



**WEST VIRGINIA
SECRETARY OF STATE**

MAC WARNER

ADMINISTRATIVE LAW DIVISION

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OFFICE OF
WEST VIRGINIA SECRETARY OF STATE

**FORM 1 -- NOTICE OF A PUBLIC HEARING OR COMMENT PERIOD ON A PROPOSED RULE
(Page 1)**

AGENCY **Health**
RULE TYPE **Legislative** AMENDMENT TO EXISTING RULE No TITLE-SERIES **64-**
RULE NAME **Technologically Enhanced Naturally Occurring Radioactive Material** **23A**

CITE AUTHORITY **16-1-4(b)(2), (5) & (8), 16-1-6(m), 16-1-11**

COMMENTS LIMITED TO
Written

DATE OF PUBLIC HEARING

LOCATION OF PUBLIC HEARING

DATE WRITTEN COMMENT PERIOD ENDS
Thursday, July 27, 2017 4:00 PM

WRITTEN COMMENTS MAY BE MAILED TO
**Brian Skinner, General Counsel
Bureau of Public Health
350 Capitol Street, Room 702
Charleston, WV 25301**

BY CHOOSING 'YES', I ATTEST THAT THE PREVIOUS STATEMENTS ARE TRUE AND CORRECT.

Yes
Melanie A Pagliaro -- By my signature, I certify that I am the person authorized to file legislative rules, in accordance with West Virginia Code §29A-3-11 and §39A-3-2.



Title-Series: 64-23A



Rule Id: 16538



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**FORM 1 -- NOTICE OF A PUBLIC HEARING OR COMMENT PERIOD ON A PROPOSED RULE
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AGENCY	Health				
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RULE NAME	Technologically Enhanced Naturally Occurring Radioactive Material				23A

CITE AUTHORITY 16-1-4(b)(2), (5) & (8), 16-1-6(m), 16-1-11

PROVIDE A BRIEF SUMMARY OF YOUR PROPOSAL

The requirements of this rule series are designed to control the receipt, possession, use, transfer, and disposal of sources of radiation by a registrant so the total dose to an individual, including doses resulting from all sources of radiation other than background radiation, does not exceed the standards for protection against radiation prescribed by W.Va. Code R. § 64-23-6. Except as otherwise provided, this rule series applies to any person who receives, possesses, uses, processes, transfers, distributes, or disposes of technologically enhanced naturally occurring radioactive material (TENORM). This rule series does not apply to source material and byproduct material as both are defined in the Atomic Energy Act of 1954, as amended [42 U.S.C. 2011 et seq.] and relevant regulations implemented by the United States nuclear regulatory commission. This rule series establishes radiation protection standards for TENORM.

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Yes

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FORM 11 -- FISCAL NOTE FOR PROPOSED RULES (Page 1)

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CITE AUTHORITY 16-1-4(b)(2), (5) & (8), 16-1-6(m), 16-1-11

PRIMARY CONTACT

Brian J. Skinner, BPH General Counsel
350 Capitol Street Room 702

Charleston, WV 25301

SECONDARY CONTACT

Melanie A. Pagliaro, OCS
One Davis Square
Suite 100, East
Charleston, WV 25301

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CITE AUTHORITY 16-1-4(b)(2), (5) & (8), 16-1-6(m), 16-1-11

SUMMARIZE IN A CLEAR AND CONCISE MANNER WHAT IMPACT THIS MEASURE WILL HAVE ON COSTS AND REVENUES OF STATE GOVERNMENT.

This rule series establishes radiation protection standards for TENORM. These standards include the possession, use, processing, manufacture, distribution, transfer, and disposal of TENORM and of products containing TENORM. This rule series also provides for the licensing of TENORM, including registration termination. The provisions of this rule series are in addition to the definitions and applicable requirements of W.Va. Code R. § 64-23-1 et seq.

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FISCAL NOTE DETAIL -- SHOW OVER-ALL EFFECT IN ITEM 1 AND 2 AND, IN ITEM 3, GIVE AN EXPLANATION OF BREAKDOWN BY FISCAL YEAR, INCLUDING LONG-RANGE EFFECT.

Effect Of Proposal	Current Increase/Decrease (use ' - ')	Next Increase/Decrease (use ' - ')	Fiscal Year (Upon Full Implementation)
ESTIMATED TOTAL COST	36,205.00	72,410.00	72,410.00
PERSONAL SERVICES	28,517.00	57,035.00	57,035.00
CURRENT EXPENSES	7,688.00	15,375.00	15,375.00
REPAIRS AND ALTERATIONS			
ASSETS			
OTHER			
ESTIMATED TOTAL REVENUES	0.00	15,000.00	15,000.00

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3. EXPLANATION OF ABOVE ESTIMATES (INCLUDING LONG-RANGE EFFECT). PLEASE INCLUDE ANY INCREASE OR DECREASE IN FEES IN YOUR ESTIMATED TOTAL REVENUES.

The projected cost will be related to the reviewing of the required materials submitted along with the applications and necessary work to license TENORM generators. There will be cost associated with investigation and inspections of sites where technical assistance is requested or required. There will be a necessity to have staff trained and maintain a level of knowledge of radiological impacts including emergency response.

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PLEASE IDENTIFY ANY AREAS OF VAGUENESS, TECHNICAL DEFECTS, REASONS THE PROPOSED RULE WOULD NOT HAVE A FISCAL IMPACT, AND OR ANY SPECIAL ISSUES NOT CAPTURED ELSEWHERE ON THIS FORM.

This is a new program to the state of West Virginia and all the potential cost that may be associated with this program have not been fully developed. As the program develops, there may be new cost that are identified and the cost may increase.

