of the radionuclides uranium and thorium and their radioactive decay products, including isotopes of radium. Because radium is present at low levels in the natural environment, everyone has some exposure to it.

Technologically enhanced naturally occurring radioactive material (TENORM) is in the same group of NORM radionuclides, but has been modified or "technologically enhanced." Under some circumstances, TENORM decay chains emitting gamma radiation, particularly Ra-226, Ra-228, and their decay products may present an external radiation health risk to humans. The potential risk depends on the concentrations of these radionuclides in the materials accessible to the environment. TENORM may also present an internal radiation health risk to humans if it is inhaled or ingested and alpha radiation is emitted inside the body. The

department is proposing to require testing for Ra-226 and Ra-228 because they are the most prominent uranium and thorium decay products present in TENORM. Ra-226 is a decay product of uranium; Ra-228 is a decay product of natural thorium.

In Montana, solid waste classifications depend on the waste's physical and chemical characteristics and their potential to cause environmental degradation or public health hazards. The classification determines the degree of care required in handling and disposal. TENORM is a "special waste," defined in 75-10-802(8), MCA, to mean "a solid waste that has unique handling, transportation, or disposal requirements to ensure protection of the public health, safety, and welfare and the environment." Special wastes require management at a Class II solid waste management system. Class II solid waste management systems are required to use the most stringent controls of any solid waste management system to ensure the continued protection of human health and the environment. In addition to the requirements currently applicable to special waste management systems, the department is proposing to add a new subchapter, New Rules I through X to provide additional requirements specific to the management of TENORM wastes.

In the absence of federal TENORM regulations, states have jurisdiction and the authority for promulgating TENORM regulations. Therefore, the department is proposing these rules to ensure that this waste stream is regulated appropriately. Furthermore, TENORM is not federal Nuclear Regulatory Commission (NRC) licensed material. NRC-licensed material consists of source material, special nuclear material, or byproduct material and must be received, possessed, used, transferred or disposed of only under a general or specific license issued by NRC. (Atomic Energy Act, Title 42 United States Code (USC) § 2011-2021).

The NRC or Agreement States regulate use and possession of radioactive materials that fall under the purview of the federal Atomic Energy Act. An Agreement State is one that has established an agreement with the NRC for the state to regulate the use and possession of radioactive materials within that state. Montana is not an Agreement State, so use and possession of applicable radioactive materials in Montana are under the jurisdiction of the NRC. ("Development of TENORM Rules for the State of Montana," Tetra Tech, 2016, available at <http://deq.mt.gov/Land/solidwaste> or by contacting the department's Solid Waste Program at (406) 444-5300).

In developing these proposed rules, the department reviewed model TENORM rules published by the Conference of Radiation Control Program Directors (CRCPD), a national non-profit, non-governmental organization. CRCPD's membership is mainly composed of state and local government radiation professionals but is open to anyone with an interest in radiation protection. CRCPD saw a need for consistency in state regulations and organized work groups and later a commission to draft Suggested State Regulations on TENORM (E-42 Task Force Report "Review of TENORM in the Oil and Gas Industry," 2015). The model rules, "Regulation and Licensing of TENORM Suggested State Regulations for Control of Radiation" Volume 1, Part N (CRCPD, 2014) was published by CRCPD and provides suggested state regulations for management of TENORM.

The department initially proposed TENORM rules on August 18, 2017. The department held two public hearings and received valuable comments from the public. The initial 60-day public comment period was extended due to public

interest. In response to public comments, the department let the original rule notice expire with the intention of re-writing the rules based upon the input received.

To obtain additional public input, the department organized a TENORM workgroup to help refine the proposed TENORM rules. The workgroup was limited in size and included participants from non-governmental organizations, industry, local government, science, and informed citizenry. The TENORM workgroup met on October 16, 2018, in Billings, Montana to discuss the proposed rules. The public was welcome to watch and add input at the end of the workgroup meeting. The department revised the proposed rules based, in part, on the feedback received. Internal department coordination provided additional input to the proposed rules.

The department also sought input from the State Review of Oil and Natural Gas Environmental Regulations (STRONGER), a multi-stakeholder, educational organization. Its board of directors is composed of representatives from the oil and gas industry, state oil and gas environmental regulatory agencies, and the environmental public advocacy community. STRONGER reviewed and provided comments on the proposed rules.

The department also obtained assistance from Tetra Tech Inc. (Tetra Tech) in developing the TENORM rules. Tetra Tech is a worldwide consulting and engineering firm with expertise in science, research, engineering, construction, and information technology. Tetra Tech developed a report entitled "Development of TENORM Rules for the State of Montana" (December 2016) (the Tetra Tech report).

4. The rules proposed to be adopted provide as follows:

NEW RULE I PURPOSE AND APPLICABILITY (1) The rules in this subchapter are adopted by the department under Title 75, chapter 10, part 2, MCA. The purpose of this subchapter is to establish requirements for the management of TENORM waste at TENORM waste management systems.

(2) This subchapter applies to each applicant, owner, operator, or licensee of a TENORM waste management system that accepts, stores, treats, recycles, recovers, disposes, or transports TENORM waste with a concentration of radium-226 (Ra-226) plus radium-228 (Ra-228), excluding background radiation, equal to or greater than 5.0 picocuries per gram (pCi/g). Wherever there is a requirement imposed on an owner or operator in this subchapter, the licensee also shall comply with that requirement.

(3) The owner or operator of an existing waste management system licensed to accept TENORM waste shall comply with these rules by 12 months after [the effective date of these rules].

(4) The owner or operator of a TENORM waste management system shall also comply with the requirements for a Class II solid waste management system in ARM Title 17, chapter 50, subchapters 4, 5, 10, 11, 12, 13, and 14, except for ARM 17.50.1109 and 17.50.1404(2)(a).

(5) A TENORM waste management system may not accept source material and byproduct material as defined in 42 USC § 2014.

(6) This subchapter does not relieve any owner or operator of the obligation to comply with other applicable federal, state, or local requirements.

(7) The department incorporates by reference "Requirements for the

Characterization of TENORM Wastes," Montana DEQ – Solid Waste Program (Revised August 2019). Copies of that document are available for public inspection at the Department of Environmental Quality, 1520 E. 6th Ave., P.O. Box 200901, Helena, MT 59620-0901, or by contacting the department at (406) 444-5300.

AUTH: 75-10-204, MCA

IMP: 75-10-204, MCA

REASON: The department is proposing (2) to set a concentration of equal to or greater than 5 pCi/g, excluding background radiation, for TENORM (Ra-226 plus Ra-228) as the concentration subject to regulation under this subchapter. TENORM waste below 5 pCi/g is still a solid waste subject to the solid waste regulations.

Setting 5 pCi/g as the lower limit, excluding background radiation, for TENORM waste management systems is taking a conservative approach to protecting human health and the environment. NRC uses 5 pCi/g for Ra-226 and Ra-228 as the cleanup standard for uranium and thorium mill tailings (10 CFR Part 40, App. A, Criterion 6(6)). In addition, EPA uses 5 pCi/g as a cleanup standard for land and buildings contaminated with residual radioactive materials from inactive uranium processing sites. Finally, the model rules developed by CRCPD recommends setting a threshold for regulation of TENORM of 5 pCi/g. The use of 5 pCi/g as a standard by EPA, NRC, and CRCPD supports the department's proposed use of the same lower limit.

The department is proposing (3) to allow existing licensed facilities that currently manage TENORM waste a maximum of 12 months to comply with the additional requirements of these proposed rules. The department believes 12 months is an adequate timeframe based upon the department's experience in implementing new solid waste rules and working with waste management systems to implement new requirements.

The department is proposing (4) to require TENORM waste management systems to follow the requirements for Class II solid waste management systems under ARM Title 17, chapter 50, subchapters 4, 5, 10, 11, 12, 13, and 14, except for ARM 17.50.1109 and 17.50.1404(2)(a), in addition to the requirements in this subchapter. It is important that TENORM waste management systems continue following the existing rules for Class II solid waste management systems to isolate waste from the environment and people, thereby protecting human health and the environment. For example, ARM Title 17, chapter 50, subchapter 12 has liner design requirements and ARM Title 17, chapter 50, subchapter 13 has detailed ground water monitoring and corrective action requirements.

The department is proposing that TENORM waste management systems not be required to comply with ARM 17.50.1109 and 17.50.1404(2)(a) for the reasons stated for New Rule VI(3) and New Rule VIII(1), respectively.

The department is proposing (5) to exclude source material and byproduct material because it is under the jurisdiction of the NRC, as stated in the General Statement of Reasonable Necessity.

The department is proposing (6) to inform owners and operators that there may be other applicable federal, state, or local requirements and to clarify that this subchapter does not exempt owners and operators from complying with those

requirements.

The department is proposing (7) to incorporate by reference the existing waste characterization document, entitled "Requirements for the Characterization of TENORM Wastes," Montana DEQ – Solid Waste Program (revised August 2019). The department will propose to amend this document through future rulemaking if needed to address changes in TENORM waste characterization, emerging technology, and industry practices to protect human health and the environment.

