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July 25, 2017

West Virginia Bureau of Health and Human Resources

Attn: Brian Skinner, General Counsel

Bureau for Public Health

350 Capital Street, Room 702

Charleston WV 25301

Re: Antero Resource Corporation's Comments on the West Virginia Bureau for Public Health's Proposed Rule, *Technologically Enhanced Naturally Occurring Radioactive Material*, W. Va. Code St. R. § 64-23.A-1 *et seq*.

Dear Mr. Skinner,

Please find attached comments filed on behalf of Antero Resources Corporation in response to the West Virginia Bureau for Public Health's proposed amendments to W. Va. Code St. R. § 64-23.A-1 *et seq*. regarding the regulation of TENORM within the state.

Antero Resources Corporation appreciates the opportunity to comment on the Bureau's proposed rule.

Sincerely,

Troy Roach

Vice President

Health, Safety, Security, and Environment

Antero Resources Corporation

ANTERO RESOURCE CORPORATION'S COMMENTS ON THE WEST VIRGINIA BUREAU FOR PUBLIC HEALTH'S *TECHNOLOGICALLY ENHANCED NATURALLY OCCURRING RADIOACTIVE MATERIAL*, W. VA. CODE ST. R. § 64-23.A-1 *ET SEQ.*

July 25, 2017

1. INTRODUCTION

The West Virginia Bureau for Public Health ('Bureau') invites comments on its proposed draft rule, W. Va. Code St. R. § 64-23.A-1 *et seq.*, technologically enhanced naturally occurring radioactive material ('TENORM').[1] The Bureau's proposed rule incorporates various sections of the West Virginia Code of State Rules pertaining to TENORM, including W. Va. Code St. R. §§ 64-23-16, 64-23, App. H, and 64-23-6.

2. ANTERO RESOURCES CORPORATION

Antero Resources Corporation ('Antero') is an independent exploration and production ('E&P') company engaged in the exploration, development, and acquisition of natural gas, natural-gas liquids, and oil properties within the Appalachian Basin. Headquartered in Denver, Colorado, the company is focused on creating value through the development of a large portfolio of repeatable, liquids-rich drilling opportunities in two of the premier North American shale plays. Antero holds approximately 634,000 net acres in the Marcellus and Utica shale plays.

Antero operates its sites consistent with the highest health and safety practices of the industry. Its first and most important priority is to protect human health and the environment while efficiently producing domestic energy in the United States. Antero does not object to rules and regulations which are based in sound science.

3. GENERAL COMMENTS

Antero incorporates by reference the comments of the West Virginia Oil and Natural Gas Association. Antero independently offers the following comments for the Bureau's consideration, which illustrates Antero's concerns regarding the consistency of the proposed rule and its potential conflicts with already-existing provisions of other rules.

a. THE BUREAU'S PROPOSED RULE W. VA. CODE ST. R. § 64-23.A-1 *ET SEQ.* IS BASED ON A MISREADING OF THE 2016 STUDY INSTITUTED BY THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION.[2]

The Bureau's proposed rule is primarily based on a misreading of the 2016 study instituted by the Pennsylvania Department of Environmental Protection ('PADEP') to investigate the existence and potential impact of TENORM at oil and gas exploration sites.[3] While the Bureau correctly states that the PADEP determined that TENORM was *present* at oil and gas facilities, the study also concluded the following:

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[1] *See* W. Va. Code St. R. § 64-23.A-1 *et seq.*

[2] *See* Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) Study, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, (2016), *available at* http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-112658/Pennsylvania%20Department%20of%20Environmental%20Protection%20TENORM%20Study%20Report%20Rev%201.pdf

[3] *Id.*

> There is ***little or limited potential for radiation exposure*** to workers and the public from the development, completion, production, transmission, processing, storage, and end use of natural gas;
>
> There is ***little potential for radiation exposure*** to workers and the public at facilities that treat O&G wastes; [and]
>
> There is ***little potential for radiation exposure*** to workers and the public from landfills receiving waste from the O&G industry.[4]

Based upon these findings, the PADEP largely left the issue of TENORM unregulated. Seeing no need to impose restrictions outside those already in place, the PADEP, as a result of the study, only required oil and gas operators to develop radiation protection plans to assure minimal exposure to TENORM by workers.

The Bureau's proposed rule makes no reference to these findings. It is clear from the Bureau's draft rule that it assumes that the simple presence of TENORM requires the type of invasive and burdensome regulation proposed by the Bureau which is proposed. The Bureau is seeking to regulate TENORM based on its *presence*, as opposed to the *actual potential for health effects and radiation exposure*.

This position is buttressed by the 2014 study by Argonne National Laboratory, which concluded that regulating the disposal of TENORM, as is already established by the West Virginia Department of Environmental Protection's ('WVDEP') Solid Waste Management Act and associated regulations, effectively eliminates the potential for health effects and radiation exposure.[5] Furthermore, the Michigan Department of Environmental Quality released their own analysis of TENORM disposal in 2015, which stated:

> [u]p to 50 pCi/g of Radium-226 can be safely disposed in any Type I (i.e., hazardous waste) or Type II (i.e., municipal solid waste) landfill in Michigan without adverse impact to human health or the environment.[6]

Therefore, studies published in three different states have come to the same general conclusion: the regulation of TENORM (which is already regulated by the WVDEP in West Virginia) poses little if any risk to human health or the environment.

The Bureau's proposed rule is not crafted in such a manner as to address the issues presented or contained in the Pennsylvania, Argonne, or Michigan studies. Rather, the proposed rule assumes levels of exposure and a danger to human health which are not consistent with any scientific evidence.

Further, Antero would again reference the comments provided by WVONGA, including those comments supported by Andy Lombardo, one of the chief architects of the Pennsylvania study. Antero would request that the Bureau reconsider the premise upon which its rule is based and withdraw the current draft rule for further consideration and future action.

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[4] *Id.* at 0-1

[5] *See* Radiological Dose and Risk Assessment of Landfill Disposal of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) in North Dakota, ARGONNE NATIONAL LABORATORY, ENVIRONMENTAL SCIENCE DIVISION, (November 2014)

[6] *See* Michigan TENORM Disposal Advisory Panel White Paper, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, (2014-2015)

b. **THE PREAMBLE TO THE PROPOSED RULE SUGGESTS THE RULE HAS BEEN DEVELOPED TO REGULATE TENORM GENERATED THROUGH OIL AND NATURAL GAS EXPLORATION AND DEVELOPMENT, BUT THE PROPOSED RULE ARGUABLY DOES NOT APPLY TO OIL AND GAS ACTIVITIES.**

The preamble to the proposed rule suggests the rule has been developed to regulate TENORM generated through oil and natural gas exploration and development. However, based on the exemptions set forth in this proposed rulemaking in W. Va. Code St. R. § 64-23.A.-1.8.d., the majority, if not all, of TENORM associated with the development of oil and natural gas are arguably exempt from this proposed rulemaking. As previously suggested above, the presence of TENORM associated with the exploration and development of oil and natural gas have little potential for radiation exposure to workers and the public, and therefore, the agency should specifically exempt TENORM associated with oil and gas exploration and production well sites from this rule.

c. **THE BUREAU'S PROPOSED RULE W. VA. CODE ST. R. § 64-23.A-1 *ET SEQ.* REGULATES THE SAME ACTIVITIES SET FORTH AT W. VA. CODE ST. R. § 64-23-16 *ET SEQ.***

While Antero generally appreciates the Bureau's efforts to regulate TENORM exposure for workers in West Virginia, Antero does not support the Bureau's proposed rule W. Va. Code St. R. § 64-23.A-1 *et seq.* as the rule regulates the very same activities set forth at W. Va. Code St. R. § 64-23-16 *et seq., Radiation Safety Requirements for TENORM.* If approved in its current form, the regulated community would be subject to two separate and distinct rules with sometimes conflicting provisions, both of which attempt to regulate TENORM; such duplicative yet contradictory regulatory frameworks will result in confusion regarding the applicable law applying to the regulated activity.

Antero would urge the Bureau to amend or withdraw the current proposed rule and provide additional detail with regard to the concerns the Bureau wishes to address in this rule-making and the interplay between the proposed rule and the Bureau's already existing rules and regulations governing TENORM.

4. **SPECIFIC COMMENTS**

a. **THE SCOPE OF THE BUREAU'S PROPOSED RULE DIRECTLY CONFLICTS WITH THE RULE'S STATED PURPOSE.**

The scope of the Bureau's proposed rule is incompatible with the rule's stated purpose. Under W. Va. Code St. R. § 64-23.A-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...does not exceed the standards for protection against radiation prescribed by W. Va. Code St. R. § 64-23-6...***[7]

In contrast, W. Va. Code St. R. § 64-23.A-1.7, *Purpose*, states:

> 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 St. R. § 64-23-1 *et seq.*[8]

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[7] W. Va. Code St. R. § 64-23.A-1.1
[8] W. Va. Code St. R. § 64-23.A-1.7

Accordingly, the Bureau asserts that their proposed rule is 'designed to ensure that the radiation protection standards of W. Va. Code St. R. § 64-23-6 are satisfied,' while at the same time attempting to 'establish radiation protection standards ***that are entirely distinct from the requirements of W. Va. Code St. R. § 64-23-6.***' As a result, the scope and purpose of the Bureau's proposed rule appear to directly conflict with one another.