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FORM 12 -- BRIEF SUMMARY AND STATEMENT OF CIRCUMSTANCES (Page 1)

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SUMMARIZE IN A CLEAR AND CONCISE MANNER CONTENTS OF CHANGES IN RULE AND STATEMENT OF CIRCUMSTANCES REQUIRING THE RULE.

TENORM is commonly associated with specific industries and practices. Examples include uranium mining and overburden, phosphate waste, coal waste, petroleum production scale and sludge, drinking water treatment, mineral mining/overburden and processing/extraction, geothermal wastes, and hydraulic fracturing. TENORM is primarily associated with NORM decay chains of uranium-238 and thorium-232 and their progeny. Radium and radon are the main risk drivers in these decay chains. TENORM can present serious health and safety hazards if it is not handled and disposed of properly. It has been predicted that the problems of TENORM waste will increase in the future because of the expansion of fracking technology, specifically with the exploration and production of shale and Marcellus gas. Most producers of TENORM are not required to have a radioactive materials license and may not have the radiological expertise necessary to deal with the myriad of TENORM waste streams. Recently, the Pennsylvania Department of Environmental Protection (PADEP) conducted radiological sampling and surveys at well sites, wastewater treatment plants, landfills, gas distribution facilities and facilities that use natural gas, and oil and gas brine-treated roads. Various

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samples of solids, liquids, natural gas, and ambient air were collected and analyzed for radiological constituents and in some cases additional parameters. The study contained a series of observations based upon the data compiled from the samples collected and surveys conducted:

There is a potential for radiological environmental impacts from spills of hydraulic fracturing fluid on natural gas well sites and from spills that could occur from the transportation and delivery of this fluid. (PADEP TENORM Study Report Section 9.0. p.9-2). The study indicated that Radium-226 was detected within the hydraulic fracturing fluid ranging from 64.0 21,000 pCi/L. Radium-228 was also detected ranging from 4.50 1,640 pCi/L. The hydraulic fracturing fluid was made up of a combination of fresh water, produced water, and reuse flowback fluid.

There is a potential for radiological environmental impacts from spills of flowback fluid on natural gas well sites and from spills that could occur from the transportation and delivery of this fluid. (PADEP TENORM Study Report Section 9.0. p.9-2). Radium-226 concentrations were detected within flowback fluid samples ranging from 551 25,500 pCi/L. Radium-228 was also detected ranging from 248 1,740 pCi/L.

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SUMMARIZE IN A CLEAR AND CONCISE MANNER CONTENTS OF CHANGES IN RULE AND STATEMENT OF CIRCUMSTANCES REQUIRING THE RULE.

There is a potential for radiological environmental impacts from spills of produced water from unconventional natural gas well sites and from spills that could occur from the transportation and delivery of this fluid. Radium-226 concentrations were detected in produced water samples ranging from 40.5 26,600 pCi/L. Radium-228 concentrations were also detected ranging from 26.0 1,900 pCi/L. (PADEP TENORM Study Report Section 9.0. pp.9-2 9-3). The Ra-226 activity in unconventional well site produced water is approximately 20 times greater than that observed in conventional well site produced water. The ratio of Ra-226 to Ra-228 in unconventional well site produced water is approximately eight times greater than that found in conventional well site produced water.

These findings are consistent with a study conducted in 2012, by the Conference of Radiation Control Program Directors (CRCPD) E-42 Task Force charged with examining and reviewing TENORM radiological, environmental, regulatory, and health and safety issues. After an extensive review, the E-42 Task Force made several recommendations to the CRCPD, including:

That training requirements for oil and gas TENORM workers be augmented. The E-42 Task Force prepared a set of proposed minimum training

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SUMMARIZE IN A CLEAR AND CONCISE MANNER CONTENTS OF CHANGES IN RULE AND STATEMENT OF CIRCUMSTANCES REQUIRING THE RULE.

requirements for oil and gas industry TENORM workers, as well as for persons providing such training, that it believed would meet the need for the augmented training. That the oil and gas industry develop and incorporate best management practices and/or guidance. These should address the need for applications for oil and gas facilities and other supporting facilities, such as produced water treatment facilities, to include, as part of the overall licensing and permitting process, evaluations of the degree to which TENORM might be produced and/or handled at the facility. The applications should also address the potential doses that might be experienced by workers and members of the public, and the types, quantities and characteristics of TENORM waste that might be associated with such facilities. The level of detail of the evaluations should be commensurate with the potential magnitude of the anticipated impacts. Because there exists ample evidence that oil and gas operations pose a risk of radiation exposure to workers and the public, the Bureau considers it necessary to require the registration of entities that receive, possess, use, transfer, own or acquire TENORM, and require those registered entities to implement applicable safety requirements. The

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SUMMARIZE IN A CLEAR AND CONCISE MANNER CONTENTS OF CHANGES IN RULE AND STATEMENT OF CIRCUMSTANCES REQUIRING THE RULE.

proposed rules establish safety requirements intended to reduce, to an acceptable level, the risk that any person is likely to be injured by the radiation. See W.Va. Code R. § 64-23-1.1.

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64CSR 23.A

TITLE 64

LEGISLATIVE RULE
BUREAU OF HEALTH AND HUMAN RESOURCES
BUREAU FOR PUBLIC HEALTH

SERIES 23.A
TECHNOLOGICALLY ENHANCED NATURALLY OCCURRING RADIOACTIVE MATERIAL

§64-23.A-1. General.

1.1. **Scope.** -- The requirements of this rule series are designed to control the receipt, possession, use, transfer, and disposal of sources of radiation by any registrant so the total dose to an individual, including doses resulting from all sources of radiation other than background radiation, does not exceed the standards for protection against radiation prescribed by *W.Va. Code R. § 64-23-6*. However, nothing in this rule series may be construed as limiting actions that may be necessary to protect health and safety in an emergency.