NEW RULE II DEFINITIONS In this subchapter, the following definitions apply:

- (1) "Absorbed dose" has the meaning specified in ARM 37.14.102.
- (2) "Background radiation" means the natural radiation that is present in the environment. It includes cosmic radiation, which comes from the sun and stars; terrestrial radiation, which comes from the Earth, and radiation from naturally occurring radioactive materials.
- (3) "Contaminated soil" has the meaning specified in ARM 17.50.403.
- (4) "Curie" has the meaning specified in ARM 37.14.102.
- (5) "Department" means the Department of Environmental Quality.
- (6) "Dose" means the amount of radiation energy deposited in human tissue.
- (7) "Exposure" is a measure of the amount of ionization produced in air by gamma photons or x-rays.
- (8) "Filter media" means a porous material used to filter solids from fluids.
- (9) "Facility" has the meaning specified in ARM 17.50.502.
- (10) "Hazardous waste" has the meaning specified in 75-10-403, MCA.
- (11) "Health physicist" means a scientist or engineer that has sufficient training and experience to make sound professional judgments regarding radiation monitoring, equipment, environmental protection, health, and safety. The training and experience must pertain to naturally occurring radioactive materials and health physics concerning protecting people and the environment from potential radiation hazards. Sufficient training and experience is gained through a baccalaureate and/or post-graduate degree in the natural sciences or engineering, professional certifications, and work experience.
- (12) "Landfill" has the meaning specified in ARM 17.50.502.
- (13) "Leachate" has the meaning specified in ARM 17.50.502.
- (14) "Leachate collection system" has the meaning specified in ARM 17.50.502.
- (15) "Leachate removal system" has the meaning specified in ARM 17.50.502.
- (16) "Licensed boundary" has the meaning specified in ARM 17.50.502.
- (17) "Load" is a measured quantity of waste prepared for or being transported at any one time.
- (18) "Method of receipt" means the name of the transporter and equipment used to deliver the waste to the TENORM waste management system.
- (19) "Microroentgen" (μR) is one millionth of a roentgen.
- (20) "Millirem" (mrem) means a unit of equivalent dose that is equal to one thousandth of a rem.
- (21) "Milliroentgen" (mR) means a unit of measurement for radiation

exposure that is one thousandth of a roentgen.

(22) "Picocuries" is a unit of radioactivity that is one trillionth of a curie.

(23) "Qualified ground water scientist" has the meaning specified in ARM 17.50.1302.

(24) "Radiation" means alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other particles with sufficient kinetic energy to strip electrons from atoms. Radiation does not include non-ionizing radiation, such as radio or microwaves, or visible, infrared, or ultraviolet light.

(25) "Rem" or "roentgen equivalent man" is a unit of measure that quantifies the amount of energy deposited by ionizing radiation deposited in human tissue modified by the effects of the specific type of radiation.

(26) "Roentgen" (R) is the unit of measurement for x-radiation or gamma radiation producing one electrostatic unit of positive or negative ionic charge in one cubic centimeter of air under standard pressure or 0.000258 coulombs per kilogram of dry air.

(27) "Screening" means the examination and measurement procedures to verify that incoming waste meets the acceptance criteria for the waste management system.

(28) "Solid waste" has the meaning specified in ARM 17.50.403.

(29) "Solid waste management system" has the meaning specified in ARM 17.50.403.

(30) "Source" means the location where the TENORM waste is generated or, if aggregated, the location where the last aggregation occurs.

(31) "Spill" means the accidental or unintentional release of TENORM waste during transport or onsite at the TENORM management system in an area not designated for disposal.

(32) "Storage" has the meaning specified in ARM 17.50.403.

(33) "Technologically enhanced naturally occurring radioactive material" (TENORM) means naturally occurring radioactive material whose radionuclide concentrations are increased by or as a result of past or present human practices. TENORM does not include background radiation or the natural radioactivity of rocks and soils. TENORM does not include "source material" and "byproduct material," as both are defined in 42 USC § 2014, a section of the Atomic Energy Act of 1954.

(34) "TENORM surface-contaminated objects" means objects that have TENORM distributed on either the external or internal surfaces, or both, including but not limited to pipes, valve stems, and equipment or survey instruments.

(35) "TENORM waste" is solid waste that contains TENORM.

(36) "TENORM waste management system" means a system that accepts, stores, treats, recycles, recovers, disposes, or transports TENORM waste. Such a system may be composed of one or more waste management facilities. This term does not include hazardous waste management systems.

(37) "TENORM waste unit" means a discrete area of land or an excavation used for the landfilling or other disposal of TENORM waste at a TENORM waste management system.

(38) "Total Effective Dose Equivalent" (TEDE) means the overall measured and/or calculated effective dose that takes into account the type of radiation and the

nature of each organ or tissue being irradiated.

(39) "Transport" has the meaning specified in ARM 17.50.403.

(40) "Treatment" has the meaning specified in ARM 17.50.403.

(41) "Unit" has the meaning specified in ARM 17.50.502.

(42) "Waste" has the meaning specified in ARM 17.50.502.

(43) "Waste characterization" means the standardized process for analyzing the composition of different waste streams.

AUTH: 75-10-204, MCA

IMP: 75-10-204, MCA

REASON: The department is proposing New Rule II so that the department and the regulated community have a common understanding as to the meaning of the terms used in this proposed subchapter. The defined terms include terms that are commonly used in the radiation field. The department wishes to explain the source or provide the rationale of some of the definitions in the following paragraphs.

The department is proposing to define "filter media" in (8) because this term is not commonly used by the public. The department is proposing specific requirements for filter media under New Rule VI(1)(d). Proposed New Rule VI(1)(d) contains different waste characterization sampling requirements for filter media than other waste material due to the potential for filter media to have higher radionuclide concentrations than other waste.

The department is defining the qualifications of a health physicist in (11). It is reasonably necessary to broadly define the qualifications of a health physicist because the field of health physics covers many subject areas that pertain to the protection of human health from ionizing radiation. Education is one component of the qualifications of a health physicist. A health physicist must have a bachelor's degree in health physics or a related science or engineering field of study and may have an advanced degree. Experience and training are also important qualifications for a health physicist, providing practical knowledge and application of that knowledge in real life situations regarding radiation safety. The proposed definition of a health physicist requires more qualifications than what is necessary for a person to become a Certified Health Physicist. A degree in health physics is not a requirement to become a Certified Health Physicist, but the person must successfully complete an accreditation exam administered by the American Board of Health Physicists. There are currently few Certified Health Physicists in Montana experienced in TENORM and waste management. Therefore, the department is proposing a definition of "health physicist" that encompasses education, experience, and training. Under New Rule VI(1)(j), (l), and (m), a health physicist is needed to develop a health and radiation safety plan, procedures to monitor concentrations, and provisions for monitoring dose at the boundary of a TENORM waste management system.

The department is proposing to define "source" in (30) as the location where the TENORM waste is generated or, if subsequently aggregated, the place where the last aggregation occurs. This is necessary because facilities, such as resource recovery facilities, may consolidate waste from more than one location or process. The definition is needed for coordination with New Rule III(3), (7); and New Rule

VI(2).

The department is proposing to broadly define "spills" in (31). This is necessary to ensure that all releases of TENORM are evaluated and handled properly in accordance with New Rule X.

The department is proposing in (33) to provide the same definition of "TENORM" as provided in Suggested State Regulations Section N.3 - Definitions, published by the Conference of Radiation and Control Program Directors (CRCPD). This is necessary to provide uniformity and consistency for state TENORM regulations because there is no federal equivalent.

The proposed definition of TENORM includes materials with increased radionuclide concentrations due to human activities above background levels specific to location. Materials that are exposed to the accessible environment as a result of human activities, but that have not been concentrated, would not be considered TENORM. Excavated soil, for example that which is removed for the construction of a basement, is not TENORM because the soil is just being moved and not concentrated. In a similar manner, materials brought up to the surface by drilling operations, including drill cuttings and mud, do not meet the proposed definition of TENORM.

Sampling shows that NORM that has been exposed to the environment by human activities are low in concentration of the relevant nuclides. They are below the 5 pCi/g combined radium threshold for regulation of TENORM in New Rule I(3). Six years of data collected from department-licensed solid waste facilities have shown drill cuttings to be significantly below 5 pCi/g combined radium. In addition, the department has found from recent testing of mine tailings, soil samples from petroleum release sites, granulated activated carbon from chlorinated solvent soil vapor extraction treatment filters, soil samples from petroleum tank excavation sites, and water treatment plant sludge from an historic mining site, that the concentration of combined radium in these materials is well below 5 pCi/g.

The department notes that EPA guidance has used a definition of TENORM that also includes NORM that has been "exposed to the accessible environment as a result of human activities such as manufacturing, mineral extraction, or water processing" (Technologically Enhanced Naturally Occurring Radioactive Materials from Uranium Mining, Volume 1: Mining and Reclamation Background, and Volume 2: Investigation of Potential Health, Geographic, and Environmental Issues of Abandoned Uranium Mines, EPA, 2008). EPA's definition of TENORM is in the context of uranium mining and milling. The department does not believe this definition is appropriate because it is in relation to uranium mining and milling and not to other industries. Furthermore, there is a very high volume of NORM, such as drill cuttings, mining tailings, and dirt from excavations. Because these materials are very unlikely to exceed 5 pCi/g, the cost and time required for characterization outweigh the minimal possible benefit of including NORM exposed to the environment in the definition of TENORM.