It is this conflict with regard to the two rules and which provisions may or may not apply to any one party which is one of the basic problems related to the current rule-making. The lack of clarity with regard to the parties who may be subject to the proposed rule, W. Va. Code St. R. § 64-23-16, or both, make compliance with the rules difficult if not impossible to achieve.

b. THE BUREAU'S ATTEMPT TO ESTABLISH NEW RADIATION PROTECTION STANDARDS FOR TENORM IS BEYOND THE SCOPE OF THE PROPOSED RULE.

The Bureau's attempt to establish new radiation protection standards for TENORM is beyond the scope of the proposed rule. As mentioned, the proposed rule establishes radiation protection standards that are distinct from the requirements of W. Va. Code St. R. § 64-23-6, *Standards for Protection against Radiation*, and W. Va. Code St. R. § 64-23-16, *Radiation Safety Requirements for TENORM*.

It is in the best interests of the public, the regulated community, and the Bureau that the current rule-making be withdrawn and that the parties engage in a dialogue to determine the Bureau's concerns, whether changes to existing rules are needed, or whether a new rule may be required with requirements separate and distinct from the existing requirements. Absent a complete withdrawal of the proposed rule, Antero urges the Bureau to amend the rule consistent with its comments below to provide greater clarity.

c. THE SCOPE AND PURPOSE OF THE RULE SHOULD BE LIMITED TO THE REGULATION OF THE POSSESSION AND USE OF TECHNOLOGICALLY ENHANCED NATURALLY OCCURRING RADIOACTIVE MATERIAL.

The scope and purpose of the rule should clearly state that the proposed rule is designed to regulate the possession and use of technologically enhanced naturally occurring radioactive material. The receipt, transfer, and disposal of TENORM are already regulated by the Department of Transportation and the West Virginia Department of Environmental Protection. Additional regulation relating to the receipt, transfer, and disposal of TENORM is arguably outside the jurisdiction of the Bureau and would potentially result in duplicative or conflicting requirements. Any and all proposed provisions which attempt to regulate the receipt, transfer, and disposal of TENORM should be eliminated.

d. THE BUREAU SHOULD USE CONSISTENT TERMS THROUGHOUT THE PROPOSED RULE.

The term 'licensing' is used throughout the proposed rule; however, the rule establishes 'registration' requirements. Antero urges the Bureau to replace the term 'licensing' with 'registration,' as appropriate, throughout the proposed rule. Similarly, the term 'applicant' is a defined term, but 'registrant' is not. The terms are used in an interchangeable fashion throughout the document. The Bureau should clarify this inconsistency.

e. THE EXEMPTIONS SET FORTH IN §64-23.A-1.8 CREATE AMBIGUITY AS TO WHO IS SUBJECT TO THE RULE.

The exemptions set forth in W. Va. Code St. R. § 64-23.A.-1.8 specifically exempt from the rule and its requirements TENORM associated with coal combustion residuals, but do not specifically exempt TENORM associated with the development of oil and natural gas. To the extent that oil and natural gas

activities are not already exempt from this rulemaking pursuant to W. Va. Code St. R. § 64-23.A.-1.8., Antero urges the agency to include a specific exemption for the generation of TENORM associated with oil and natural gas exploration. There is no support in the record that TENORM associated with the exploration and production of oil and natural gas creates a significant exposure risk to the public.

f. CLARIFICATION IS NEEDED AS TO HOW THE BUREAU WILL MAKE THE DETERMINATION THAT THE *REASONABLY MAXIMALLY EXPOSED INDIVIDUAL WILL NOT RECEIVE A PUBLIC DOSE* WITH A TOTAL EFFECTIVE DOSE EQUIVALENT (TEDE) OF MORE THAN [100 MREM] IN ONE YEAR FROM ALL REGISTERED SOURCES OF RADIATION INCLUDING TENORM

The Bureau's proposed rule contains an exemption set forth in W. Va. Code St. R. § 64-23.A.-1.8 Under the proposed rule, individuals/entities are exempt from the proposed rule when:

> ...[t]he Bureau makes a determination...that the ***reasonably maximally exposed individual will not receive a public dose*** with a total effective dose equivalent (TEDE) of more than [100 mrem] in one year from all registered sources of radiation including TENORM.[9]

Thus, individuals/entities handling TENORM are exempt from the proposed rule if the 'reasonably maximally exposed individual' 'will not receive a public dose' 'with a TEDE of more than 100 mrem/year.' Antero appreciates the Bureau's proposed exemption. However, Antero requests clarification as to how the Bureau will make this determination.

g. THE BUREAU'S PROPOSED RULE CONTAINS AN EXEMPTION THAT DIRECTLY CONFLICTS WITH THE RADIATION PROTECTION STANDARDS UNDER W. VA. CODE ST. R. § 64-23-16.

Furthermore, the exemption under W. Va. Code St. R. §64-23.A-1.8.e is problematic as written. W. Va. Code St. R. §64-23.A-1.8.e states that individuals/entities handling TENORM are *exempt* from the proposed rule if the *'reasonably maximally exposed individual'* 'will not receive a public dose' 'with a TEDE of more than 100 mrem/year.' This language closely mimics the general prohibition under W. Va. Code St. R. § 64-23-16.5.a, which *prohibits* individuals regulated under W. Va. Code St. R. § 64-23-16 from exposing a *'member of the public'* to radiation over 100 mrem/year.

Accordingly, ***if a 'member of the public' is the 'reasonably maximally exposed individual,' the proposed rule's exemption directly conflicts with the requirements of W. Va. Code St. R. § 64-23-16.***

As an example, an upstream oil and gas facility is automatically registered as a 'general' registrant under W. Va. Code St. R. § 64-23-16. The facility, however, is seeking an exemption from the Bureau's proposed rule under W. Va. Code St. R. §64-23.A-1.8.e, due to its belief that the 'reasonably maximally exposed individual' will not be exposed to radiation over 100 mrem/year. When testing to see if the facility is exempt under the proposed rule, the Bureau concludes that the 'reasonably maximally exposed individual' is a 'member of the public' (i.e. not an employee) and that the 'reasonably maximally exposed individual' would be subject to 120 mrem/year. As a result, the facility is now subject to the following provisions:

> W. Va. Code St. R. § 64-23.A-1: The facility is **SUBJECT TO** the Bureau's proposed rule, since the reasonably maximally exposed individual will be subject to over 100 mrem/year; and
>
> W. Va. Code St. R. § 64-23-16: The facility will **VIOLATE** W. Va. Code St. R. § 64-23-16.5.a, which prohibits any 'member of the public' from being exposed to over 100 mrem/year.

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[9] W. Va. Code St. R. § 64-23.A-1.8.e

Thus, the Bureau's proposed rule contains an exemption that directly conflicts with the radiation protection standards under W. Va. Code St. R. § 64-23-16. As a result, in this situation, the regulated entity would be subject to the requirements of W. Va. Code St. R. § 64-23.A-1 while automatically violating the requirements of W. Va. Code St. R. § 64-23-16. Antero requests that the proposed rule be withdrawn and re-considered so as to avoid these unnecessary conflicts and address these procedural and substantive issues.

h. **PROVISIONS OF THE PROPOSED RULE REGARDING DISPOSAL AND TRANSFER OF WASTE CONTAINING TENORM ARE IN CONFLICT WITH EXISTING RULE AND/OR ARE INFRINGE UPON EXISTING RULES PROMULGATED BY OTHER STATE AND FEDERAL AGENCIES REGULATING THE TRANSPORT AND DISPOSAL OF WASTE CONTAINING TENORM.**

The Bureau's proposed rule § 64-23.A-3, which sets forth requirements for disposal and transfer of waste for disposal, directly conflicts with the disposal requirements of W. Va. Code St. R. § 64-23-16, and is duplicative of other disposal, labeling, and transfer requirements established by the West Virginia Department of Environmental Protection ('WVDEP'), Occupational Safety and Health Administration, and the Department of Transportation.