1.2. **Authority.** -- *W.Va. Code § 16-1-4(b)(3) & (8)*, *W.Va. Code § 16-1-6(n)*, and *W.Va. Code § 16-1-11*.

1.3. **Filing Date.** --

1.4. **Effective Date.** --

1.5 **Sunset Provision.** -- This rule shall terminate and have no further force or effect upon the expiration of 5 years from its effective date.

1.6. **Applicability** – Except as otherwise provided, this rule series applies to any person who receives, possesses, uses, processes, transfers, distributes, or disposes of technologically enhanced naturally occurring radioactive material (TENORM). This rule series does not apply to source material and byproduct material as both are defined in the Atomic Energy Act of 1954, as amended [42 U.S.C. 2011 et seq.] and relevant regulations implemented by the United States nuclear regulatory commission.

1.7. **Purpose.** This rule series establishes radiation protection standards for TENORM. These standards include the possession, use, processing, manufacture, distribution, transfer, and disposal of TENORM and of products containing TENORM. This rule series also provides for the licensing of TENORM, including registration termination. The provisions of this rule series are in addition to the definitions and applicable requirements of *W.Va. Code R. § 64-23-1 et seq.*

1.8. **Exemptions.** --

1.8.a. Persons who receive, possess, use, process, transfer, distribute, or dispose of TENORM are exempt from the requirements of this rule series with respect to any combination of radium-226 and radium-228 if the materials contain, or are contaminated at, concentrations less than one hundred eighty five becquerel per kilogram [five picocuries per gram (5.0 pCi/g)] excluding natural background. The progeny of the exempt TENORM radium-226 and radium-228 are also exempt.

1.8.b. Persons who receive products or materials containing TENORM distributed in accordance

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with a registration issued by the Bureau pursuant to subsection 1 of section 4, or to an equivalent registration issued by another licensing state, are exempt from this rule series with regard to those products or materials.

1.8.c. Persons who receive, possess, use, process, transfer and distribute, including preparation of custom blends for distribution, phosphate or potash ore-based fertilizers containing TENORM are exempt from this rule series.

1.8.d. Persons who possess TENORM waste regulated by the Comprehensive Environmental Response, Compensation and Liability Act, as amended [42 U.S.C. 9601 et seq.] or by the Resource Conservation and Recovery Act, as amended [42 U.S.C. 6901 et seq.] or equivalent state authority are exempt from this chapter for the TENORM waste regulated by either of these federal acts.

1.8.e. Other persons who possess or use TENORM shall be exempt when the Bureau makes a determination, upon its own initiative or upon request for such determination, that the reasonably maximally exposed individual will not receive a public dose with a total effective dose equivalent (TEDE) of more than one millisievert [one hundred millirem] in one year from all registered sources of radiation including TENORM.

1.8.f. Persons who possess TENORM in the form of coal combustion residuals (i.e., fly ash waste, bottom ash waste, slag waste and flue gas emission control waste) from energy conversion facilities are exempt from this rule series.

§64-23.A-2. Definitions.

The terms used throughout this rule have the same meaning as in *W.Va. Code R. § 64-23-1 et seq.*, except:

- 2.1. "Applicant" means a person applying for a registration under this rule series and includes any individual or entity that owns or controls the applicant.
- 2.2. "Beneficial to the product" means that the radioactivity of the TENORM is necessary to the use of the product.
- 2.3. "Bureau" means the Bureau for Public Health in the Bureau of Health and Human Resources.
- 2.4. "Commissioner" means the Commissioner of the Bureau for Public Health or his or her designee.
- 2.5. "DEP" means the West Virginia Department of Environmental Protection.
- 2.6. "Generator" means any person whose act or process produces TENORM or whose act first causes the TENORM to become subject to regulation.
- 2.7. "Product" means something produced, made, manufactured, refined, or beneficiated.
- 2.8. "Radiation safety officer" means an individual with the responsibility for the overall radiation safety program on behalf of the registrant and who meets the requirements of section 12.
- 2.9. "Reasonably maximally exposed individual" means a representative of a population who is exposed to TENORM at the maximum TENORM concentration measured in environmental media found at a site along with reasonable maximum case exposure assumptions. The exposure is determined by using maximum values for one or more of the most sensitive parameters affecting exposure, based on cautious but reasonable assumptions, while leaving the others at their mean value.
- 2.10. "Reclaiming" means returning property to a condition or state such that the property no longer presents a health or safety hazard or threat to the environment; the term "reclaiming"

includes those activities necessary to decommission the registered facility (i.e., to remove, as a facility, safely from service and reduce residual radioactivity to a level that permits release of the property for unrestricted use and termination of the registration).

- 2.11. "Residual radioactivity" means radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the registrant's control. This includes radioactivity from all registered and unregistered sources used by the registrant, but excludes background radiation. It also includes radioactive materials remaining at the site as a result of routine or accidental releases of radioactive material at the site and previous burials at the site.
- 2.12. "Tank" means a stationary device, other than a container as described in subsection 2 of section 3, designed to contain an accumulation of TENORM waste, which is constructed primarily of nonearthen materials (e.g., wood, concrete, steel or plastic), which provide structural support.
- 2.13. "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 or soils. TENORM does not include "source material" and "byproduct material" as both are defined in the Atomic Energy Act of 1954, as amended [42 U.S.C. 2011 et seq.] and relevant regulations implemented by the United States nuclear regulatory commission.
- 2.14. "Transfer" means the physical relocation of TENORM within a business' operation or between registrants. This term does not include commercial distribution or a change in legal title to TENORM that does not involve physical movement of those materials.

§64-23.A-3. Disposal and transfer of waste for disposal.