The department's proposed definition of TENORM expressly excludes source material and byproduct material. "Source material" is uranium, or thorium, or both, in any physical or chemical form, or ores that contain 0.05 percent or more of uranium or thorium, or both. It does not include special nuclear material, which is plutonium, uranium 233, uranium enriched in 233 or 235, or any other material

designated by NRC as special nuclear material. 10 CFR 20.1003 (2019). "Byproduct material" is: radioactive material yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or using special nuclear material; or tailings or wastes from ore processed for source material content, or radium 225 produced for commercial, medical, or research purposes. 10 CFR 20.1003 (2019). The definition of TENORM does not include high-level or low-level radioactive waste. Those types of waste are byproduct materials made as a result of nuclear power or weapons production, and are not naturally occurring.

The department is proposing to differentiate between TENORM waste and TENORM surface-contaminated objects in (34). TENORM surface-contaminated objects, such as valve stems, tanks, and pipes, typically do not have uniform concentrations as compared to soil or soil-like material that act differently within the waste unit compared to soil-like material, and have a strong affinity to the surface of materials unlike TENORM radionuclides in soil-like material. TENORM surface-contaminated materials typically have densities that are two or three times higher than soil or soil-like material. Due to these unique characteristics, it may be difficult to accurately determine the concentration of radionuclides in TENORM surface-contaminated objects using standard concentration waste characterization methods. Therefore, the department is proposing a more stringent gate-screening limit for TENORM surface-contaminated objects under proposed New Rule III(2). See the reason statement for that rule for further discussion.

NEW RULE III TENORM WASTE MANAGEMENT SYSTEM LIMITS AND RESTRICTIONS

(1) Except as provided in (2), the owner or operator of a TENORM waste management system shall ensure that:

(a) TENORM waste entering the system does not exceed a gate screening level of 200 microrentgen per hour ($\mu\text{R/hr}$), excluding background, in accordance with [NEW RULE VI](1)(b);

(b) TENORM waste entering the system does not exceed a concentration of 200 picocuries per gram (pCi/g) of combined radium Ra-226 and Ra-228 determined by the waste characterization requirements in [NEW RULE VI](1)(d);

(c) the average concentration in a TENORM waste unit does not exceed 50 pCi/g of combined radium Ra-226 and Ra-228 in accordance with [NEW RULE VI](1)(l); and

(d) the total effective dose equivalent (TEDE) contributed by the TENORM waste management system does not exceed 100 millirem per year (mrem/y), excluding background radiation, for a hypothetical member of the public who is at the boundary continuously with no shielding for a year, as monitored in accordance with [NEW RULE VI](1)(m).

(2) TENORM surface-contaminated objects are not subject to the waste characterization requirement in (1)(b), but must not exceed a gate screening level of 100 microrentgen per hour ($\mu\text{R/hr}$), excluding background radiation, in accordance with [NEW RULE VI](1)(b).

(3) Before accepting a load of TENORM waste, the owner or operator of a TENORM waste management system shall:

(a) obtain a manifest from the transporter that includes the following:

(i) name of generator(s) or aggregator(s);

- (ii) address of generator(s) or aggregator(s);
- (iii) vehicle license number;
- (iv) name of transporter;
- (v) name of driver;
- (vi) transporter's company address;
- (vii) transporter's company phone number;
- (viii) transporter's email address;
- (ix) identification of the source location(s), volume, physical state, and type;
- (x) date and time of the delivery of the waste;
- (xi) identification of the process(es) producing the waste;
- (xii) method of receipt; and
- (xiii) waste characterization results.

(b) ensure that the TENORM waste has been characterized in compliance with [NEW RULE VI](1)(d).

(4) The owner or operator of a TENORM waste management system shall conduct additional testing of other constituents of the waste stream if the department determines the additional testing is necessary to protect human health and the environment.

(5) The owner or operator of a TENORM waste management system shall conduct random inspections to ensure that incoming loads of filter media do not exceed 200 pCi/g, excluding background radiation.

(6) If a random inspection detects an exceedance of the limit in (5), the owner or operator shall reject the load.

(7) If a person attempts to deliver for disposal TENORM waste exceeding the gate screening limit in (1)(a) or the concentration limit in (1)(b), the owner or operator of the TENORM waste management system shall:

- (a) refuse to accept the waste;
- (b) record the source, amount, name of the generator, and other identifying information about the rejected waste; and
- (c) notify the department and generator in writing with the information in (b) within 24 hours after waste rejection.

(8) If the owner or operator of a TENORM waste management system or the department determines that the combined average concentration of 50 pCi/g in a TENORM waste unit has been exceeded, or that the TEDE limit of 100 mrem/y, excluding background radiation, assessed at the licensed boundary has been exceeded, the owner or operator shall:

- (a) within 5 days after the determination, or notification by the department, place a notice in the operating record indicating the exceedance; and
- (b) within 15 days after the determination or notification by the department, submit for department approval a corrective action plan and follow the closure and post-closure care requirements of [NEW RULE VIII] if determined necessary by the department to protect human health and the environment.

(9) The corrective action plan required in (8)(b) must:

- (a) include corrective measures that will enable the TENORM waste management system to meet the requirements in (1)(c) and (d); and
- (b) establish a department-approved timeframe on a case-by-case basis for implementing the proposed corrective action plan.

(10) The owner or operator of a TENORM waste management system may not allow disposal of bulk or non-containerized liquid waste.

(11) A person may dispose of TENORM waste that exceeds a limit in (1)(a) or (b) only in a disposal facility licensed to receive waste that exceeds one or both of those limits.

AUTH: 75-10-204, MCA

IMP: 75-10-204, MCA

REASON: The department is proposing a multi-layered protective approach in setting TENORM waste management limits. In deciding to follow this approach, the department analyzed scientific studies, evaluated public feedback, and consulted with regulators, health physicists, and waste management professionals. The department concluded that the multi-layered approach to waste acceptance and monitoring is within the established protective levels for management of this waste stream. This multi-layered approach, in combination with operational safeguards provided in this subchapter and the requirements for Class II solid waste management systems under ARM Title 17, chapter 50, subchapters 4, 5, 10, 11, 12, 13, and 14, except for ARM 17.50.1109 and 17.50.1404(2)(a), are protective of human health and the environment. Examples of operational safeguards provided in this subchapter are: daily cover requirements, prohibitions, design and siting criteria, operation and maintenance plans, ground water monitoring, closure and post-closure care requirements, financial assurance, and spill reporting requirements.

Some states have taken a singular approach, only having a concentration limit as the primary waste management tool. The department's proposed approach would allow for the acceptance and safe disposal for various types of TENORM waste, which are difficult to characterize by conventional methods. While knowing the concentration of TENORM waste is important, it is the exposure to, and the dose received by, a person that are significant when managing TENORM waste. Therefore, the department is proposing limits on dose and exposure, in addition to concentration to protect human health.

The department is proposing (1)(a) to ensure TENORM waste that exceeds a gate screening level of 200 $\mu\text{R/hr}$ is not disposed of in a TENORM waste management system. Individual loads that exceed the proposed gate screening level of 200 $\mu\text{R/hr}$ will, in most circumstances, exceed the concentration limits set forth in (1)(b). Having a gate screening limit adds a threshold layer of protection to the public.

The health physicist retained by the department to help develop the proposed rules provides the following example to support an exposure limit of 200 $\mu\text{R/hr}$ (0.2 mR/hr): assuming the net surface exposure rate of the object is 185 $\mu\text{R/hr}$ = 0.185 mR/hr and the background is 15 $\mu\text{R/hr}$ (average background in Montana is 2 to 7 $\mu\text{R/hr}$), then the total measured exposure rate of the object plus the background would be 200 $\mu\text{R/hr}$. The worker is assumed to be at least 0.5 m from the source, except for the worker's hands and arms. The reduction in exposure rate with distance from the source depends on the geometry of the source. A factor of two would be a conservative distance factor. Therefore, the estimated exposure rate at

the worker's body attributable to the source would be one-half the net surface exposure rate or 0.098 mR/hr. A worker is not likely to spend a significant amount of time handling loads at the maximum screening level. Assuming 200 hours per year at an exposure rate of 0.098 mR/hr, the annual exposure from these loads would be 19.6 mR. Also, assuming 1 mR exposure gives a dose of 1 mrem, the estimated annual dose would be 19.6 mrem, which is well below the total dose exposure limit of 100 mrem/y.

The department is proposing (1)(b) to ensure that waste exceeding the upper limit for radioactivity of TENORM waste in incoming loads is not accepted at a TENORM waste management system. Setting an upper concentration limit allows flexibility while providing reasonable assurance that the combined radium concentration does not exceed 50 pCi/g in the TENORM waste unit. It also provides a reasonable basis for assuming that the gate exposure screening limit of 200 microroentgen per hour (μ R/hr), excluding background radiation will not be exceeded. Monitoring, waste characterization results, and accurate recordkeeping will ensure that the 50 pCi/g concentration limit in place is maintained. The department is proposing that TENORM waste management systems report to the department the combined radium concentration in a TENORM waste unit on a quarterly basis (every 3 months per year). A gate screening limit of 200 μ R/hr will assist in identifying and excluding loads that may exceed 200 pCi/g combined radium.

As stated earlier, the department requested technical expertise from Tetra Tech to assist and provide guidance in developing these rules. To help provide rationale for setting 200 pCi/g as an upper limit for TENORM, Tetra Tech used the exposure factors for the natural uranium and thorium decay series from Draft NUREG 1506 (NRC, "Measurement Methods for Radiological Surveys in Support of New Decommissioning Criteria," 1995). To help readers understand the calculations below, one milliroentgen, abbreviated "mR" is one-thousandth of a roentgen. One microroentgen, abbreviated "uR" is one-millionth of a roentgen.