The Bureau's proposed rule clarifies that TENORM and certain TENORM-impacted equipment may be disposed in a properly licensed commercial solid waste facility. Pursuant to the requirements of W. Va. Code St. R. § 64-23.A-3.1,

> [e]ach person subject to [W. Va. Code St. R. § 64-23.A-1 *et seq.*'s] licensing requirements shall manage and dispose of wastes containing TENORM:
>
> By transfer of the wastes for storage, treatment, or disposal at a facility authorized to accept wastes containing TENORM by the DEP...[10]

In addition, W. Va. Code St. R. § 64-23.A-3.3 states:

> Equipment contaminated with TENORM which does not exceed a maximum exposure level of 100 microroentgen per hour, including background radiation, at any accessible location may be disposed in a landfill which complies with W. Va. Code § 22-15-8.[11]

Therefore, the Bureau's proposed rule permits the disposal of TENORM and TENORM-impacted equipment in commercial solid waste facilities, so long as the radiation level is within the limits enunciated in the West Virginia Code of State Rules.[12]

West Virginia Code of State Rules § 64-23-16.8, however, does not grant the Bureau the authority to regulate the disposal of TENORM and TENORM-impacted equipment into commercial solid waste facilities:

> Each person subject to a registration under [W. Va. Code St. R. § 64-23-16] shall manage and dispose of wastes containing TENORM:
>
> By transfer of the wastes for disposal to a facility registration under requirements for uranium or thorium byproduct materials in either 40 CFR 192 or 10 CFR 40 appendix a; or

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[10] W. Va. Code St. R. § 64-23.A-3.1

[11] W. Va. Code St. R. § 64-23.A-3.3

[12] *See* W. Va. Code St. R. § 33-1A-1 (effective August 1, 2017), (Permitting the disposal of completion and production waste into certain commercial solid waste facilities so long as the waste does not exceed 50 pCi/g)

> By transfer of the wastes for disposal to a disposal facility licensed by the US nuclear regulatory commission, an agreement state, or a licensing state; or
>
> In accordance with alternate methods authorized by the agency upon application or upon the agency's initiative, consistent with subsection 16.5....[13]

Pursuant to W. Va. Code St. R. § 64-23-8.a.3, the Bureau may only permit alternate disposal methods of TENORM and TENORM-impacted equipment if the disposal method is *'consistent with W. Va. Code St. R. § 64-23-16.5, Standards for Radiation Protection for TENORM.'* As previously mentioned, however, the Bureau's proposed rule establishes radiation protection standards that are distinct from the requirements of W. Va. Code St. R. § 64-23-16.5.[14] Accordingly, ***W. Va. Code St. R. § 64-23-16.8 prohibits the Bureau from regulating the disposal of TENORM and TENORM-impacted equipment into commercial solid waste facilities.***

While Antero appreciates and supports the language in the proposed rule granting registrants the ability to dispose of TENORM and TENORM-impacted equipment in commercial solid waste facilities, the proposed rule's disposal methods conflict with the language of W. Va. Code St. R. § 64-23-16. Accordingly, Antero again proposes that the draft rule be withdrawn and re-considered so that the provisions of the two rules are reconciled.

i. **THE BUREAU'S REGISTRATION REQUIREMENTS W. VA. CODE ST. R. § 64-23.A-4 ARE IN DIRECT CONFLICT WITH THE PROVISIONS OF W. VA. CODE ST. R. § 64-23-16.**

The Bureau's proposed rule fundamentally places into conflict the manner in which those subject to the provisions of W. Va. Code St. R. § 64-23-16 and the proposed rule are regulated. In contrast to the 'general' registration structure under W. Va. Code St. R. § 64-23-16, whereby parties subject to the rule may notify the Bureau of its activities and automatically obtain coverage under the rule, the Bureau's proposed rule introduces a rigid application process which is devoid of any detail or structure.

As opposed to the automatic issuance of a 'general' registration under W. Va. Code St. R. § 64-23-16.9.a, the proposed rule requires *all individuals* to submit an application before they may obtain a 'registration' to 'receive, possess, use, process, transfer, distribute, or dispose of TENORM.'[15] It is unclear whether individuals/entities currently operating pursuant to a 'general' registration under W. Va. Code St. R. § 64-23-16 must now apply for and obtain additional coverage under the proposed rule.

Further, the proposed rule is devoid of any structure regarding: (a) when an application is necessary; (b) the timeframe pursuant to which an application will be acted upon by the Bureau; and (c) what activities would be permissible while an application may be pending.

While the proposed rule impacts important rights needed by the regulated community to operate their businesses, the proposed rule is silent as to the applicant's rights if they are denied a registration or are issued terms and conditions of a registration that the applicant believes are impractical and/or improper.

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[13] W. Va. Code St. R. § 64-23-16.8.a; *See also* W. Va. Code St. R. § 64-23-16.8.b (Allowing the disposal of TENORM-impacted equipment where TENORM may be disposed)

[14] *See* W. Va. Code St. R. § 64-23.A-1.7

[15] *See* W. Va. Code St. R. § 64-23-16.9.a, (emphasis added) ("...[A] general registration is hereby ***issued*** to possess, own, use, transfer, distribute or dispose of TENORM without regard to quantity"); *Compare* W. Va. Code St. R. § 64-23.A-4.1, (emphasis added) ("...[A] registration is hereby ***necessary*** to possess, use, transfer, distribute, or dispose of TENORM without regard to quantity")

Again, Antero requests that the proposed rule be withdrawn and re-considered so as to avoid these unnecessary conflicts and address these procedural and substantive issues.

j. THE BUREAU'S PROPOSED RULE REQUIRES INDIVIDUALS TO MAINTAIN SEPARATE MANIFESTS FOR TENORM UNDER W. VA. CODE ST. R. §§ 64-23-16 AND 64-23.A-3.6.

The manifest requirements proposed by the Bureau are outside of the Bureau's jurisdiction and should be deleted. Furthermore, the manifest requirements proposed by the Bureau in W. Va. Code St. R. § 64-23.A.3.6 directly conflict with the manifest requirements of W. Va. Code St. R. § 64-23-16. As a result, ***the Bureau's proposed rule requires individuals subject to W. Va. Code St. R. § 64-23-16 and W. Va. Code St. R. § 64-23.A-3.6 to maintain two competing manifest systems for TENORM in West Virginia.***

The Bureau's proposed rule alters the information that must be present on a manifest for TENORM transportation.[16] Pursuant to W. Va. Code St. R. § 64-23.A-3.6, each shipment of TENORM must have a manifest containing the following information before it may leave the registrant's site:

> The registrant's name, physical site address and telephone number;
>
> The name, address, telephone number and radioactive material registration number of each transporter;
>
> The name, address and telephone number of the designated disposal facility;
>
> The description of the waste material; and
>
> The total quantity of all TENORM waste by units of weight in tons or cubic yards and ***the number and type of containers***.[17]

The manifest under W. Va. Code St. R. § 64-23-16, however, requires the following information:

> The name, address, and telephone number of the person generating the waste;
>
> The name, address, and telephone number or the name and the environmental protection agency hazardous waste identification number of the person transporting the waste to the land disposal facility;
>
> ***A physical description of the waste, the volume, radionuclide identity and quantity, the total radioactivity, and the principal chemical form;***
>
> Wastes classified as class a, class b, or class c in section i of table 64-23 I shall be clearly identified as such in the manifest; and
>
> The total quantity of the radionuclides hyd-rogen-3, carbon-14, technetium-99, and iodine-129 shall be shown.[18]

Thus, ***individuals subject to the dual-manifest requirements of W. Va. Code St. R. §§ 64-23-16 and 64-23.A-1 must include the following in one manifest and not the other***: (a) the 'radionuclide identity and quantity, the total radioactivity, and the principal chemical form' in their manifest under W. Va. Code St. R. § 64-23-16 and (b) the 'number and type of containers' in their manifest under W. Va. Code St. R. § 64-23.A-1. ***Accordingly, the Bureau's proposed rule requires individuals to maintain separate manifests for TENORM under W. Va. Code St. R. §§ 64-23-16 and 64-23.A-1.***

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[16] *See* W. Va. Code St. R. § W. Va. Code St. R. § 64-23-6.38; *see also* W. Va. Code St. R. § 64-23, App. H

[17] W. Va. Code St. R. § 64-23.A-3.6 *et seq.* (emphasis added)

[18] *See* W. Va. Code St. R. § 64-23, App. H(i) (emphasis added)

Furthermore, the waste in question is not 'hazardous' waste and is not sufficiently high in radiation to pose a threat.[19] Therefore, a manifest is not required for the generation, transportation, treatment, and disposal of TENORM. The manifest requirements proposed by the Bureau are outside of the Bureau's jurisdiction and should be deleted. Antero again proposes that the draft rule be withdrawn and re-considered so that the provisions of the two rules are reconciled.

k. <u>THE BUREAU'S PROPOSED RULE IS SILENT AS TO WHETHER THE CERTIFICATION STATEMENT REQUIRED UNDER W. VA. CODE ST. R. § 64-23.A-3.7 SATISFIES THE CERTIFICATION STATEMENT REQUIRED UNDER W. VA. CODE ST. R. § 64-23-16.</u>

The manifest requirements proposed by the Bureau are outside of the Bureau's jurisdiction and should be deleted. Further, the Bureau's proposed rule is silent as to whether the certification statement required under W. Va. Code St. R. § 64-23.A-3.7 satisfies the certification statement required under W. Va. Code St. R. § 64-23-16. The manifest requirements under the proposed rule state that the following certification statement be signed and dated by the registrant:

> "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 all respects in proper condition for transport according to applicable international and national government regulations."[20]

Current regulations for TENORM manifests, however, do not require such a statement; W. Va. Code St. R. § 64-23, App. H(ii) states:

> The waste generator shall include in the shipment manifest a certification that the transported materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the department of transportation and the agency. An authorized representative of the waste generator shall sign and date the manifest.[21]

Thus, it is unclear whether the certification statement required under W. Va. Code St. R. § 64-23.A-3.7 satisfies the certification statement required under W. Va. Code St. R. § 64-23-16.