- 3.1. Each person subject to this rule series' licensing requirements shall manage and dispose of wastes containing TENORM:
 - 3.1.a. By transfer of the wastes for storage, treatment, or disposal at a facility authorized to accept wastes containing TENORM by the DEP or other applicable state or federal agency;
 - 3.1.b. By transfer for disposal in another state as otherwise approved by the applicable governmental authority; or
 - 3.1.c. In accordance with alternate methods authorized by the Bureau or other applicable state or federal agency.
- 3.2. Drums or shipping containers of TENORM waste which are not of an average concentration must not exceed an average concentration of 50.0 picocuries per gram of Radium-226 plus Radium-228, unless the drums or shipping containers containing TENORM are being utilized to transfer the TENORM for disposal in another state as otherwise approved by the applicable governmental authority; or in accordance with alternate methods authorized by the Bureau or other applicable state or federal agency.
- 3.3. Equipment contaminated with TENORM which does not exceed a maximum exposure level of one hundred microrentgen per hour, including background radiation, at any accessible location may be disposed in a landfill which complies with *W.Va. Code § 22-15-8.*
- 3.4. Containers:
 - 3.4.a. TENORM waste shall be kept in a leak-proof container.

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- 3.4.b. The registrant shall use a container made of, or lined with, materials that will not react with, or be incompatible with the TENORM waste to be stored so that the ability of the container to contain the waste is not impaired or compromised.
- 3.4.c. A container containing TENORM waste shall always be closed and sealed during storage or while in transport, except when it is necessary to add or remove waste.
- 3.4.d. A container containing TENORM waste may not be opened, handled, or stored in a manner that may rupture the container or cause it to leak.
- 3.4.e. At least quarterly, the registrant shall inspect areas where containers of TENORM waste are stored, looking for leaking or deteriorating containers or containment systems.
- 3.4.f. All containers of TENORM waste shall be stacked in such a manner that each container identification label can be read from the access aisle or area.
- 3.4.g. Each container of TENORM waste shall be labeled with the following information prior to storage:
 - 3.4.g.1. Name and address of generator.
 - 3.4.g.2. Type of material (e.g., sludge, scale, dirt, scrap metal, et cetera).
 - 3.4.g.3. Date stored.
 - 3.4.g.4. Labeled as radioactive material.
- 3.4.h. Records of inspections shall be maintained by the registrant for inspection by the Bureau for five years.
- 3.5. Tanks containing TENORM.
 - 3.5.a. The registrant shall develop a schedule and procedure for assessing the condition of each tank containing TENORM waste in conformance with the requirement *W.Va. Code R. § 47-63-1 et seq.*, The schedule and procedure must be adequate to detect cracks, leaks, corrosion and erosion that may lead to cracks, leaks, or wall thinning to less than the required thickness to maintain vessel integrity. Procedures for emptying a tank to allow entry, procedures for personnel protection, and inspection of the interior must be established when necessary to detect corrosion of the tank sides and bottom. Records shall be maintained for a period of 5 years.
- 3.6. Each shipment of TENORM shall be accompanied by a manifest containing all of the following information prior to leaving the registrant's site:
 - 3.6.a. The registrant's name, physical site address and telephone number;
 - 3.6.b. The name, address, telephone number and radioactive material registration number of each transporter;
 - 3.6.c. The name, address and telephone number of the designated disposal facility;
 - 3.6.d. The description of the waste material; and
 - 3.6.e. The total quantity of all TENORM waste by units of weight in tons or cubic yards and the number and type of containers.
- 3.7. The following certification must appear on the manifest and be signed and dated by the registrant as follows:

"I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labeled, and are in

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all respects in proper condition for transport according to applicable international and national government regulations.”

- 3.8. The registrant shall:
- 3.8.a. Sign and date the manifest upon initial transporter acceptance of the waste material;
 - 3.8.b. Obtain the signature of the initial transporter and date of the acceptance of the manifest;
 - 3.8.c. Retain one copy for a period of not less than 3 years;
 - 3.8.d. Provide the initial transporter the remaining copies of the manifest; and
 - 3.8.e. Receive the fully signed copy of the manifest from the designated disposal facility within forty-five days from the delivery to the initial transporter. In the event the registrant does not receive the signed manifest within this period, the registrant shall:
 - 3.8.e.1. Notify the Bureau within seven days;
 - 3.8.e.2. Conduct an investigation into the reason the manifest was not received; and
 - 3.8.e.3. Report the results of the investigation to the Bureau within thirty (30) days.
- 3.9. The registrant shall file with the Bureau a quarterly summary report stating the date, type and total quantity by weight in tons or cubic yards, generator and final disposal facility of each TENORM transferred. Each report shall be filed within thirty days of the end of each quarter. If no transfers of TENORM have been made during the reporting period, the report must so indicate. Quarterly summary reports shall be maintained for a period of 3 years.

§64-23.A-4. Registrations.

- 4.1. As required by *W.Va. Code R. § 64-23-1 et seq.*, a registration is hereby necessary to possess, use, transfer, distribute or dispose of TENORM without regard to quantity.
- 4.2. Employees or contractors under control and supervision of a registrant may perform routine maintenance on equipment, facilities, and land owned or controlled by the registrant. Maintenance that provides a pathway for exposure different from that found in periodic maintenance operations and that increases the potential for additional exposure is not considered routine maintenance. The decontamination of equipment, facilities, and land shall be performed only by persons registered by the Bureau.
- 4.3. Any person subject to the registration issued under this rule series shall notify the Bureau within sixty days of the effective date of this rule series or of becoming subject to the provisions of this rule. The notification shall include the following:
 - 4.3.a. Name and address of the registrant;
 - 4.3.b. Location and description of the facility, facilities, or portion of a facility where the TENORM is situated; and
 - 4.3.c. Description of the TENORM including estimates of the amount and extent of TENORM.
- 4.4. Transfer of material, equipment or real property.
 - 4.4.a. The transfer of TENORM from one registrant to another registrant is authorized if:
 - 4.4.a.1. The equipment and facilities contaminated with TENORM are to be used by the recipient for a similar purpose, provided that no member of the public shall receive a dose in excess of that allowed under *W.Va. Code R. § 64-23-6.13.*; or