The methods use an exposure rate conversion factor of 0.0019 milliroentgens per hour (mR/h) per pCi/g for U-238 and its decay products in equilibrium. Over 95 percent of the external dose comes from the decay products of Ra-226, primarily lead-214 (pB-214) and bismuth-214 (Bi-214). The conversion factor for Th-232 and its decay products is 0.00283 mR/hr per pCi/g Th-232 (NRC, 1995). A combined conversion factor assuming 25 percent Ra-228 and 75 percent Ra-226 would be approximately 0.0021 mR/hr per pCi/g combined radium. These conversion factors assume that the decay products are in equilibrium with the parent radium isotope.

Based upon Draft NUREG 1506, Tetra Tech made the following calculations: the expected exposure rate at the surface of a shipment at 200 pCi/g combined radium at 25 pCi/g Ra-228 and 75 pCi/g Ra-226 would be approximately 0.22 mR per hour. Assuming a geometry factor of 50 percent, a worker might receive an external radiation exposure of 0.11 mR in one hour of handling the material. The radiation exposure rate decreases with distance from a finite source since a receptor would only intercept (receive) a fraction of the radiation emitted from the source. This fraction is known as the "geometry factor." While the geometry factor would vary with the distance of the receptor (worker) from the source, a reasonable average value would be approximately 50 percent. Assuming an exposure of 1 mR

results in a dose of approximately 1 mrem, the external radiation dose to a worker would be approximately 0.11 mrem. This calculation assumes that the decay products are in equilibrium with the radium isotopes.

The U.S. Department of Energy developed RESRAD (RESidual RADioactivity) computer software to evaluate the radiation doses and risks to the public from residual radioactive materials. The RESRAD software uses pathway analysis to evaluate radiation dose and associated risks, and to derive cleanup criteria or authorized limits for radionuclide concentrations in the contaminated source medium. RESRAD is widely used by regulatory agencies, the risk assessment community, and universities in more than 100 countries around the world.

Based on the results of a dose analysis using RESRAD, nearly all of the dose to a worker at a TENORM waste management system would be due to direct gamma radiation. The calculated external dose from 200 pCi/g combined radium would be, on average, about 0.42 mrem in an hour. This is below the NRC dose limit for members of the public.

Therefore, the department is proposing 200 pCi/g as the upper concentration limit because it is protective of human health. In addition, a higher concentration limit helps discourage illegal dumping and facilitates proper management of TENORM waste in a TENORM waste management system. The department's data for the last six years indicates that the majority of incoming TENORM loads are lower than 50 pCi/g. Therefore, an occasional high load should provide reasonable confidence that the 50 pCi/g average in-place concentration limit will be not be exceeded. A TENORM waste management system would not be able to regularly accept loads close to 200 pCi/g, but would be able to accept a load over 50 pCi/g, periodically without exceeding the in-place concentration limit.

To be protective of human health and the environment, the department is proposing 50 pCi/g as the combined concentration limit within the waste unit in proposed (1)(c.) The potential dose from TENORM is proportional to a person's exposure time and radionuclide concentration of the material. The Tetra Tech report provided the following rationale for 50 pCi/g as the concentration limit for a TENORM waste unit: assuming a worker spends no more than 50 percent of his or her time managing TENORM and that the mix of radionuclides includes Thorium-232 (Th-232) at a ratio not greater than 25 percent of the total concentration, Ra-226 plus Ra-228 concentration less than 50 pCi/g is likely to be protective. This would also meet the TEDE limit of 100 mrem/y assuming that a hypothetical member of the public is at the boundary continuously with no shielding for a year as monitored in accordance with New Rule VI(1)(m). Tetra Tech recommended establishing a default acceptance threshold. Daily cover requirements and dust control would minimize exposure to the TENORM waste management system workers, who are at more risk than the public, and thereby minimize exposure to the public.

The proposed TEDE limit in (1)(d) is based upon scientific standards set by experts in the field of health physics. Equipment would take continuous measurements at the licensed boundary. Dose would be calculated using inputs assuming a hypothetical member of the public is at the boundary continuously with no shielding for a year. This information will be used by the TENORM waste management system and the department to determine compliance with the total

gamma dose rate limit.

Scientific studies, recommendations, and guidelines support the proposed TEDE limit. Congress requested EPA to contract with the National Academy of Sciences (NAS) to conduct a study examining the basis for EPA's guidance on TENORM. The following report was prepared: "Evaluation of EPA's Guidelines for Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) Report to Congress" (June 2000) available at <https://www.epa.gov/radiation/tenorm-resources> or by contacting DEQ's Solid Waste Program at (406) 444-5300. According to this report, the effective dose (or risk) is based on radiation type (e.g., alpha, beta, gamma), its energy and, for internal radiation, sensitivity of specific organs (page 7).

The NAS committee also found that it is widely accepted to use a linear, no-threshold dose-response relationship at low levels of exposure. Important factors to consider are: the physical characteristics of a site, the extent of the TENORM source, and the projected land use. The NAS committee recommended to the EPA that it should use dose and risk assessments that are "reasonably realistic" for developing exposure standards to the various types of TENORM. The committee defined "reasonably realistic" as "not intended to greatly overestimate or underestimate actual effects for the exposure situation of concern" (page 15). EPA agreed with this recommendation in the report.

CRCPD's Environmental Nuclear Council (E-42) Task Force Report "Review of TENORM in the Oil & Gas Industry" (June 2015) (CRCPD's TENORM Report) discusses methods of dose and risk assessments for assumed reference conditions that are reasonable. The report is available at https://cdn.ymaws.com/www.crcpd.org/resource/collection/89CD4979-9A4C-41AF-8832-2F1EA116A8C0/E-42_Report_Review_of_TENORM.pdf or by contacting DEQ's Solid Waste Program at (406) 444-5300. The report states that volumes and concentrations are not the basis for estimating the potential public dose. The report points out that the exposure pathway is critical in determining exposure potential. The report also discusses how the practice of adding fill and cover material significantly reduces the concentration of any TENORM waste disposed at a waste management system. In addition, the report concludes that with the proper monitoring and maintenance of TENORM facilities, the potential for worker and public exposure in the present and into the future is minimized (page 59).

Tetra Tech's report also explains that millirems (mrem) are the units used to quantify radiation doses to humans. The report states, "The dose unit represents the amount of energy absorbed in human tissue, the distribution of the energy, and the sensitivity of the whole body or individual organs to radiation" (page 5). Potential long-term human health risk is assessed based upon the dose received by a person and is measured in mrem. People living in the United States receive natural background radiation doses from approximately 200 mrem/y to more than 1,000 mrem/y in high background locations primarily in the Rocky Mountain region (Tetra Tech Report, 2016). Approximately 310 mrem/y is the average natural background radiation dose for people living in the United States (Ionizing Radiation Exposure of the Population of the United States. National Council on Radiation Protection and Measurements (NCRP) Report No. 160, page 22, NCRP, 2009).

The American National Standards Institute (ANSI), in conjunction with the

Health Physics Society, developed a standard, "Control and Release of Technologically Enhanced Naturally Occurring Radioactive Material (TENORM)," ANSI/HPS N13.53-2009 (ANSI 2009). This standard makes the following recommendations: annual dose limit of 100 mrem above background from all pathways and sources of radioactivity (except radon and its short-lived decay products) and practices associated with site and facility operations, and an annual dose limit for non-workers of 100 mrem/y.

For comparison, the maximum allowable radiation dose for a radiation worker at a nuclear power plant, uranium mill, or another facility licensed by the NRC is 5,000 millirem per year (mrem/y) (10 CFR 20.1201); and the maximum allowable radiation dose to a member of the public from one of these NRC licensed facilities or an Agreement State is 100 mrem/y (except uranium mills), excluding background and medical radiation doses (10 CFR 20.1301).

The CRCPD Suggested State Regulations Part N - Sec. N.5 Standards for Radiation Protection for Members of the Public (2014) discusses how protecting the public from TENORM radiation is essentially the same as for other radioactive materials. CRCPD recommends 100 mrem/y as the maximum dose, above background levels, for members of the public. The recommendation for sites to be released for unrestricted use is based on a combination of the 25 mrem/y dose limit and a limit on radium concentrations in soil.

Furthermore, Tetra Tech's report recommends that the dose limit for a member of the public living near an operating TENORM waste management system the TEDE should be no greater than 100 mrem/y, excluding background. Tetra Tech's report makes this recommendation based upon the same dose limit for members of the public in NRC regulations governing radiation dose limits for individual members of the public at 10 CFR 20.1301. Also, guidance documents issued by the International Atomic Energy Agency "Radiation Protection and the Management of Radioactive Waste in the Oil and Gas Industry" (Safety Report Series No. 34, IAEA, 2003), the International Commission on Radiological Protection (ICRP) Publication 60 "Recommendations of the International Commission on Radiological Protection," (Ann. ICRP 21(1-3), 1991), the National Council on Radiation Protection and Measurements, "Ionizing Radiation Exposure of the Population of the United States" (NCRP Report No. 160, 2009) and ANSI "ANSI/HPS N13.53-2009" support the same dose limit.

The department is proposing a more stringent gate-screening level in (2) for TENORM surface-contaminated objects, excluding filter media. This material is difficult to characterize in a standard manner that is protective of human health. Cutting up objects, such as pipe, to make them available for waste characterization techniques, can lead to increased human exposure to radionuclides. Therefore, the department is proposing instead to subject them to a more stringent gate-screening level than other types of TENORM waste.