If the certification statement required under W. Va. Code St. R. § 64-23.A-3.7 *<u>does not</u>* satisfy the certification statement as required under W. Va. Code St. R. § 64-23-16, then the Bureau's proposed rule again requires two separate manifests for TENORM transportation.

Furthermore, the waste in question is not 'hazardous' waste and is not sufficiently high in radiation to pose a threat.[22] Therefore, a manifest is not required for the generation, transportation,

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[19] *See* Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) Study, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, (2016); *see also* Radiological Dose and Risk Assessment of Landfill Disposal of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) in North Dakota, ARGONNE NATIONAL LABORATORY, ENVIRONMENTAL SCIENCE DIVISION, (November 2014); *see also* Michigan TENORM Disposal Advisory Panel White Paper, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, (2014-2015)

[20] W. Va. Code St. R. § 64-23.A-3.7

[21] W. Va. Code St. R. § 64-23, App. H(ii)

[22] *See* Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) Study, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, (2016); *see also* Radiological Dose and Risk Assessment of Landfill Disposal of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) in North Dakota, ARGONNE NATIONAL LABORATORY, ENVIRONMENTAL SCIENCE DIVISION, (November 2014); *see also* Michigan TENORM Disposal Advisory Panel White Paper, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, (2014-2015)

treatment, and disposal of TENORM. The manifest requirements proposed by the Bureau are outside of the Bureau's jurisdiction and should be deleted. Antero again proposes that the draft rule be withdrawn and re-considered so that the provisions of the two rules are reconciled.

I. THE BUREAU'S PROPOSED RULE DIRECTLY CONFLICTS WITH THE GENERATOR'S DUTIES PERTAINING TO THE PROPER CONTROL AND TRACKING OF TENORM UNDER W. VA. CODE ST. R. § 64-23-16.

The manifest requirements proposed by the Bureau are outside of the Bureau's jurisdiction and should be deleted. Further, the Bureau's proposed rule directly conflicts with the generator's duties pertaining to the proper control and tracking of TENORM under W. Va. Code St. R. § 64-23-16. Pursuant to the Bureau's proposed rule, W. Va. Code St. R. § 64-23.A-3.8 requires the registrant to:

1. Sign and date the manifest upon initial transporter acceptance of the waste material;[23]
2. Obtain the signature of the initial transporter and date of the acceptance of the manifest;[24]
3. Retain one copy for a period of not less than 3 years;[25] and
4. Provide the initial transporter the remaining copies of the manifest...[26]

Current regulations for generators of TENORM, however, state that generators of TENORM under W. Va. Code St. R. § 64-23-16 must:

1. Prepare all wastes so that the waste is classified according to section i of table 64-23 I meets the waste characteristics requirements in section ii of table 64-23 I;
2. Label each package of waste to identify whether it is class a waste, class b waste, or class c waste, in accordance with section i of table 64-23 I;
3. Conduct a quality control program to ensure compliance with section i and ii of table 64-23 K; the program shall include management evaluation of audits;
4. Prepare shipping manifests to meet the requirements of section i and ii;
5. Forward a copy of the manifest to the intended recipient, at the time of shipment, or deliver to a collector at the time the waste is collected, obtaining acknowledgment of receipt in the form of a signed copy of the manifest or equivalent documentation from the collector;
6. Include one copy of the manifest with the shipment; [and]
7. Retain a copy of the manifest and documentation of acknowledgment of receipt as the record of transfer of registered material as required by section 11.26. of this rule...[27]

Thus, the generator's manifest requirements under the proposed rule and W. Va. Code St. R. § 64-23-16 are in direct conflict.

Generators under W. Va. Code St. R. § 64-23.A-1 *are not required to*: (a) label packages in accordance with W. Va. Code St. R. § 64-23, App. I, (b) conduct 'quality control programs,' (c) forward a copy of the manifest to the intended recipient at the time of shipment, or (d) retain a copy of the

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[23] W. Va. Code St. R. § 64-23.A-3.8.a
[24] W. Va. Code St. R. § 64-23.A-3.8.b
[25] W. Va. Code St. R. § 64-23.A-3.8.c
[26] W. Va. Code St. R. § 64-23.A-3.8.d
[27] W. Va. Code St. R. § 64-23, App. H(iii)(a)

manifest in accordance with the requirements of W. Va. Code St. R. § 64-23-11.26.[28] In contrast, generators under W. Va. Code St. R. § 64-23-16 *are not required to*: (a) retain a copy of the manifest for three years or (b) provide the initial transporter *all* of the copies of the manifest.[29] Therefore, ***the Bureau's proposed rule directly conflicts with the generator's duties pertaining to the proper control and tracking of TENORM under W. Va. Code St. R. § 64-23-16.***

Furthermore, the waste in question is not 'hazardous' waste and is not sufficiently high in radiation to pose a threat.[30] Therefore, a manifest is not required for the generation, transportation, treatment, and disposal of TENORM. The manifest requirements proposed by the Bureau are outside of the Bureau's jurisdiction and should be deleted. Antero again proposes that the draft rule be withdrawn and re-considered so that the provisions of the two rules are reconciled.

m. THE BUREAU'S PROPOSED RULE DIRECTLY CONFLICTS WITH THE GENERATOR'S DUTY TO INVESTIGATE WHETHER THE GENERATOR'S TENORM HAS BEEN PROPERLY DISPOSED OF UNDER W. VA. CODE ST. R. § 64-23-16.

The Bureau's proposed rule directly conflicts with the generator's duty to investigate whether the generator's TENORM has been properly disposed of under W. Va. Code St. R. § 64-23-16. The Bureau's proposed rule states that the generator must:

> [r]eceive the fully signed copy of the manifest from the designated disposal facility within forty-five [(45)] days from the delivery to the initial transporter.[31]

Under the proposed rule, if the registrant does not receive the signed manifest within 45 days of delivery to the initial transporter, the registrant must: notify the Bureau within seven days;[32] conduct an investigation into the reason the manifest was not received;[33] and report the results of the investigation to the Bureau within thirty (30) days.[34]

In contrast to the Bureau's proposed rule, generators regulated under W. Va. Code St. R. § 64-23-16 must conduct an investigation as to the location of the generator's TENORM if the generator has "not received notification within twenty (20) days after transfer."[35] If the generator has not received notification within twenty days after transfer, the generator's investigation

> [s]hall include tracing the shipment and filing a report with the agency. Each registrant who conducts a trace investigation shall file a written report with the agency within two (2) weeks of completion of the investigation.[36]

Clearly, the generator's duty to ensure that the disposal facility has received the generator's TENORM vary depending on whether the generator is subject to the Bureau's proposed rule or W. Va. Code St. R.

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[28] *See* W. Va. Code St. R. § 64-23, App. H(iii)(a)
[29] *See* W. Va. Code St. R. § 64-23.A-3.8
[30] *See* Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) Study, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, (2016); *see also* Radiological Dose and Risk Assessment of Landfill Disposal of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) in North Dakota, ARGONNE NATIONAL LABORATORY, ENVIRONMENTAL SCIENCE DIVISION, (November 2014); *see also* Michigan TENORM Disposal Advisory Panel White Paper, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, (2014-2015)
[31] W. Va. Code St. R. § 64-23.A-3.8.e
[32] W. Va. Code St. R. § 64-23.A-3.8.e.1
[33] W. Va. Code St. R. § 64-23.A-3.8.e.2
[34] W. Va. Code St. R. § 64-23.A-3.8.e.3
[35] W. Va. Code St. R. § 64-23, App. H(iii)(e)(1)
[36] W. Va. Code St. R. § 64-23, App. H(iii)(e)(2)

§ 64-23-16. ***Since, as mentioned, generators of TENORM are subject to the Bureau's proposed rule and W. Va. Code St. R. § 64-23-16, it is impossible for the generator to comply with the differing investigative requirements imposed upon generators of TENORM.***

Furthermore, the West Virginia Department of Environmental Protection, not the Bureau for Public Health, possesses the authority over a generator's duty to investigate the disposal of TENORM waste into a landfill that is already regulated by WVDEP. Antero again proposes that the draft rule be withdrawn and re-considered so that the provisions of the two rules are reconciled.

n. THE BUREAU'S PROPOSED RULE DIRECTLY CONFLICTS WITH THE RADIATION TESTING REQUIREMENTS TO TERMINATE REGISTRATIONS UNDER W. VA. CODE ST. R. § 64-23-16.

The Bureau's proposed rule directly conflicts with the radiation testing requirements to terminate registrations under W. Va. Code St. R. § 64-23-16. In accordance with the proposed rule, the registrant must submit a radiation monitoring report that: (a) confirms the absence of TENORM at the facility or (b) establishes the levels of residual radioactive contamination.[37] To satisfy this provision of the proposed rule, the registrant must, as applicable, test for and report the levels or quantities of:

> Beta and gamma radiation at one centimeter from surface in units, multiples, or subunits of Sieverts or rem per hour or microroentgens per hour;[38]
>
> Gamma radiation at one meter from surfaces in units, multiples, or subunits of Sieverts or rem per hour or microroentgens per hour;[39]
>
> 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;[40]
>
> 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;[41]
>
> Radioactivity in contaminated liquids such as water, oils or solvents in units, multiples, or subunits of becquerels or curies per milliliter of volume per gram of liquid;[42] and
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> Radioactivity in contaminated solids such as soils or concrete in units, multiples, or subunits of becquerels or curies per gram of solid.[43]

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[37] W. Va. Code St. R. § 64-23.A-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.