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- 4.4.a.2. The transfer of control or ownership of land contaminated with TENORM includes an annotation of the deed records to indicate the presence of TENORM.
- 4.4.b. For transfers not made in accordance with § 4.4.a, the transferor shall obtain the Bureau's prior written approval for the transfer.
- 4.4.c. For transfers made under § 4.4.a, the transferor shall assess the amount and extent of TENORM contamination or material present, inform the registrant receiving the TENORM of these assessments prior to such transfer, and maintain records that include:
 - 4.4.c.1. The date, recipient name and location;
 - 4.4.c.2. A description and quantity of the material; and
 - 4.4.c.3. A description of the procedures and mechanisms used to ensure that material will not be released in another manner, such as an unrestricted release.
- 4.5. Distribution of TENORM between registrants. The distribution of TENORM from one registrant to another registrant is authorized provided the TENORM is accompanied by labels or manifests which identify the type and amount of TENORM.

§64-23.A-5. Application and background review for registrations.

- 5.1. Applications for registrations shall be filed in a manner and on a form prescribed by the Bureau with a registration fee of \$500.00.
- 5.2. The Bureau at any time after the filing of the original application, and before the termination of the registration, require further statements in order to enable the Bureau to determine whether the application shall be granted or denied or whether a registration shall be modified or revoked.
- 5.3. Unless the applicant currently holds a permit issued by the DEP pursuant to *W.Va. Code §§ 22-6A-1 et seq.*, an applicant must provide information required by the Bureau to complete an environmental compliance background review, including:
 - 5.3.a. Consent to a criminal history check, unless the applicant currently holds a permit issued by the DEP pursuant to *W.Va. Code §§ 22-6A-1 et seq.*
 - 5.3.b. Disclosure of personal and business information on a form provided by the Bureau, executed under oath or affirmation, which includes:
 - 5.3.b.1. The person's name and address;
 - 5.3.b.2. A description of the person's experience in managing the type of TENORM that will be managed under the registration;
 - 5.3.b.3. A description of every civil and administrative complaint against the person for the violation of any state or federal environmental protection law which has resulted in a fine or penalty of more than ten thousand dollars within five years before the date of the submission of the application;
 - 5.3.b.4. A description of every settlement agreement entered into by the person with a federal or state agency to resolve any alleged violation of any state or federal public health or environmental protection law which has resulted in a payment of more than ten thousand dollars within five years before the date of the submission of the application;

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- 5.3.b.5. A description of every pending notice of violation, civil complaint, administrative complaint, or criminal complaint alleging the violation of any state or federal public health or environmental protection law;
- 5.3.b.6. A description of every judgment of criminal conviction entered against the applicant within five years before the date of submission of the application for the violation of any state or federal public health or environmental protection law;
- 5.3.b.7. A description of every judgment of criminal conviction of a felony constituting a crime involving fraud or misrepresentation under the laws of any state or of the United States which has been entered against the applicant within five years before the date of submission of the application; and
- 5.3.b.8. Any other information the Bureau deems relevant.
- 5.3.c. Unless the applicant currently holds a permit issued by the DEP pursuant to *W.Va. Code §§ 22-6A-1 et seq.*, in addition to the applicant, the following related individuals and entities may be required to submit personal and business disclosure information:
 - 5.3.c.1. Each entity that is, or is proposed to be:
 - 5.3.c.1.A. A partner;
 - 5.3.c.1.B. An entity contracted with the applicant to operate, manage or supervise the facility or activities for which approval is being sought;
 - 5.3.c.1.C. An entity holding of 10% or more of the applicant's debt;
 - 5.3.c.1.D. An entity holding 10% or more of the applicant's equity;
 - 5.3.c.1.E. The parent corporation, holding corporation, and any other entity that exercises control over the facility or activities for which approval is being sought.
 - 5.3.c.2. Each individual which has, or is proposed to have, any of the following relationships with the applicant:
 - 5.3.c.2.A. Director;
 - 5.3.c.2.B. Partner;
 - 5.3.c.2.C. Officer;
 - 5.3.c.2.D. All individuals having managerial or supervisory or substantial decision-making authority and responsibility for the management of operations involving TENORM;
 - 5.3.c.2.E. Holder of 10% or more of the applicant's debt;
 - 5.3.c.2.F. Holder of 10% or more of the applicant's equity.
- 5.4. The Bureau may deny an application for the issuance, renewal, transfer, or major modification based on its public health and environmental compliance background review.
 - 5.4.a. Circumstances justifying denial include:
 - 5.4.a.1. The applicant has intentionally misrepresented or concealed any material fact in a statement required under this section;
 - 5.4.a.2. The applicant or related individual or entity has been convicted of a felony or pleaded guilty or nolo contendere to a felony involving the laws of any state or the federal government within five years preceding the application for the registration;

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- 5.4.a.3. The applicant or related individual or entity has been adjudicated in contempt of an order of any court enforcing the laws of this state or any other state or the federal government within five years preceding the application for the registration; or
- 5.4.a.4. The applicant or related individual or entity has repeatedly violated any state or federal public health or environmental protection laws.
- 5.4.b. The Bureau shall consider the relevance of the offense to the business to which the registration is issued, the nature and seriousness of the offense, the circumstances under which the offense occurred, the date of the offense, and the ownership and management structure in place at the time of the offense.
- 5.5. Each application shall be signed by the applicant or a person duly authorized to act for and on the applicant's behalf.
- 5.6. An application for a registration may include a request for a registration authorizing one or more activities.
- 5.7. Each application for a registration shall be accompanied by the fee prescribed in Subsection 5.1.