The department is proposing (3)(a) to require manifests from each transporter to enable the TENORM solid waste management system owner or operator, and the department, to track where the waste came from and how it was produced. This would ensure that the TENORM waste management system and the department are aware of the source, amount, generator, and other identifying information about the rejected waste in a timely manner. The proposed rule enables the department to

take enforcement actions if necessary.

The department is proposing (3)(b) to require an owner or operator to ensure that TENORM waste has been properly characterized. This would allow the owner or operator to make an accurate determination of the concentration level in the waste. If the waste concentration exceeds the limit in (1)(b), the owner or operator is required to reject the material. This would protect public health and the environment.

The department is proposing (4) to provide the department the ability to require additional testing based upon different waste streams to protect human health and the environment. It is reasonably necessary to provide the department with the discretion to require additional testing based on the unique characteristics of a specific waste stream.

The department is proposing (5) to ensure that filter media is accurately characterized and documented and that random inspections take place to ensure that incoming loads of filter media do not exceed 200 pCi/g, excluding background radiation. Random load screening of filter media will ensure that generators are accurately characterizing and documenting the concentration of their loads. Filter media is of special concern due to its potential to have higher radionuclide concentrations than other waste.

The department is proposing (6) to encourage generators or transporters to properly characterize filter media through random testing by having the consequence of loads being rejected if they fail the random testing.

The department is proposing (7) to ensure that TENORM waste management systems do not accept TENORM waste exceeding the screening exposure limit in (1)(a) or the concentration limit in (1)(b). If the waste exceeds one of those limits, the department is proposing to require an owner or operator to notify the department of the waste's source and other identifying information. This may aid in ensuring that the waste is properly disposed of by the generator or transporter, and in potential enforcement cases. The department has enforcement authority under Title 75, chapter 10, part 2, MCA.

The department is proposing (8) to require an owner or operator to inform the department of exceedances of the combined average concentration limit in (1)(c) or the dose limit in (1)(d) and to submit a corrective action plan. The department is also proposing (8) to make sure corrective action takes place and that materials responsible for the exceedance are removed and properly disposed of. As an added safety measure and in response to public comments, the department is also proposing requiring a TENORM waste management system to comply with closure and post-closure requirements in New Rule VIII if deemed necessary. The department agreed with public comments asserting the department should have the ability to require a TENORM waste management system to close and to comply with closure and post-closure care requirements if necessary to protect human health.

The department is proposing (10) to restrict the disposal of bulk or non-containerized liquid waste to protect water resources.

The department is proposing (11) to ensure TENORM waste exceeding the limits is disposed of in an appropriate facility to protect human health and the environment. Currently, there are no facilities in Montana that accept TENORM waste with levels exceeding the limits in the proposed rules. The department will

work with the regulated community on providing information where waste that exceeds the limits in the proposed rules can be disposed. Currently, that information would include the location of and contact information for facilities in neighboring states that are licensed to take such waste.

NEW RULE IV TENORM WASTE MANAGEMENT SYSTEM LICENSE AND APPLICATION REQUIREMENTS

(1) A person may not construct, expand, or operate a TENORM waste management system after [the effective date of this rule] without first obtaining a TENORM waste management system license from the department in compliance with ARM Title 17, chapter 50, subchapters 4 and 5 and this subchapter.

(2) An applicant for a TENORM waste management system license shall use the application form provided by the department. In addition to the information required under ARM 17.50.508, the applicant shall provide the following information:

(a) a document signed by the landowner that grants access to the property to the department, private contractors, and the waste management system owner/operator to perform activities associated with regulation and operation of the TENORM waste management system;

(b) technical design specifications;

(c) construction plans;

(d) a detailed site plan that includes:

(i) information concerning any material that will be used to construct a liner or berm, including but not limited to:

(A) type, quantity, and source of waste to be accepted;

(B) compaction density;

(C) moisture content;

(D) design permeability;

(E) liner construction quality assurance and quality control (QA/QC) plans;

(ii) design and location of any proposed storage or treatment areas;

(iii) design and location of any liquid containment or storage structures;

(iv) design, location, and grades of any surface water diversion and drainage structures;

(v) an operation and maintenance plan that complies with [NEW RULE VI];

(vi) a ground water monitoring plan that complies with [NEW RULE VII]; and

(vii) a closure plan and a post-closure care plan that complies with [NEW RULE VIII].

AUTH: 75-10-204, MCA

IMP: 75-10-204, 75-10-221, MCA

REASON: It is reasonably necessary to require persons to obtain from the department a license to operate a TENORM waste management system as required in proposed (1). Requiring the person to obtain a license facilitates the department's regulation of the disposal and management of TENORM waste, which presents different risks to human health and the environment than other solid waste. The license must comply with the licensing requirements, annual reporting requirements, and fee schedule set forth in ARM Title 17, chapter 50, subchapter 4. The license

must also comply with ARM Title 17, chapter 50, subchapter 5, which includes disposal facility classifications, application requirements, operation and maintenance plan requirements, solid waste management system license application procedures, appeal procedures for the denial or revocation of a license, duration of a license, inspections, and financial assurance requirements. Finally, the TENORM waste management system license must comply with the provisions of this proposed subchapter.

The department is proposing (2) to require, in a TENORM license application, information in addition to that required under ARM 17.50.508. More information is required for a TENORM system to ensure technical design, construction plans, site plans, operation and maintenance plans, ground water monitoring plans, and closure plans are done in a manner that is protective of human health and the environment given the nature of the material to be disposed.

NEW RULE V DESIGN CRITERIA (1) An application for a TENORM waste management system license must contain a system design that complies with:

- (a) ARM Title 17, chapter 50, subchapter 10;
- (b) ARM Title 17, chapter 50, subchapter 12; and
- (c) requirements of the Montana Pollutant Discharge Elimination System (MPDES) general storm water permit approved by the department's Water Protection Bureau.

(2) The design must also include an appropriate number and placement of dose measuring devices as determined by a health physicist.

AUTH: 75-10-204, MCA

IMP: 75-10-204, MCA

REASON: It is reasonably necessary to set forth design criteria for TENORM waste management systems as proposed in (1) to ensure protection of human health and the environment. The design criteria in (a) include location criteria set forth in ARM Title 17, chapter 50, subchapter 10. Subchapter 10 contains restrictions on siting a landfill near airports, floodplains, wetlands, fault areas, seismic areas, unstable areas, and other location restrictions. Subchapter 10 also contains requirements to protect public and private drinking water supply systems, sensitive hydrogeological environments, and endangered or threatened plants, fish, and wildlife from potential negative impacts associated with solid waste disposal.

The design criteria in (b) also includes the design requirements applicable to Class II landfills set forth in ARM Title 17, chapter 50, subchapter 12. Under subchapter 12, the design must (a) ensure that the concentration values of constituents listed in ARM 17.50.1204 will not be exceeded in the uppermost aquifer; or (b) use a composite liner and a leachate collection and removal system that maintains less than a 30-cm (12 inches) depth of leachate over the liner.

Finally, the design criteria in (c) must be consistent with the requirements of the storm water permit approved by the department. TENORM waste management systems would be required to work with the department's Water Protection Bureau to obtain a storm water permit and develop a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must include best management practices, quarterly

inspections, and sampling after significant storm events. TENORM waste management systems would be required to divert storm water away from waste and prevent it from comingling with waste.

The department is proposing (2) to ensure that the design of the TENORM waste management system includes the appropriate number and placement of monitoring devices determined by a health physicist. A health physicist will have the expertise to determine the number and location of the monitoring devices needed to ensure that the TEDE of 100 mrem/y is not exceeded at the facility boundary.

NEW RULE VI OPERATION AND MAINTENANCE (1) An application for a TENORM waste management system license must contain an operation and maintenance plan that complies with ARM Title 17, chapter 50, subchapters 5 and 11, excluding ARM 17.50.1109, and that includes:

- (a) types of wastes that will be accepted;
- (b) procedures and equipment that accurately measure radiation exposure that will be used for gate screening;
- (c) procedures for onsite sampling and testing;
- (d) procedures for waste characterization that:
 - (i) comply with "Requirements for the Characterization of TENORM Wastes" Montana DEQ – Solid Waste Program (Revised August 2019); and
 - (ii) state how results must be recorded, utilized, and maintained;
- (e) documentation of exposure rates measured onsite at the time of delivery in accordance with [NEW RULE III](1)(a);
- (f) procedures for rejecting waste;
- (g) procedures for dust monitoring and control;
- (h) an inventory of radiation survey equipment;
- (i) calibration procedures for radiation detection and monitoring equipment and documentation of calibration records, including:
 - (i) annual calibration for radiation detection and monitoring instruments done by a laboratory licensed by an agreement state or NRC; and
 - (ii) daily source and background check procedures for radiation detection and monitoring equipment, as appropriate;
- (j) a radiation health and safety plan developed by a health physicist to provide onsite facility knowledge necessary to comply with the requirements of this subchapter and protect public health;
- (k) provisions to minimize noise impacts on residential areas to the degree practicable through berms, vegetation screens, and reasonable limits on hours of operation;
- (l) procedures developed by a health physicist for monitoring of TENORM concentrations in a TENORM waste unit. The operation and maintenance plan must provide that the concentrations be reported to the department quarterly;
- (m) provisions developed by a health physicist for continuous monitoring of ionizing radiation dose at the licensed boundary. The monitoring must demonstrate the dose a hypothetical person would receive if the person were at the boundary continuously with no shielding for a year;
- (n) procedures to protect the integrity of the liner from objects that could compromise it, such as large bulky items; and

(o) procedures for random inspections of incoming loads and rejection procedures for incoming loads that do not meet the acceptance criteria.