[38] W. Va. Code St. R. § 64-23.A-9.4.a.5.A

[39] W. Va. Code St. R. § 64-23.A-9.4.a.5.B

[40] W. Va. Code St. R. § 64-23.A-9.4.a.5.C

[41] W. Va. Code St. R. § 64-23.A-9.4.a.5.D

[42] W. Va. Code St. R. § 64-23.A-9.4.a.5.E

[43] W. Va. Code St. R. § 64-23.A-9.4.a.5.F

The current law regulating TENORM, however, has contradictory provisions pertaining to required radiation testing before a registration may be terminated. Pursuant to W. Va. Code St. R. § 64-23-16.17.d, registrants must, as appropriate:

> Report levels of radiation in units of microroentgens per hour of beta and gamma radiation at one (1) centimeter and gamma radiation at one meter from surfaces and report levels of radioactivity in units of disintegrations per minute (or microcuries) per one hundred (100) square centimeters removable and fixed on surfaces, microcuries or Becquerel per milliliter in water, and picocuries or Becquerels per gram in contaminated solids such as soils or concrete.[44]

Thus, the Bureau's proposed rule allows individuals to submit radiation measurements that are not permitted under W. Va. Code St. R. § 64-23-16. As a result, ***individuals that are subject to the registration requirements of both W. Va. Code St. R. § 64-23-16 and W. Va. Code St. R. § 64-23.A-1 are placed in the awkward position of submitting dissimilar radiation measurements to terminate their respective registrations.***[45]

While Antero appreciates and supports the language in the proposed rule allowing registrants the ability to submit radiation testing in various units of measurement, the proposed rule's radiation testing requirements conflict with the language of W. Va. Code St. R. § 64-23-16. Accordingly, Antero again proposes that the draft rule be withdrawn and re-considered so that the provisions of the two rules are reconciled. In addition, Antero proposes that the draft language of W. Va. Code St. R. § 664-23.A-9.4.a.5.A be amended to include only gamma radiation.

o. <u>THE BUREAU'S PROPOSED RULE SEEKS TO REGULATE AREAS OF THE LAW THAT ARE CURRENTLY REGULATED BY THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION.</u>

o.1. <u>THE BUREAU'S PROPOSED RULE SEEKS TO REGULATE ENTITIES FOR ABOVEGROUND STORAGE TANKS.</u>

Under the proposed rule W. Va. Code St. R. § 64-23.A-3.5.a and W. Va. Code St. R. § 64-23.A-2.12, registrants that possess 'tanks' containing TENORM must develop and implement an inspection protocol to ensure that the tanks comply with West Virginia's Aboveground Storage Tank Act.[46,47] This

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[44] W. Va. Code St. R. § 64-23-16.17.d.4

[45] <u>NOTE</u>: For example, an individual who possesses a registration under both W. Va. Code St. R. §§ 64-23-16 and 64-23.A-1 *et seq.* is seeking to terminate both of his registrations. The individual conducts radiation testing in 'units of microroentgens per hour of beta and gamma radiation at one centimeter,' and the Bureau terminates his registration under W. Va. Code St. R. § 64-23-16. That same individual then sends the same radiation testing results to the Bureau to terminate his registration under the Bureau's proposed rule. The Bureau denies the individual's request, stating that they prefer the beta and gamma radiation testing results to be quantified in 'Sieverts or rem per hour.' The individual has thus conducted radiation testing that the Bureau deems sufficient to terminate his registration under W. Va. Code St. R. § 64-23-16, only to be denied the same under the Bureau's proposed rule.

See W. Va. Code St. R. § 64-23-16.17.d.4; *compare* W. Va. Code St. R. § 64-23.A-9.4.a.5.A

[46] W. Va. Code St. R. § 64-23.A-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[s] [of] W. Va. Code St. 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 personal 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.

includes the requirement that all tank inspections are to be recorded and kept by the registrant for a period of five years.[48]

There is little practical benefit for the Bureau to regulate an area of law that is currently regulated by a sister agency of the Bureau.[49] The West Virginia Department of Environmental Protection ('WVDEP') enforces the operating and maintenance requirements for aboveground storage tanks,[50] as well as reporting and recordkeeping requirements of the same.[51] The Bureau's attempt to regulate the *same requirements imposed by WVDEP* is duplicative and unnecessary. Accordingly, Antero proposes that the Bureau withdraw the provisions requiring compliance with the Aboveground Storage Tank Act.

o.2. THE BUREAU'S PROPOSED RULE SEEKS TO REGULATE ENTITIES FOR SITE CLOSURE.

The Bureau's proposed rule states that registrants must notify the Bureau within 60 days of site closure. Under the proposed rule, W. Va. Code St. R. § 64-23.A-8.4 states:

> 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:
>
> The location of the facility, site, or area;
> The plan for reclaiming or decontaminating the facility, site or area; and
> An evaluation of any changes to the financial assurance submitted in accordance with section 15.[52]

If this rule were to apply to oil and natural gas well sites, WVDEP enforces and ensures the proper remediation of horizontal well sites under the power vested to WVDEP by the Horizontal Well Act[53] and the Rules Governing Horizontal Well Development.[54] The Bureau's attempt to regulate the *same requirements imposed by WVDEP* is duplicative and unnecessary. Accordingly, Antero proposes that the Bureau withdraw the provisions regulating site closure.

p. THE BUREAU'S PROPOSED RULE IS SILENT AS TO THE AMOUNT OF TIME THE BUREAU MAY TAKE IN GRANTING, AMENDING, RENEWING, SUSPENDING, OR TERMINATING A REGISTRATION.

The Bureau's proposed rule is silent as to the amount of time the Bureau may take in granting, amending, renewing, suspending, or terminating a registration. The proposed rule only states that the

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See also W. Va. Code St. R. § 47-63-1 *et seq.*

[47] W. Va. Code St. R. § 64-23.A-2.12,

> Tanks are defined as 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 non-earthen materials (e.g., wood, concrete, steel or plastic), which provide structural support.

[48] W. Va. Code St. R. § 64-23.A-3.5.a

[49] *See* W. Va. Code St. R. § 47-63-1.1 (Stating that the West Virginia Department of Environmental Protection regulates the 'registration, construction, installation, upgrading, use, inspection, maintenance, testing, and closure of aboveground storage tanks in West Virginia.')

[50] *See* W. Va. Code St. R. § 47-63-5

[51] *See* W. Va. Code St. R. § 47-63-6

[52] W. Va. Code St. R. § 64-23.A-8.4

[53] *See* W. Va. Code § 22-6A-1 *et seq.*

[54] *See* W. Va. Code St. R. § 35-8-1 *et seq.; see also* W. Va. Code St. R. § 35-8-12 (Imposing reclamation requirements on operators of horizontal well permits)

Bureau will issue a registration to receive, possess, use, process, transfer, distribute, or dispose of TENORM ***"upon a determination that an application meets the requirements of W. Va. Code St. R. § 64-23-1 et seq."***[55] Therefore, the proposed rule does not provide a timeframe for the Bureau to make a 'determination that an application meets the requirements' of West Virginia's *Radiological Health Rules*. Accordingly, the Bureau's proposed rule is silent as to the amount of time the Bureau may take in granting, amending, renewing, suspending, or terminating a registration.

Antero proposes that the Bureau promulgate provisions limiting the amount of time the Bureau may take in granting, amending, renewing, suspending, or terminating a registration. Doing so provides clarity and consistency in the Bureau's registration process and regulatory certainty.

q. **UNLESS AND UNTIL THE INDIVIDUAL OBTAINS A REGISTRATION FROM THE BUREAU, THE BUREAU'S PROPOSED RULE PREVENTS AN INDIVIDUAL FROM UTILIZING A HORIZONTAL WELL WORK PERMIT ISSUED BY THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION.**

If this rule is applicable to TENORM associated with the development of oil and natural gas, unless and until the individual obtains a registration from the Bureau, the Bureau's proposed rule arguably prevents an individual from utilizing a horizontal well work permit issued by the West Virginia Department of Environmental Protection. The Bureau's proposed rule states that individuals must apply for and obtain a registration if the individual is to 'possess, use, transfer, distribute or dispose of TENORM.'[56] Therefore, as written, the Bureau's proposed rule prevents validly permitted horizontal wells from operating unless and until the operator obtains a registration under W. Va. Code St. R. § 64-23.A-4.1.

Antero again proposes that the draft rule be withdrawn and re-considered so that the provisions of the two rules are reconciled. In addition, Antero proposes that the Bureau revise the draft rule to allow operations that are validly permitted by the West Virginia Department of Environmental Protection under W. Va. Code § 22-6A-1 to commence while a registration is being considered by the Bureau.

r. **THE BUREAU'S PROPOSED RULE IS SILENT AS TO WHETHER AN ENTITY MAY REGISTER MULTIPLE SITES UNDER ONE REGISTRATION.**

The Bureau's proposed rule is ambiguous as to whether an entity may register multiple sites under one registration. The proposed rule states that an individual's "application for a registration may include a request for a registration *authorizing one or more activities*."[57] The proposed rule, however, does not describe what constitutes an 'activity.'