§64-23.A-6. Requirements for the issuance of registrations.

- 6.1. A registration application will be approved if the Bureau determines that:
 - 6.1.a. The applicant is qualified by reason of training and experience to use the TENORM in question for the purpose requested in accordance with *W.Va. Code R. § 64-23-1 et seq.*, in such a manner as to protect the public health and safety or property;
 - 6.1.b. The applicant's proposed equipment, facilities, and procedures are adequate to protect the public health and safety or property;
 - 6.1.c. The issuance of the registration will not constitute a significant risk to the health and safety of the public;
 - 6.1.d. The applicant satisfied all applicable special requirements in this rule series;
 - 6.1.e. The applicant has met the financial assurance requirements of section 15;
 - 6.1.f. The applicant has adequately addressed the following items in the application:
 - 6.1.f.1. Procedures and equipment for monitoring and protecting workers;
 - 6.1.f.2. An evaluation of the radiation levels and concentrations of contamination expected during normal operations;
 - 6.1.f.3. Operating and emergency procedures, including contractors expected to be used during emergencies and procedures for waste reduction and quality assurance of items released for unrestricted use; and
 - 6.1.f.4. A method for managing the radioactive material removed from contaminated equipment, facilities, and land.
 - 6.1.g. For each location to be listed on the registration as an authorized use location, the applicant shall submit either:
 - 6.1.g.1. A statement that the applicant owns the facility where radioactive material is to be used or stored; or

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- 6.1.g.2. A statement verifying that the facility owner has been informed, in writing, of the use or storage of radioactive material at the facility, and that the use of such material is subject to the rules of the Bureau.
- 6.1.h. Submission of the registration fee required by Subsection 5.1.

§64-23.A-7. Issuance of registrations.

- 7.1. Upon a determination that an application meets the requirements of *W.Va. Code R. § 64-23-1 et seq.*, the Bureau will issue a registration authorizing the proposed activity in such form and containing such conditions and limitations as it deems appropriate or necessary.
- 7.2. The Bureau may incorporate in any registration at the time of issuance, or thereafter by amendment, such additional requirements and conditions with respect to the registrant's receipt, possession, use, and transfer of TENORM subject to this rule series as it deems appropriate or necessary in order to:
 - 7.2.a. Protect public health and safety or property;
 - 7.2.b. Require such reports and the keeping of such records, and to provide for such inspections of activities under the registration as may be appropriate or necessary; and
 - 7.2.c. Prevent loss, theft, or loss of control of TENORM subject to this rule series.

§64-23.A-8. Conditions of registrations.

- 8.1. General terms and conditions.
 - 8.1.a. Each registration issued under this rule series shall be subject to all the provisions to all rules and orders of the Bureau.
 - 8.1.b. No registration issued or granted under this rule series and no right to possess or utilize TENORM granted by any registration issued under this rule series shall be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of any registration to any person unless the Bureau shall, after securing full information, find that the transfer is in accordance with the provisions of *W.Va. Code R. 64-23-1 et seq.* and shall give its consent in writing.
 - 8.1.c. Each person registered under this rule series shall confine use and possession of the TENORM registration to the locations and purposes authorized in the registration.
 - 8.1.d. Transfer of control. Within thirty (30) days of the existence of any new controlling individual or entity, the registrant shall submit to the Bureau the name of the controlling individual or entity and a statement signed by the controlling individual or entity in which the controlling individual or entity agrees to accept responsibility for the registration. The controlling individual or entity must undergo a public health and environmental compliance background review under section 5.
- 8.2. Notification of bankruptcy.
 - 8.2.a.1. Each registrant shall notify the Bureau, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any chapters of Title 11 (Bankruptcy) of the United States Code by or against:
 - 8.2.a.1.A. The registrant;

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- 8.2.a.1.B. An entity [as that term is defined in 11 U.S.C. 101(15)] controlling a registrant or listing the registration or registrant as property of the estate; or
- 8.2.a.1.C. An affiliate [as that term is defined in 11 U.S.C. 101(2)] of the registrant.
- 8.2.a.2. This notification shall indicate:
 - 8.2.a.2.A. The bankruptcy court in which the petition for bankruptcy was filed; and
 - 8.2.a.2.B. The date of the filing of the petition.
- 8.3. Each registrant shall notify the Bureau in writing prior to commencing activities to reclaim the registered facility and site.
- 8.4. Notification of site or area closure. When a registrant has permanently ceased use of radioactive materials at a site or portion of a facility and the registrant has not decontaminated the area, or when an area has not been used for a period of two years, the registrant shall, within sixty days, provide the following information in writing to the Bureau:
 - 8.4.a.1. The location of the facility, site, or area;
 - 8.4.a.2. The plan for reclaiming or decontaminating the facility, site or area; and
 - 8.4.a.3. An evaluation of any changes to the financial assurance submitted in accordance with section 15.

§64-23.A-9. Expiration and termination of registrations.