(2) The owner or operator of a TENORM waste management system shall:

(a) file an annual report, as required by ARM 17.50.410(1)(b), that includes a statement about whether the concentration limit in [NEW RULE III](1)(c) has been maintained; and

(b) submit to the department within 45 days after the end of each calendar quarter a report on TENORM waste delivered during that quarter. The report must contain the following:

(i) the date of delivery of each load of TENORM waste during the quarter or a notation that no TENORM waste was delivered during the quarter;

(ii) if a load was rejected, the date of attempted delivery, the source of the delivery, and the reason for rejection;

(iii) the type of waste and waste characterization results; and

(iv) readings taken at the licensed boundary in accordance with (1)(m);

(c) make gate-screening documentation available to the department for inspection during normal business hours or as requested;

(d) cover the waste by the end of each operating day with at least six inches of clean and compacted soil or an alternative daily cover that has been approved by the department under ARM 17.50.1104;

(e) construct, maintain, and operate a TENORM waste management system in conformance with the requirements of this subchapter, the operation and maintenance plan, and all other plans approved by the department; and

(f) maintain records required in this subchapter in accordance with ARM 17.50.1112 and make them available for inspection by the department during business hours or as requested.

(3) The owner or operator of a TENORM waste management system may not accept TENORM waste unless the owner or operator has designed, constructed, and maintained:

(a) a run-on control system to divert storm water to prevent flow of storm water onto the active portion of the landfill during the peak discharge from a 24-hour, 100-year storm;

(b) a system to control run-off from the active portion of the landfill by collecting and controlling at least the water volume resulting from a 24-hour, 100-year storm; and

(c) a system to manage storm water run-off in accordance with ARM 17.50.1110(1).

(4) The owner or operator of a TENORM waste management system shall monitor storm water ponds annually for constituents and parameters determined by the department to be appropriate based on the waste stream accepted.

(5) If monitoring in (4) detects an exceedance of a constituent or parameter, the owner or operator of a TENORM waste management system shall notify the department's Water Protection Bureau and implement necessary corrective actions.

AUTH: 75-10-204, MCA

IMP: 75-10-204, MCA

REASON: The department is proposing New Rule VI to establish the requirements for a TENORM waste management system's operation and maintenance plan. It is necessary to require a TENORM waste management system to submit a more detailed operation and maintenance plan than is required for a Class II facility due to the unique nature of the waste stream. Every waste management system's operation and maintenance plan must be site-specific, must meet the minimum operation and maintenance standards, and must be approved by the department on a case-by-case basis.

The department is proposing (1) to include the requirements of ARM Title 17, chapter 50, subchapter 5. Subchapter 5 provides uniform standards governing the storage, treatment, recycling, recovery, and disposal of solid waste. Subchapter 5 also has provisions for operation and maintenance plans, appeals of a denial or revocation of a license, inspections, closure, post-closure care, and financial assurance requirements.

The department is proposing (1) to also include the requirements of ARM Title 17, chapter 50, subchapter 11. Subchapter 11 sets forth operating requirements, such as procedures for the exclusion of hazardous waste, air criteria, run-on and run-off control systems, surface water requirements, liquid restrictions, deed notation, and general liability insurance.

Proposed (1) requires that the owner or operator to include waste information and radiation monitoring procedures that will allow the department to determine whether an operation and maintenance plan is adequate and to ensure that the limits and restrictions in New Rule III will be met. Under ARM 17.50.509(1), the department reviews each operation and maintenance plan as part of its review of a license application. An operation and maintenance plan outlines the requirements necessary to protect human health and the environment. The department requires operation and maintenance plans to take a comprehensive approach for operation and maintenance of TENORM waste management systems and compliance with applicable rules.

The department is proposing (1)(a) through (c) to ensure that each TENORM waste management system is evaluated on a case-by-case basis. The operation and maintenance plan must include the types of wastes, procedures for gate screening, types of equipment and manufacturing certification, and methods and procedures for onsite sampling and testing.

The department is proposing (1)(d) to ensure that procedures for waste characterization are uniformly performed in accordance with "Requirements for the Characterization of TENORM Wastes" Montana DEQ – Solid Waste Program, which is being incorporated into these rules by reference in New Rule I. The department is proposing using waste characterization guidance that will allow for emerging technologies that can accurately characterize different forms of TENORM waste.

The department is proposing different requirements for determining the acceptability of TENORM surface-contaminated objects than for other types of TENORM waste. Proposed (1)(d) does not address characterization of TENORM surface-contaminated objects because it may be difficult to obtain accurate results using standard concentration waste characterization methods for those objects. Instead, a more stringent gate-screening level for TENORM surface-contaminated objects is proposed in New Rule III(2). See reason statement for New Rule II(34)

and New Rule III(2). The department is also proposing to require the owner or operator to state how the waste characterization results must be recorded, utilized, and maintained so the department can review these records during inspections.

The department is proposing (1)(e) to require the owner or operator to document exposure rates to ensure that the department is aware of exceedances so it can require corrective action. The department needs documentation for compliance assistance and potential enforcement actions that may be taken under Title 75, chapter 10, part 2, MCA.

The department is proposing (1)(f) to ensure that proper procedures are in place for rejecting waste to protect human health and the environment.

The department is proposing (1)(g) to require dust monitoring and control measures to protect human health by limiting public exposure to windblown radionuclide particles.

The department is proposing (1)(h) and (i) to ensure accurate radiation measurements and that the department is able to check that proper calibration procedures are being followed. Annual calibration done by a licensed laboratory is required to ensure instruments accurately take measurements. Daily calibrations are necessary to check that the instruments continue to take proper readings.

The department is proposing (1)(j) to require TENORM waste management systems to have a health and safety plan developed by a health physicist. The proposed rule requires the owner or operator to tailor the plan to the risk associated with the specific TENORM waste management system. A radiation health and safety plan reinforces ALARA.

The department is proposing (1)(k) to minimize noise impacts on surrounding neighborhoods from facility operations and waste hauling.

The department is proposing (1)(l) to ensure that accurate TENORM concentrations in a TENORM waste unit are measured and reported to the department quarterly. This would protect public health and the environment by making sure that the owner or operator takes necessary steps to limit concentrations to the level allowed in New Rule III(1)(c). The reasons for this concentration is explained in the statement of reasonable necessity for that rule.

The department is proposing (1)(m) in accordance with NRC's Regulatory Guide 8.37 ALARA Levels for Effluents from Materials Facilities (NRC, 1993, available at <https://www.nrc.gov/docs/ML0037/ML003739553.pdf> or by contacting DEQ Solid Waste at (406) 444-5300). NRC's regulatory guide states that licensees must perform surveys and monitoring sufficient to demonstrate compliance with the requirements of 10 CFR 20.1302, which concerns compliance with dose limits for individual members of the public. NRC's regulatory guide also states that the surveys should include air and liquid effluent monitoring, as appropriate, as well as surveys of direct or external dose rates in unrestricted areas.

Proposed (1)(m) requires an owner or operator to accurately perform environmental monitoring and surveys of ionizing radiation dose to be able to demonstrate whether the TENORM waste management system meets the TEDE limit in New Rule III(1)(d).

The direct radiation dose can be measured using dosimeters, such as thermoluminescence dosimeters (TLDs) or optically stimulated luminescence dosimeters (OSLs), at the boundary of the TENORM waste management system.

The dosimeter accumulates dose continuously. The dosimeter is analyzed and the dose reported periodically, generally on a calendar quarter basis. Subsection (1)(m) would require a quarterly report of the dose that a person would receive if he or she were at the location for the entire quarter (three months or 2,190 hours) with no shielding (i.e., outdoors all of the time).

The department is proposing to require quarterly reporting to inform the department of the TENORM waste management's system compliance with the TEDE limit in New Rule III(1)(d). If the TENORM waste management system is not in compliance with New Rule III(1)(d), then the necessary corrective actions outlined in New Rule III(8) must be implemented. Compliance with the total dose, including the dose from internally deposited radionuclides (primarily inhaled dust and radon decay products), must be assessed at the monitoring stations using standard dose conversion factors.

The department is proposing (1)(n) to ensure that a landfill liner is protected from damage by large or bulky items, such as equipment and metallic pipe, to protect the environment by preventing the integrity of the liner from being compromised.

The department is proposing (1)(o) to ensure that the TENORM waste management system has procedures for randomly checking incoming loads for prohibited materials and filter media due to the potential for higher concentration levels in the waste stream. The department is also proposing to require rejection procedures to ensure the TENORM waste management system does not accept prohibited materials.

The department is proposing (2)(a) through (c) to ensure that proper reporting of waste concentration, waste characterization, waste rejection, environmental monitoring readings, and gate-screening documentation is submitted to the department. The submittal of the above information provides documentation to the department that the TENORM waste management system is following all the requirements in its operation and maintenance plan.