Antero proposes that the Bureau permit the following under a single registration: (a) the full lifecycle of TENORM generation, transportation, treatment, and disposal by a single individual/entity and (b) the entirety of a registrant's upstream oil and gas operations within the state.

s. **THE BUREAU'S PROPOSED RULE DEMANDING BACKGROUND CHECKS, FINANCIAL DISCLOSURES, AND FINANCIAL SURETY ARRANGEMENTS FOR LANDFILLS AND COMMERCIAL SOLID WASTE FACILITIES ARE ARBITRARY AND CAPRICIOUS.**

The Bureau's proposed rule demanding criminal background checks, financial disclosures, and financial surety arrangements for landfills and commercial solid waste facilities are duplicative and

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[55] W. Va. Code St. R. § 64-23.A-7.1 (emphasis added)
[56] W. Va. Code St. R. § 64-23.A-4.1
[57] W. Va. Code St. R. § 64-23.A-5.6 (emphasis added)

arbitrary and capricious. W. Va. Code St. R. §§ 64-23.A-5.3 and 64-23.A-15 require criminal background checks, financial disclosures, and financial surety arrangements for all individuals seeking to register under the proposed rule that do not possess a horizontal well permit under W. Va. Code § 22-6A-1.[58] Therefore, upstream oil and gas operators are not subject to these provisions. In fact, the Bureau provides no basis in fact for the need to have these requirements; it is simply regulation for the sake of regulation.

Landfills and commercial solid waste facilities and holders and handlers of TENORM are already subject to criminal background checks, financial disclosures, and financial surety arrangements under existing statutes. *See,* W. Va. Code § 22-15-5(k)[59] and W. Va. Code § 22-15-12.[60] Therefore, ***the Bureau's proposed rule demanding background checks, financial disclosures, and financial surety arrangements for landfills and commercial solid waste facilities are duplicative and arbitrary and capricious.***

t. THE BUREAU'S PROPOSED RULE SHOULD BE REVISED TO EXPLICITLY PERMIT A COMPANY TO REGISTER ALL OF THE COMPANY'S REGULATED SITES UNDER A SINGLE REGISTRATION.

The Bureau's proposed rule should be revised to explicitly permit a company to register all of the company's regulated sites under a single registration. The Bureau's proposed rule is silent as to whether an application fee is required for every site added, subtracted or modified to a registration or multiple registrations. Under the proposed rule, all applications, renewals, and amendments to registrations must be accompanied by a $500 application fee.[61] The question turns on whether a registration may be submitted for all of an operator's facilities generating or otherwise handling TENORM (i.e. can the generator group all of the generator's operations together under a single registration) and whether fees are required for every modification adding or subtracting or terminating sites. W. Va. Code § 64-23.A-5.6 states that "an application for a registration ***may include a request*** for a registration authorizing one or more activities."[62] The Bureau's rule allowing individuals to 'request' the registration of multiple sites at once does nothing to clarify whether the Bureau will *actually allow* the generator to do so. As a result, Antero proposes that the Bureau revise their proposed rule to explicitly permit a company to register all of the company's regulated sites under a single registration.

u. THE BUREAU'S PROPOSED RULE IS SILENT AS TO WHETHER ENTITIES ARE REQUIRED TO MODIFY THEIR REGISTRATION WITH THE BUREAU WHENEVER THE ENTITY ADDS OR REMOVES A SITE.

The Bureau's proposed rule is silent as to whether entities are required to modify their registration with the Bureau whenever the entity adds or removes a site. Pursuant to W. Va. Code St. R. § 64-23.A-11,

> [a]pplications for amendment of a registration shall be filed in accordance with [W. Va. Code St. R. § 64-23.A-5] and shall specify the respects in which the registrant desires the registration to be amended and the grounds for such amendment.[63]

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[58] *See* W. Va. Code St. R. §§ 64-23.A-5.3 and 64-23.A-15
[59] *See* W. Va. Code § 22-15-5(k) *et seq.*
[60] *See* W. Va. Code § 22-15-12 *et seq.*
[61] *See* W. Va. Code §§ 64-23.A-4.1, 5.1, 10.1, and 11
[62] W. Va. Code § 64-23.A-5.6 (emphasis added)
[63] W. Va. Code St. R. § 64-23.A-11

Accordingly, generators seeking to amend their registration must provide a $500 application fee and submit to a criminal background check.[64] W. Va. Code St. R. § 64-23.A-5, however, does not clarify whether entities are required to modify their registration whenever the entity adds or removes a site.

Assuming that the individual may register multiple sites/activities under a single registration, Antero proposes that the Bureau permit the addition/removal of sites/activities from a registration without considering such addition/removal as a 'modification' of the registration.

v. THE BUREAU'S PROPOSED RULE PERTAINING TO SITE RECLAMATION IS VAGUE, ARBITRARY, AND BEYOND THE SCOPE OF THE BUREAU'S PROPOSED RULE.

The Bureau's proposed rule pertaining to site reclamation is vague, arbitrary, and beyond the scope of the Bureau's proposed rule. Pursuant to W. Va. Code St. R. § 64-23A-14, each registrant must maintain certain information until their registration is terminated by the Bureau.[65] These records include:

> ***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;[66]
>
> ***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;[67] [and]
>
> If required by section 15, records of this reclaiming cost estimate prepared for the amount approved by the Bureau for reclaiming.[68]

Mandating that a registrant provide 'records of spills or other unusual occurrences' and 'as-built drawings and modifications of structures and equipment' are vague, arbitrary, and beyond the scope of the Bureau's proposed rule. First, ***the West Virginia Department of Environmental Protection already regulates spills and requires a detailed map of horizontal well sites and commercial solid waste facilities.***[69] **Further, the rule as written applies to any and all spills regardless of whether TENORM was contained in the materials.**

Furthermore, the Bureau should not apply the reclamation requirements of W. Va. Code St. R. § 64-23.A-1 *et seq.* to active oil and gas production sites, as doing so would negatively impact upstream oil and gas operations across the state. As mentioned, the Bureau's proposed rule requires a registration before any handling of TENORM may occur. Therefore, all upstream oil and gas facilities

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[64] *See* W. Va. Code St. R. § 64-23.A-5
[65] W. Va. Code St. R. § 64-23A-14
[66] W. Va. Code St. R. § 64-23A-14.1 (emphasis added)
[67] W. Va. Code St. R. § 64-23A-14.2 (emphasis added)
[68] W. Va. Code St. R. § 64-23A-14.3
[69] *See* W. Va. Code St. R. § 22-6A-1; *see also* W. Va. Code St. R. §

under the proposed rule would be unable to continue operations under the horizontal well work permit by WVDEP until the Bureau permits the applicant's handling of TENORM under the proposed rule. Therefore, the Bureau should not apply the reclamation requirements of W. Va. Code St. R. § 64-23.A-1 *et seq.*

W. THE BUREAU'S PROPOSED RULE PERMITTING THE TRANSFER OF A REGISTRATION IS IN CONFLICT.

The Bureau's proposed rule permitting the transfer of a registration is in conflict. W. Va. Code St. R. § 64-23.A-8.1.d states:

> 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.[70]

Thus, the proposed rule states that a registrant must notify the Bureau within 30 days *after* the transfer of the registration has occurred, but the registrant cannot accept the registration *until* he/she has satisfied a criminal background check under W. Va. Code St. R. § 64-23.A-5. Under the proposed rule, a registrant must satisfy the criminal background check provisions of W. Va. Code St. R. § 64-23.A-5 *before* obtaining the registration, yet the proposed rule requires the individual/entity overtaking the registration to do so *after* already obtaining the registration. Therefore, the Bureau's proposed rule permitting the transfer of a registration is in conflict.

Antero proposes that the Bureau revise the section pertaining to the criminal background check to eliminate the requirement to obtain a criminal background check.

X. THE BUREAU'S PROPOSED RULE IS SILENT AS TO WHETHER THE TRANSFEROR REMAINS LIABLE WHILE IN THE PROCESS OF TRANSFERRING THE REGISTRATION.

The Bureau's proposed rule is silent as to whether the transferor remains liable while in the process of transferring the registration. As mentioned, W. Va. Code St. R. § 64-23.A-8.1.d states:

> 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.[71]

The proposed rule, however, does not clarify who is liable during the time period when the transferor has provided the registration to a new controlling entity, yet the entity has not satisfied the criminal background check provisions of W. Va. Code St. R. § 64-23.A-5 or the Bureau has acted on the request. Antero proposes that the Bureau revise the proposed rule to clarify the extent of liability for each party throughout the transfer of a registration.

Y. THE BUREAU'S PROPOSED RULE IS SILENT AS TO WHETHER THE TRANSFER OF A REGISTRATION MUST BE FORMALLY APPROVED BY THE WEST VIRGINIA DEPARTMENT OF HEALTH AND HUMAN RESOURCES.