- 9.1. Except as provided in subsection 10.2, the authority to engage in activities as specified in the registration shall expire at the end of the specified day in the month and year stated therein. Any expiration date on a registration applies only to the authority to engage in registered activities. Expiration of a registration does not relieve the registrant of responsibility for decommissioning its facility and terminating the registration.
- 9.2. Each registrant shall notify the Bureau immediately, in writing, and request termination of the registration when the registrant decides to terminate all activities involving radioactive materials authorized under the registration. This notification and request for termination shall include the documents required by subsection 9.4 or in the case of a registrant who operates a landfill permitted by the DEP pursuant to *W.Va. Code §§ 22-6A-1 et seq.*, by subsection 9.5, and shall otherwise substantiate that the registrant has met all requirements of subsections 9.4 or 9.5.
- 9.3. No less than thirty days before the expiration date specified in a registration, the registrant shall either:
 - 9.3.a. Submit an application for registration renewal pursuant to section 10; or
 - 9.3.b. Notify the Bureau, in writing, if the registrant decides not to renew the registration. The registrant requesting termination of a registration shall comply with the requirements of subsection 9.4;
- 9.4. Termination of registrations.
 - 9.4.a. If a registrant does not submit a complete application for registration renewal pursuant to section 10, the registrant shall, on or before the expiration date specified in the registration:
 - 9.4.a.1. Terminate use of the TENORM specified in the registration;

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- 9.4.a.2. Except for the TENORM properly disposed of in the landfill itself, remove radioactive contamination to the level outlined in *W.Va. Code R. § 64-23-1 et seq.*, to the extent practicable;
- 9.4.a.3. Properly dispose of the TENORM specified in the registration;
- 9.4.a.4. Submit a completed form "Certificate: disposition of radioactive material"; and
- 9.4.a.5. Submit a radiation monitoring report to confirm the absence of TENORM specified in the registration (except for the TENORM properly disposed of in the landfill itself) or to establish the levels of residual radioactive contamination, unless the registrant demonstrates the absence of residual radioactive contamination in some other manner acceptable to the Bureau. The radiation monitoring report shall specify the instrumentation used and certify that each instrument was properly calibrated and tested. The registrant shall, as applicable, report levels or quantities of:
 - 9.4.a.5.A. Beta and gamma radiation at one centimeter from surfaces in units, multiples, or subunits of sieverts or rem per hour or microroentgens per hour;
 - 9.4.a.5.B. Gamma radiation at one meter from surfaces in units, multiples, or subunits of sieverts or rem per hour or microroentgens per hour;
 - 9.4.a.5.C. Removable radioactivity on surfaces in units, multiples, or subunits of becquerels or curies per one hundred square centimeters of surface area or in disintegrations (transformations) per minute per one hundred square centimeters of surface area;
 - 9.4.a.5.D. Fixed radioactivity on surfaces in units, multiples, or subunits of becquerels or curies per one hundred square centimeters of surface area or in disintegrations (transformations) per minute per one hundred square centimeters of surface area;
 - 9.4.a.5.E. Radioactivity in contaminated liquids such as water, oils or solvents in units, multiples, or subunits of becquerels or curies per milliliter of volume or per gram of liquid; and
 - 9.4.a.5.F. Radioactivity in contaminated solids such as soils or concrete in units, multiples, or subunits of becquerels or curies per gram of solid.
- 9.4.b. If levels of residual radioactive contamination attributable to activities conducted under the registration are less than those established in *W.Va. Code R. § 64-23-1 et seq.*, the registrant shall so certify. If the Bureau determines that this certification and the information submitted under subdivision 9.4.a., is adequate and monitoring confirms the findings, then the Bureau will notify the registrant, in writing, of the termination of the registration.
- 9.4.c. If residual radioactive contamination attributable to activities conducted under the registration are not in conformance with criteria established *W.Va. Code R. § 64-23-1 et seq.*
 - 9.4.c.1. The registration continues in effect beyond the expiration date, if necessary, with respect to possession of residual TENORM present as contamination until the Bureau notifies the registrant in writing that the registration is terminated. During this time, the registrant is subject to the provisions of subsection 9.5.

- 9.4.c.2. In addition to the information submitted under subdivision a of subsection 9.4, the registrant shall submit a plan for decontamination and disposal, if required, as regards residual TENORM contamination remaining at the time the registration expires.
- 9.5. Each registrant who possesses TENORM under subdivision 9.4.c., following the expiration date specified in the registration, shall:
- 9.5.a. Limit actions involving TENORM as specified in the registration to those related to decontamination and other activities related to preparation for release for unrestricted use; and
- 9.5.b. Continue to control entry to restricted areas until they are suitable for release for unrestricted use and the Bureau notifies the registrant in writing that the registration is terminated.

§64-23.A-10. Renewal of registrations.

- 10.1. Applications for renewal of registrations shall be filed in accordance with section 5.
- 10.2. In any case in which a registrant, not less than thirty days prior to expiration of an existing registration, has filed an application in proper form for renewal or for a new registration authorizing the same activities, the existing registration does not expire until final action by the Bureau.

§64-23.A-11. Amendment of registrations at request of registrant.

Applications for amendment of a registration shall be filed in accordance with section 5 and shall specify the respects in which the registrant desires the registration to be amended and the grounds for such amendment.

§64-23.A-12. Bureau action on applications to renew and amend registrations.

In considering an application by a registrant to renew or amend the registration, the Bureau will apply the criteria set forth in section 6.

§64-23.A-13. Modification and revocation of registrations.

- 13.1. The terms and conditions of all registrations shall be subject to amendment, revision, or modification or the registration may be suspended or revoked by reason of amendments to the rules and orders issued by the Bureau.
- 13.2. Any registration may be revoked, suspended, or modified, in whole or in part, for any material false statement in the application or because of conditions revealed by such application or any report, record, or inspection or other means which would warrant the Bureau to refuse to grant a registration on an original application, or for violation of, or failure to observe any of the terms and conditions of *W.Va. Code R. § 64-23-1 et seq.*, or of the registration, or of any rule or order of the Bureau.

§64-23.A-14. Record keeping requirements for site reclamation.