The department is proposing (2)(d) to require six inches of daily cover to reduce the potential for excess radiation exposure and to reduce potential inhalation or ingestion. This is in accordance with a recommendation in Tetra Tech's report "Development of TENORM Rules for the State of Montana" (December 2016). It is also in accordance with ARM 17.50.1104(1), which requires an owner or operator of a Class II landfill to cover disposed-of solid waste with six inches of earthen material at the end of each operating day. To provide flexibility for TENORM management systems, the department is proposing to allow the use of alternative daily cover that has been approved by the department under the process in ARM 17.50.1104(2). That rule allows approval of an alternative daily cover if it does not pose a threat to human health or the environment.

Radiation from TENORM waste is mainly in the form of alpha and beta particles, as well as gamma radiation. Alpha particles are essentially the same as helium nuclei and consist of two protons and two neutrons. Alpha particles are not able to penetrate very far in solid material. A piece of paper or human skin is able to stop penetration of alpha particles. However, alpha particles may cause cellular damage if they are ingested or inhaled. Beta particles, which are identical to electrons, are less hazardous than alpha particles. Gamma rays, which are

essentially the same as x-rays, are much more penetrating. Six inches of packed soil cover over TENORM containing only Ra-226 will reduce the gamma radiation level by about a factor of four (Schiager, 1974, "Analysis of Radiation Exposures on or Near Uranium Mill Tailings Piles. Radiation Data and Reports, Vol. 15, No. 7, Environmental Protection Agency Office of Radiation Programs"). Based on the RESRAD analysis, using the probable mix of radionuclides including Ra-228, six inches of soil will reduce the exposure rate by a factor of about five. Proper landfilling of TENORM waste, such as requiring daily cover and other protective measures, will reduce the potential for excess radiation exposure to members of the public.

TENORM poses a radiation health risk not only from direct radiation exposure, but also from inhalation or ingestion. Daily cover of TENORM waste in a landfill reduces potential inhalation or ingestion. To protect human health, environmental monitoring will detect potential dose exceedances. Therefore, the proper landfilling of TENORM waste, such as requiring daily cover, dust monitoring, and dust control, minimizes the potential dose associated with radionuclides. The addition of cover soil provides an additional barrier to direct gamma radiation exposure from TENORM waste.

The department is proposing (2)(e) to require an owner or operator to construct, maintain, and operate a TENORM waste management system in conformance with the requirements of this subchapter as well as the operation and maintenance plan and any other plans approved by the department. Imposition of this affirmative obligation enables the department to take enforcement action in the event the owner or operator fails to comply with the requirements of this subchapter.

The department is proposing (2)(f) to ensure that records are maintained in accordance with ARM 17.50.1112 and made available for inspection by the department during business hours.

The department is proposing (3) to be more protective of surface water given the nature of material subject to this subchapter. ARM 17.50.1109 currently applies to Class II landfills and requires a run-on control system to prevent storm water flow onto the active portion of the landfill during the peak discharge from a 25-year storm; and a run-off control system from the active portion of the landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm. To be more protective than ARM 17.50.1109, (3) requires the owner or operator of a TENORM waste management system to install a run-on control system to prevent storm water flow onto the active portion of the landfill during the peak discharge from a 100-year storm. It also requires a run-off control system from the active portion of the landfill to collect and control at least the water volume resulting from a 24-hour, 100-year storm. This is more protective than ARM 17.54.1109 because the run-on and run-off control systems will be able to manage higher volumes of water.

The department is proposing (3)(c) to require owners and operators to manage storm water run-off in an environmentally protective manner in accordance with the department's solid waste surface water requirements for a Class II landfill. The department is proposing that a TENORM waste management system comply with the surface water requirements in ARM 17.50.1110. A TENORM waste management system may not cause a discharge of a pollutant into state waters that violates the Montana Water Quality Act, including a Montana pollutant discharge

elimination system, or ARM Title 17, chapter 30, subchapter 13. In addition, a TENORM waste management system may not discharge from a nonpoint source of pollution to waters of the United States, including wetland, that violates any requirement of an area-wide or statewide water quality management plan that has been approved under 33 USC 1288 or 1329.

The public expressed concern about possible contamination in storm water ponds. Based on public comments received, the department is proposing in (4) to require the owner or operator to test storm water for constituents or parameters based on the waste stream. Owners and operators would be required to obtain a storm water permit from the department's Water Protection Bureau, which regulates discharges of storm water, and to develop a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP would include best management practices, quarterly inspections, and sampling after significant storm events. TENORM waste management systems must divert storm water and prevent it from comingling with waste.

The department is proposing in (5) to require an owner or operator to take corrective action measures if there are exceedances of limits in the storm water ponds to protect human health and the environment. The department is also proposing to require the owner or operator to notify the department's Water Protection Bureau of any exceedances because this bureau is responsible for the management of storm water.

NEW RULE VII GROUND WATER MONITORING (1) An application for a TENORM waste management system license must contain a ground water monitoring plan that complies with ARM Title 17, chapter 50, subchapter 13; and contain a ground water sampling and analysis plan tailored to the types of TENORM waste being managed and site-specific conditions.

(2) During the active life of the waste management system and the closure and post-closure periods, a TENORM waste management system owner or operator shall have an independent qualified ground water scientist conduct semiannual monitoring for all constituents and parameters required in the ground water sampling and analysis plan and this rule.

(3) During the first semiannual monitoring event, a minimum of four independent samples must be collected from each background and downgradient well and analyzed in accordance with this rule.

(4) During subsequent semiannual monitoring events, a minimum of one sample must be collected from each background and downgradient well and analyzed in accordance with this rule.

(5) If the department determines that monitoring at an increased frequency is necessary to protect human health or the environment and notifies the owner or operator, the owner or operator shall monitor at the frequency determined by the department.

(6) The owner or operator of the TENORM waste management system shall monitor ground water for the constituents listed in ARM 17.50.1306 for Class II and Class IV landfills, the constituents in Table 1 of this rule, and any other constituent for which the department determines monitoring is necessary to protect public health or the environment.

Table 1
Ground Water Monitoring Constituents

Regulated Radionuclide	Exceedance Concentrations Above Background Radiation
Gross alpha (excluding uranium and radon)	15 pCi/L
Combined Ra-226 and Ra-228	5 pCi/L
Uranium	30 micrograms per liter (µg/L)

(7) If monitoring detects results in an exceedance for any constituent identified in the ground water sampling and analysis plan and this rule, the owner or operator of the TENORM waste management system shall implement an assessment monitoring program and take corrective action under ARM Title 17, chapter 50, subchapter 13.

AUTH: 75-10-204, MCA
IMP: 75-10-204, 75-10-207, MCA

REASON: The department is proposing (1) to make the ground water monitoring requirements for Class II facilities applicable to TENORM waste management systems. Compliance with ARM Title 17, chapter 50, subchapter 13, by TENORM waste management systems is necessary to ensure ground water monitoring is done properly and, if any exceedances are found, that the proper actions are taken to protect human health and the environment.

Hydrogeologic and soil characterization aids the system's and the department's hydrogeologist to evaluate the effectiveness of the ground water monitoring systems. Tailoring the ground water monitoring plan to the specific waste stream and site conditions will ensure that the proper ground water constituents are monitored on a case-by-case basis.

The department is proposing (2) to remove any perceived or real bias with ground water sampling. The department received public comments that expressed a concern that samples taken by an owner or operator might not be representative of the true quality of the ground water at a TENORM waste management system. In response to those concerns, the department is proposing to require an independent third-party qualified ground water scientist to conduct ground water sampling. This would eliminate the possibility of any bias of an owner or operator that could affect the results of ground water monitoring.

The department is proposing semiannual monitoring because it provides the data required to detect exceedances caused by seasonal changes in contaminant movement resulting from changes in ground water volume or direction of flow. However, the department may require increased monitoring frequency if necessary to protect human health and the environment. If additional testing demonstrates that corrective measures are necessary, the TENORM waste management system would be responsible for selecting a remedy and submitting it to the department for its review and approval, and then implementing a corrective action plan.

The department is proposing (3) and (4) to require, during the first semiannual sample event, a minimum of four independent samples be collected from each background and downgradient well and analyzed. This first semiannual sampling is necessary to establish site-specific background levels. During subsequent semiannual sampling events, an independent third-party must collect a minimum of one sample from each background and downgradient well. The department will ensure that the semiannual events capture seasonal variability.

The department is proposing (5) to give the department the authority to require more frequent ground water sampling and analysis. The department is proposing to require more frequent sampling in special circumstances, such as to investigate a possible release from the waste unit. In addition, ground water monitoring must continue during the closure and the post-closure care periods.

The department is proposing (6) to require ground water monitoring of specific radioactive constituents associated with TENORM in addition to the contaminants required to be monitored at all Class II and Class IV landfills under ARM Title 17, chapter 50, subchapter 13. The exceedance concentrations in Table 1 are incorporated from EPA's regulations at 40 CFR 141.66, which implement the federal Safe Drinking Water Act, and Montana's maximum contaminant levels for radionuclides in drinking water, which are found in ARM 17.38.206(1). The department is proposing to use drinking water standards to be conservative and protective of human health. The department may determine that it is necessary to monitor other constituents based upon the waste stream accepted.

The department is proposing (7) to require assessment monitoring and corrective action measures if detection monitoring indicates an exceedance of ground water standards, which include standards for radioactive constituents. These requirements are necessary to ensure protection of public health and the environment. In addition to the constituents in Table 1, the owner or operator must sample for constituents listed in a site-specific, department-approved ground water sampling and analysis plan.