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[70] W. Va. Code St. R. § 64-23.A-8.1.d
[71] W. Va. Code St. R. § 64-23.A-8.1.d

The Bureau's proposed rule is silent as to whether the transfer of a registration must be formally approved by the West Virginia Department of Health and Human Resources. Generally, W. Va. Code St. R. § 64-23.A-8.1.d states that an individual/entity taking responsibility of a registration under the proposed rule must undergo a criminal background check in accordance with the requirements of W. Va. Code St. R. § 64-23.A-5.[72] The proposed rule, however, does not state whether the Bureau may deny the transfer for any other matter. Therefore, as written, the Bureau's proposed rule infers that a registration issued under W. Va. Code St. R. § 64-23.A-7.1 may be transferred without the approval of the West Virginia Department of Health and Human Resources, so long as the individual/entity satisfies the criminal background check requirements of W. Va. Code St. R. § 64-23.A-5.

Antero proposes that the Bureau revise the section pertaining to the criminal background check to eliminate the requirement to obtain a criminal background check. Antero proposes that the Bureau clarify that a registration may be transferred without the approval of the West Virginia Department of Health and Human Resources.

z. THE BUREAU'S PROPOSED RULE W. VA. CODE ST. R. § 64-23.A-16, RADIATION PROTECTION PROGRAM, SHOULD REQUIRE TRAINING AND QUALIFICATIONS COMMENSURATE WITH THE RISK.

The radiation protection program required under the Bureau's proposed rule, W. Va. Code St. R. § 64-23.A-16, should be modified to require training commensurate with the risk. The proposed rule currently requires all individuals employed at a facility to complete a training program. Training requirements should be focused only on those employees with the potential to come into contact with TENORM; i.e. loads, unloads, or handles TENORM.

Further, the proposed rule should be consistent with the requirements of the Nuclear Regulatory Commission, which state: "The extent of these instructions [i.e. Radiation Protection Programs] must be commensurate with potential radiological health protection problems present in the work place."[73] Accordingly, the Bureau should amend their proposed radiation protection program requirements to require training and qualifications that are commensurate with the risk.

aa. THE BUREAU'S PROPOSED RULE IS SILENT AS TO WHETHER THE RADIATION SAFETY OFFICER MUST BE AN EMPLOYEE OF THE REGISTRANT.

The Bureau's proposed rule is silent as to whether the Radiation Safety Officer ('RSO') must be an employee of the registrant. Pursuant to the proposed rule, a RSO must be 'appointed in writing' by the registrant.[74] It is thus unclear whether the registrant may, 'in writing,' 'appoint' an RSO or whether the RSO must be an employee of the registrant. Antero proposes that the Bureau clarify that a RSO does not have to be an employee of the registrant and therefore, permit the registrant to hire a consultant.

5. CONCLUSION

Antero thanks the Bureau for the opportunity to comment on the proposed draft rule regulating TENORM and for the Bureau's consideration to the comments as stated above.

Antero looks forward to working with the Bureau in the future to assist in the safe and environmentally sound development of the oil and gas industry in West Virginia. If the Bureau has any

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[72] W. Va. Code St. R. § 64-23.A-8.1.d
[73] 10 CFR § 19.12(b)
[74] W. Va. Code St. R. § 64-23.A-16.5

questions regarding the content of this letter, the specific comments, or any other issue related to the proposed conditions, please do not hesitate to contact me.

Independent Oil and Gas Association of West Virginia, Inc.
and
West Virginia Oil and Natural Gas Association

Joint Comments to the Proposed Legislative Rule, 64 C.S.R. 23A,
"Technologically Enhanced Naturally Occurring Radioactive Material"

To: Bureau of Public Health
West Virginia Department of Health and Human Resources
ATTN: Brian Skinner, General Counsel
350 Capitol St., Room 702
Charleston WV 25301

The Independent Oil & Gas Association of West Virginia ("IOGA") and West Virginia Oil & Natural Gas Association ("WVONGA") appreciate the opportunity to submit the following joint comments on the proposed legislative rule, Technologically Enhanced Naturally Occurring Radioactive Material ("TENORM"), 64 C.S.R. 23A ("Proposed Rule"). The Proposed Rule was submitted to the West Virginia Secretary of State on June 27, 2017, including a notice that written comments must be submitted to the West Virginia Department of Health and Human Resources ("DHHR"), Bureau of Public Health ("DHHR BPH") by 4:00 p.m. July 27, 2017. IOGA and WVONGA (sometimes jointly referred to herein as "Commenters" or "the Associations") are recognized as representing virtually the entire oil and gas industry in West Virginia and appreciate the opportunity to submit their joint comments to the Proposed Rule. These comments are submitted without prejudice to any member of one or both Associations to submitting comments, including comments that may be inconsistent with these comments, concerning the Proposed Rule.

The Associations

Formed in 1959, IOGA is a statewide nonprofit trade association that represents companies engaged in the extraction and production of natural gas and oil in West Virginia, as well as the companies that support these extraction and production activities. IOGA was formed to promote and protect a strong, competitive and capable independent natural gas and oil producing industry in West Virginia, while also protecting the natural environment of our state. IOGA has been in existence during times of boom and bust and its members have a long history of driving innovation in exploration and development of West Virginia's oil and gas reserves. IOGA members operate in virtually every county in West Virginia and have a longstanding tradition of working with the West Virginia Department of Environmental Protection ("WVDEP") and other state agencies to help regulators understand existing operations and new innovations and how to effectively regulate new technologies in a manner that protects the environment while promoting the economic development so crucial to West Virginia.

Chartered in 1915, WVONGA is one of the oldest trade organizations in West Virginia, and serves the entire oil and gas industry. The activities of WVONGA members include construction, environmental services, drilling, completion, gathering, transporting, distribution and processing. WVONGA members operate in almost every county in West Virginia and employ thousands of people across the State, with payrolls totaling hundreds of millions of dollars annually. Members have cumulative investment of nearly ten billion dollars in West Virginia, account for most of the production and recent well work permits, operate more than 20,000 miles of pipeline across the state and provide oil and natural gas to more than 300,000 West Virginia homes and businesses. As such, WVONGA's members have a keen interest in all aspects of health and environmental regulation associated with oil and gas activities, including the Proposed Rule.

It is in this spirit of experience and partnership with DHHR that the Associations offer these comments.

A. General Comments

As an initial matter, the Associations would like to emphasize that their members recognize the critical importance of the safe and effective exploration, drilling and operation of oil and gas wells, consistent with the protection of public and worker health and safety and of the environment. Decades of experience in developing oil and gas resources in West Virginia and across the United States have demonstrated that oil and gas well operations, including development of shale formations using new and improving drilling and completion techniques, are safe and do not pose a significant risk of harm to public or worker health or the environment from TENORM contrary to the assertions made by the DHHR BPH in support of its Proposed Rule with no accompanying risk assessment or exposure analysis to support those assertions.

1. The Proposed Rule Exceeds the Scope of the DHHR's Authority

In the forms filed with the West Virginia Secretary of State's office, the DHHR BPH cites as authority for the Proposed Rule - § 16-1-4(b)(2), (5) & (8), § 16-1-6(m) and § 16-1-11. However, the "Authority" cited in § 1.2 of the Proposed Rule is different and includes §§ 16-1-4(b)(3) & (8), § 16-1-6(n) and § 16-1-11. DHHR BPH should clarify the authority upon which it asserts the Proposed Rule is necessary and appropriate.

Section 16-1-4 authorizes the proposal of rules by the secretary in accordance with the West Virginia Administrative Procedures Act for regulation of:

> § 4(b)(2) - "The sanitary condition of all institutions and schools, whether public or private, public conveyances, dairies, slaughterhouses, workshops, factories, labor camps, all other places open to the general public and inviting public patronage or public assembly, or tendering to the public any item for human consumption and places where trades or industries are conducted;"
>
> § 4(b)(3) - "Occupational and industrial health hazards, the sanitary conditions of streams, sources of water supply, sewerage facilities and plumbing

systems and the qualifications of personnel connected with any of those facilities, without regard to whether the supplies or systems are publicly or privately owned; and the design of all water systems, plumbing systems, sewerage systems, sewage treatment plants, excreta disposal methods and swimming pools in this state, whether publicly or privately owned;"

§ 4(b)(5) - "Food and drug standards, including the cleanliness, proscription of additives, proscription of sale and other requirements in accordance with article seven of this chapter as are necessary to protect the health of the citizens of this state;" and

§ 4(b)(8) - "Fees for services provided by the Bureau for Public Health including, but not limited to, laboratory service fees, environmental health service fees, health facility fees and permit fees."

None of the quoted rulemaking language provides a basis for extensive and unreasonably burdensome requirements of the Proposed Rule. The Proposed Rule does not seek to regulate "sanitary conditions" or "food and drug standards" or even any "occupational and industrial health hazards" that have been demonstrated to require such regulation as authorized by § 16-1-4(b). Likewise, fees may only be assessed for permits or services that properly relate to activities that the DHHR BPH is lawfully authorized to regulate.