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Each registrant shall keep records of information important to the safe and effective reclamation of a facility in an identified location until the registration is terminated by the Bureau. If records of relevant information are maintained for other purposes, reference to these records and their locations may be used. The records must include the following information:

- 14.1. Records of spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment or site. These records may be limited to instances when contamination remains after any cleanup procedures or when there is reasonable likelihood that contaminants may have spread to inaccessible areas as in the case of possible seepage into porous materials such as concrete. These records shall include any known information on identification of involved radionuclides, quantities, forms and concentrations.
- 14.2. As-built drawings and modifications of structures and equipment in restricted areas where radioactive materials are used or stored, and of locations of possible inaccessible contamination, such as buried pipes which may be subject to contamination. If required drawings are referenced, each relevant document need not be indexed individually. If drawings are not available, the registrant shall substitute appropriate records of available information concerning these areas and locations.
- 14.3. If required by section 15, records of this reclaiming cost estimate prepared for the amount approved by the Bureau for reclaiming.

§64-23.A-15. Financial assurance arrangements.

Unless the registrant or applicant holds a permit issued by the DEP pursuant to *W. Va. Code* §§ 22-6A-1 *et seq.*, each registrant or applicant for a registration shall post with the Bureau financial assurance, or security, to ensure the protection of the public health and safety and the environment in the event of abandonment, default, or other inability or unwillingness of the registrant to meet the requirements of *W. Va. Code R. § 64-23-1 et seq.* Financial assurance arrangements shall:

- 15.1. Consist of surety bonds, government securities, irrevocable letters of credit, corporate guarantees, insurance, state funds, or any combination of these;
- 15.2. Be in an amount sufficient to meet the applicant's or registrant's obligations under *W. Va. Code R. § 64-23-1 et seq.* and shall be based upon Bureau approved cost estimates;
- 15.3. Be established prior to issuance of the registration or the commencement of operations to assure that sufficient funds will be available to carry out the decontamination and decommissioning of the facility;
- 15.4. Be continuous for the duration of the registration and for a period coincident with the applicant or registrant's responsibility under *W. Va. Code R. § 64-23-1 et seq.*;
- 15.5. Be available in West Virginia subject to judicial process and execution in the event required for the purposes set forth; and
- 15.6. Be established within ninety days of the initial effective date of this rule series for registrations in effect on that date.

§64-23.A-16. Radiation protection program required.

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- 16.1. Each registrant shall develop, document, and implement a radiation protection program sufficient to ensure compliance with the provisions of *W.Va. Code R. § 64-23-6*.
- 16.2. The registrant shall use, to the extent practicable, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and public doses that are as low as is reasonably achievable (ALARA).
- 16.3. The registrant shall, at intervals not to exceed twelve (12) months, review the radiation protection program content and implementation.
- 16.4. A registrant shall appoint a Radiation Safety Officer, who agrees, in writing, to be responsible for implementing the radiation protection program. The registrant, through the Radiation Safety Officer, shall ensure that radiation safety activities are being performed in accordance with registrant-approved procedures and regulatory requirements.
- 16.5. A registrant shall establish, in writing, the Radiation Safety Officer's authority, duties, and responsibilities.
- 16.6. A registrant shall provide the Radiation Safety Officer sufficient authority, organizational freedom, time, resources, and management prerogative, to:
 - 16.6.a. Identify radiation safety problems;
 - 16.6.b. Initiate, recommend, or provide corrective actions;
 - 16.6.c. Stop unsafe operations; and
 - 16.6.d. Verify implementation of corrective actions.
- 16.7. A registrant shall require all individuals employed at a facility, facilities, or portion of a facility where the TENORM is situated or who operates equipment used to transport TENORM waste to annually complete a Bureau approved training program consisting of eight hours of classroom training in the following areas:
 - 16.7.a. Characteristics of radiation;
 - 16.7.b. Units of radiation dose and quantity of radioactivity;
 - 16.7.c. Hazards of exposure to radiation;
 - 16.7.d. Radiation detection and measurement;
 - 16.7.e. Minimizing radiation exposure (time, distance, shielding, and respiratory precautions);
 - 16.7.f. Use and types of personnel-monitoring equipment;
 - 16.7.g. Proper use of protective equipment; and
 - 16.7.h. Transportation of registered material.
- 16.8. A registrant shall retain a record of actions taken under subsections 16.1 and 16.2 of this section for five years.

§64-23.A-17. Radiation safety officer – qualifications.

- 17.1. Except for registrations exclusive to the transport of TENORM waste, the registrant shall require an individual fulfilling the responsibilities of the Radiation Safety Officer as provided in 16 to be an individual who has completed a Bureau approved training program consisting of forty hours of classroom training and an eight-hour annual refresher training in the following areas:
 - 17.1.a. Characteristics of radiation;

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- 17.1.b. Units of radiation dose and quantity of radioactivity;
 - 17.1.c. Hazards of exposure to radiation;
 - 17.1.d. Radiation detection and measurement;
 - 17.1.e. Minimizing radiation exposure (time, distance, shielding, and respiratory precautions);
 - 17.1.f. Use and types of personnel-monitoring equipment;
 - 17.1.g. Proper use of protective equipment; and
 - 17.1.h. Transportation of registered material.
- 17.2. For registrations, exclusive to the transport of TENORM waste, the registrant shall require an individual fulfilling the responsibilities of the Radiation Safety Officer to be an individual who has completed a Bureau approved training program consisting of eight hours of classroom training in the following areas:
- 17.2.a. Characteristics of radiation;
 - 17.2.b. Units of radiation dose and quantity of radioactivity;
 - 17.2.c. Hazards of exposure to radiation;
 - 17.2.d. Radiation detection and measurement;
 - 17.2.e. Minimizing radiation exposure (time, distance, shielding, and respiratory precautions);
 - 17.2.f. Use and types of personnel-monitoring equipment;
 - 17.2.g. Proper use of protective equipment; and
 - 17.2.h. Transportation of registered material.