NEW RULE VIII CLOSURE AND POST-CLOSURE CARE REQUIREMENTS

(1) An application for a TENORM waste management system license must contain closure and post-closure plans that comply with ARM Title 17, chapter 50, subchapter 14, except for ARM 17.50.1404(2)(a), and that include:

- (a) an estimated timeline and methods for closure and post-closure;
- (b) procedures for removal of any remaining TENORM wastes that have not been disposed of, and final disposal location;
- (c) procedures for equipment removal, including any necessary equipment decontamination and remediation procedures, and final disposal that is protective of human health and the environment;
- (d) closure of site buildings and appurtenances;
- (e) a process for soil sampling and analysis to identify potential areas of soil contaminated by system operations;
- (f) procedures for excavation and removal or remediation of stained or contaminated soil, with confirmation sampling procedures and analysis to demonstrate that human health and the environment is being protected; and
- (g) a proposed final closure date.

(2) Prior to the commencement of closure activities, the owner or operator of a TENORM waste management system shall submit a Notice of Intent to Close to the department.

(3) The owner or operator of a TENORM waste management system shall complete closure activities as described in the closure plan within 180 days after submittal of the Notice of Intent to Close.

(4) The owner or operator of a TENORM waste management system shall comply with any other post-closure care requirements determined by the department to be necessary to protect human health or the environment.

(5) Design of the final cover for a TENORM waste management system must ensure that, immediately after closure, the TEDE from all TENORM radionuclides does not exceed 25 mrem/y, excluding background radiation, at the licensed boundary.

(6) The owner or operator of a TENORM waste management system shall ensure that the limit in (5) is met immediately after closure.

AUTH: 75-10-204, MCA

IMP: 75-10-204, MCA

REASON: The department is proposing (1) to make the closure requirements for Class II facilities in ARM Title 17, chapter 50, subchapter 14 applicable to TENORM waste management systems. Class II facilities include the most protective controls of any category of solid waste management system to ensure the continued protection of human health and the environment. Subchapter 14 also covers closure deadlines and post-closure care requirements. ARM 17.50.1404(1) establishes a 30-year post-closure period for Class II landfills that the department may extend under ARM 17.50.1404(2). The department is proposing that TENORM waste management systems not be subject to ARM 17.50.1404(2)(a), which allows the department to shorten the 30-year post-closure period for solid waste management systems. This would ensure that the post-closure period for a TENORM management system is a minimum of 30 years. After 30 years, the department will re-evaluate the post-closure period and will increase it if necessary to protect human health and the environment.

Section (1) also adds requirements for closure and post-closure plans specific to TENORM waste management systems to address public concerns regarding human health and the environment. Specifically, (1) requires a timeline for closure, procedures for removing any remaining TENORM waste that has not been disposed of, equipment removal procedures, plans for closing site buildings and appurtenances, soil sampling and analysis, procedures for removing contaminated soil and associated confirmation sampling procedures and analysis, and a final closure date. These additional requirements would help ensure that closure and post-closure care of a TENORM waste management system provide a high level of protection.

The department is proposing (2) and (3) to require notice to the department of the date the TENORM waste management system plans to close so the appropriate fees can be assessed and a schedule can be set for the system to comply with the requirements in ARM Title 17, chapter 50, subchapter 14. Subchapter 14 sets the

time limit for meeting closure requirements of 180 days after the department has approved the closure and post-closure care plans based on the department's experience with waste system closures over the last 30 or more years. Closure within 180 days is reasonable and achievable while protecting human health and the environment.

The department is proposing (4) to require an owner or operator to comply with other requirements determined by the department to be necessary to protect health or the environment. This is necessary because site-specific concerns may not be foreseen or addressed in the TENORM waste management system license. The department needs the flexibility to impose other requirements if justified by health or environmental concerns.

The department is proposing (5) and (6) based upon scientific research. The Conference of Radiation Control Program Directors (CRCPD) recommends that sites released for unrestricted use meet the 25 mrem/y dose limit and the limit for radium concentrations in the soil. The American National Standards Institute (ANSI) standard N13.53 recommends an annual dose rate of 25 mrem/y above background from residual radioactivity (except radon and its short-lived decay products) from remediated land and facilities that have been released for unrestricted use. NRC sets a dose limit of 25 mrem/y for facilities released for unrestricted use (10 CFR 20.1402). Using 25 mrem/y for these rules is a conservative limit because, under current solid waste rules, closed solid waste management systems are not released to unrestricted use. The department believes that 25 mrem/y is an appropriate limit both to ensure continuity with other regulatory limits for unrestricted use and to ensure public health and the environment are protected.

NEW RULE IX FINANCIAL ASSURANCE (1) The owner or operator of a TENORM waste management system shall comply with the requirements of ARM 17.50.540 concerning financial assurance for Class II landfills.

AUTH: 75-10-204, MCA
IMP: 75-10-204, MCA

REASON: The department is proposing New Rule IX to require TENORM waste management systems to submit financial assurance under ARM 17.50.540, which is modeled after municipal solid waste landfill financial assurance requirements set forth in 40 CFR Part 258. Requiring TENORM waste management systems to submit financial assurance is reasonably necessary to ensure proper operation, closure, and post-closure care of the TENORM waste management system in the event the owner or operator becomes financially incapable or otherwise fails to do so.

NEW RULE X TENORM SPILL REPORTING REQUIREMENTS (1) A person who transports TENORM waste for processing or disposal shall comply with this rule.

(2) A person who transports TENORM waste shall comply with ARM 17.50.523.

(3) A person who spills TENORM waste shall, no later than 24 hours after the

spill occurs, report the spill to the Montana Disaster and Emergency Services at (406) 324-4777.

(4) Notification to the National Response Center may be required by other authority. The National Response Center may be reached at 800-424-8802.

(5) Nothing in this subchapter excuses compliance with permits, rules, or regulations of other state, local, or federal agencies.

(6) A person who spills one cubic yard or more of TENORM waste shall properly and expeditiously manage, contain, and remove all spills of TENORM wastes.

AUTH: 75-10-204, MCA

IMP: 75-10-204, MCA

REASON: The department is proposing this rule to establish spill reporting requirements for transporters of TENORM waste to ensure protection of human health and the environment.

The department is proposing (2) to require transporters of TENORM waste to cover and secure their loads and keep loads covered and secure while in transit in a manner that prevents discharge, dumping, or spilling from the transport vehicle.

The department is proposing (3), (4), and (5) to ensure transporters of TENORM waste report spills in a timely manner to the Montana Disaster and Emergency Services and other entities that may need to be notified. Montana Disaster and Emergency Services is the lead coordinator for comprehensive emergency management in Montana and provides quantifiable risk analysis and emergency response and recovery for communities.

The department is proposing (6) to require owners or operators to clean up spills to protect human health and the environment. Section (6) is modeled after the requirements in Montana DEQ's Spill Management and Reporting Policy (June 2015). The department is using its own Spill Management and Reporting Policy as a model to be consistent across the department when dealing with spills. A copy of this policy can be found at:

<https://deq.mt.gov/Portals/112/DEQAdmin/ENF/Documents/Reports/SpillPolicy.pdf>
or by contacting the department's solid waste program at (406) 444-5300.

5. Concerned persons may submit their data, views, or arguments, either orally or in writing, at the hearing. Written data, views, or arguments may also be submitted to Sandy Scherer, Legal Secretary, Department of Environmental Quality, 1520 E. Sixth Avenue, P.O. Box 200901, Helena, Montana 59620-0901; faxed to (406) 444-4386; or e-mailed to sscherer@mt.gov, no later than 5:00 p.m., October 21, 2019. To be guaranteed consideration, mailed comments must be postmarked on or before that date.

6. The department maintains a list of interested persons who wish to receive notices of rulemaking actions proposed by this agency. Persons who wish to have their name added to the list shall make a written request that includes the name, e-mail, and mailing address of the person to receive notices and specifies that the person wishes to receive notices regarding: air quality; hazardous waste/waste oil;

asbestos control; water/wastewater treatment plant operator certification; solid waste; junk vehicles; infectious waste; public water supply; public sewage systems regulation; hard rock (metal) mine reclamation; major facility siting; opencut mine reclamation; strip mine reclamation; subdivisions; renewable energy grants/loans; wind energy, wastewater treatment or safe drinking water revolving grants and loans; water quality; CECRA; underground/above ground storage tanks; MEPA; or general procedural rules other than MEPA. Notices will be sent by e-mail unless a mailing preference is noted in the request. Such written request may be mailed or delivered to Sandy Scherer, Legal Secretary, Department of Environmental Quality, 1520 E. Sixth Ave., P.O. Box 200901, Helena, Montana 59620-0901, faxed to the office at (406) 444-4386, e-mailed to Sandy Scherer at sscherer@mt.gov, or may be made by completing a request form at any rules hearing held by the department.

7. Norm Mullen, attorney for the department, has been designated to preside over and conduct the hearings.

8. The bill sponsor contact requirements of 2-4-302, MCA, do not apply.

9. With regard to the requirements of 2-4-111, MCA, the department has determined that the adoption of the above-referenced rules will not significantly and directly impact small businesses.

Reviewed by:

DEPARTMENT OF ENVIRONMENTAL
QUALITY

/s/ Edward Hayes

EDWARD HAYES

Rule Reviewer

BY: /s/ Shaun McGrath

SHAUN MCGRATH

Director

Certified to the Secretary of State August 13, 2019.