Section 6 identifies the powers and duties of the DHHR BPH which includes:

> § 6(m) "[t]o inspect and enforce rules to control the sanitary conditions of and license all institutions and health care facilities as set forth in this chapter, including, but not limited to, schools, whether public or private, public conveyances, dairies, slaughterhouses, workshops, factories, labor camps, places of entertainment, hotels, motels, tourist camps, all other places open to the general public and inviting public patronage or public assembly, or tendering to the public any item for human consumption and places where trades or industries are conducted."

> § 6(n) "[t]o make inspections, conduct hearings, and to enforce the legislative rules concerning occupational and industrial health hazards, the sanitary condition of streams, sources of water supply, sewerage facilities, and plumbing systems, and the qualifications of personnel connected with the supplies, facilities or systems without regard to whether they are publicly or privately owned; and to make inspections, conduct hearings and enforce the legislative rules concerning the design of chlorination and filtration facilities and swimming pools."

Again, the Proposed Rule does not seek to regulate "sanitary conditions of and license all institutions and health care facilities as set forth in this chapter." Likewise, DHHR BPH has not identified any occupational or industrial health hazard requiring regulation. Rather, the DHHR BPH has asserted that naturally occurring radioactive materials exist in black shales that results

in waste materials that may constitute TENORM. The existence of TENORM in and of itself does not constitute either a "sanitary condition" or "occupational or industrial health hazard" justifying the Proposed Rule. DHHR BPH simply lacks evidence to support that existing oil and gas operations lack sanitary conditions or constitute occupational or industrial health hazards as described in Chapter 16 of the West Virginia Code is therefore beyond the scope and authority of the DHHR BPH to promulgate the Proposed Rule. It is worth noting that Articles 20 (related to air pollution) and 26 (related to solid waste management) were repealed and moved from chapter 16 in 1994, thereby evidencing the Legislature's intent that those areas be regulated by the West Virginia Department of Environmental Protection.

Section 11 simply authorizes the commissioner to "assess and charge reasonable fees for the provision of services provided by the bureau." This language, however, is necessarily limited to charging fees for activities and oversight that DHHR BPH is lawfully authorized to regulate.

The Associations believe that the Proposed Rule is simply not supported by either facts or the statutory authority cited by DHHR BPH. Accordingly, the Proposed Rule should be withdrawn.

2. **Regulation of TENORM from Oil And Gas Activities, If Any, Should Be Undertaken by the Department of Environmental Protection's Office of Oil and Gas.**

The WVDEP, primarily through its Office of Oil and Gas, currently regulates every aspect of oil and natural gas exploration, production, and development in West Virginia. The statewide regulatory programs, administered by the Office of Oil and Gas, Division of Air Quality and Division of Water and Waste Management, provide consistency across the State in conformity with the purpose for which the Department of Environmental Protection was organized. Indeed, the West Virginia Legislature expressly recognized the need for uniformity and consistency with respect to enforcement of the environmental law in our State. In W. Va. Code § 22-1-1(a)(5), the Legislature declared that

> "[t]hose functions of government which regulate the environment should be consolidated in order to accomplish the purposes set forth in this article, to carry out the environmental functions of government in the most efficient and cost effective manner, to protect human health and safety and, to the greatest degree practicable, to prevent injury to plant, animal and aquatic life, improve and maintain the quality of life of our citizens, and promote economic development consistent with environmental goals and standards."

This declaration of policy by the West Virginia State Legislature underscores the importance of uniformity and regulatory consistency for business growth and economic development in West Virginia. Without a uniform and consistent approach to the regulation of oil and natural gas across the State, growth and expansion of our industry will be impeded, and employment and economic benefits will be lost.

The West Virginia Solid Waste Management Act (W. Va. Code §22-15-1, *et. seq.*) allows for commercial solid waste facilities to lawfully receive drill cuttings and drilling waste generated from horizontal well sites within certain parameters. The West Virginia Legislature intended to give the WVDEP exclusive authority to regulate the disposal of such drilling wastes, including any containing TENORM. In fact, W. Va. Code §22-15-8(j) required the WVDEP secretary, on or before July 1, 2015, to submit to the Legislature an investigation and report which examined the hazardous characteristics of leachate from solid waste facilities receiving drill cuttings and drilling waste, including the presence of radium and radon; the technical and economic feasibility and benefits of establishing additional and/or separate disposal locations which are funded, constructed, owned and/or operated by the oil and gas industry; and viable alternatives for the handling, treatment, and disposal of drill cuttings. Obviously the Legislature found the WVDEP, rather than the DHHR BPH, to be the proper authority to conduct research and provide findings regarding any possible hazardous characteristics of drilling waste and the handling and disposal of such waste. W. Va. Code §22-15-4 states that the Director of WVDEP is primarily responsible for the permitting and regulating of solid wastes. In that section, the Commissioner of the Bureau of Public Health is given authority to enforce public health laws over solid waste which presents an imminent and substantial endangerment to the public health.

It has not been shown that TENORM poses such an imminent and substantial danger to the public health, so WVDEP retains primary responsibility for regulating drilling waste (on drilling sites and in the disposal chain), including TENORM.

3. The Reports Referenced by DHHR BPH Do Not Support the Proposed Rule

The Proposed Rule represents a solution looking for a problem that does not exist. Contrary to the assertions made by DHHR BPH in referencing a report titled "Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) Study Report" published in January 2015 and revised in May 2016, which was prepared by PermaFix Environmental Services, Inc. for the Pennsylvania Department of Environmental Protection ("PA TENORM Report"), the Report does not support or establish a need for the Proposed Rule. As part of its basis for the Proposed Rule, DHHR BPH asserts that the PA TENORM Report concludes that there "is a potential for radiological environmental impacts" from spills of hydraulic fracturing fluid, spills of flowback fluid and spills from produced water, along with potential for spills associated with the transportation and delivery of these fluids. The PA TENORM Report did not evaluate the reasonable likelihood of such spills or environmental impacts or report that such spills and accompanying environmental impacts in fact occurred. Rather, the Report simply observed that "there is a potential," which, of course, could be said for many everyday activities.

More significant than the language quoted by DHHR BPH is the language in the PA TENORM Report that was not included in the explanation of the need for the Proposed Rule. With regard to observations made at well sites, the Report concludes:

- There is little potential for internal radiation exposure to workers and members of the public from α and β surface radioactivity from natural gas well site development drilling operations.

- There is little potential for exceeding public dose limits from external gamma radiation during the drilling phase of natural gas wells.
- There is little potential for additional Rn exposure to workers and members of the public during the flowback phase of unconventional natural gas wells.
- There is little potential for radiological exposure to workers and members of the public from the handling, hauling, and temporary storage of vertical drill cuttings on natural gas well sites.
- There is little potential for radiological exposure to workers and members of the public from handling, hauling, and temporary storage of horizontal drill cuttings on natural gas well sites.
- There is little potential for radiological exposure to workers and members of the public from hydraulic fracturing proppant sand.
- There is little potential for radiological exposure to workers and members of the public from drilling mud.
- There is little potential for radiological exposure to workers and members of the public from handling and temporary storage of hydraulic fracturing fluid on natural gas well sites. However, 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.
- There is little potential for radiological exposure to workers and members of the public from handling and temporary storage of flowback fluid on natural gas well sites. However, 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.
- There is little potential for radiological exposure to workers and members of the public from handling and temporary storage of produced water on natural gas well sites. However, 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.
- There is little potential for additional Rn exposure to workers and members of the public on or near natural gas well sites.

With regard to well sites, the Report then recommends:

- Conduct research and investigation of vertical and horizontal drill cuttings for beneficial use, onsite disposal, and future landfill disposal protocols.
- Add sampling and analyses for Ra-226, Ra-228, and additional man-made radionuclides such as tracers used in the O&G industry to Pennsylvania spill response protocol for spills of flowback fluid, hydraulic fracturing fluid, or produced water. Field survey instrumentation should also be available for surveys of areas impacted by the spill.

It is disingenuous to select out-of-context quotes from the PA TENORM Report to support the conclusion that a regulatory program like that contained in the Proposed Rule is

necessary or appropriate. As revealed by a fair reading the Report reflects a far different story. There is purely and simply "little potential for radiological exposure to workers and members of the public" related to oil and gas drilling and completion activities. Further, the Report does not attempt to address the frequency or likelihood of spills of hydraulic fracturing fluid, flowback or produced fluids at well sites or during transportation.

Again, because the Proposed Rule is based upon, at best, a misreading of the PA TENORM Report, the Proposed Rule should be withdrawn, or at minimum, oil and gas drilling and completion operations should be exempt from the Proposed Rule.

DHHR BPH also referenced a 2012 study by the Conference of Radiation Control Program Directors ("CRCPD") - E-42 Task Force which included recommendations that (i) training requirements for oil and gas TENORM workers be augmented and (ii) the oil and gas industry develop and incorporate best management practices and/or guidance. As recently as June 2015, the E-42 Task Force published a report titled "Review of TENORM in the Oil & Gas Industry" in which it made recommendations that (a) CRCPD establish a working group to work with stakeholders in the development of radiation exposure baseline for oil and gas workers exposed to TENORM in the conventional oil and gas industry to allow for comparison to the exposures in the unconventional drilling and completion operations, (b) the oil and gas industry develop and incorporate best management practices and/or guidance in connection with oil and gas permitting requirements, (c) existing processes for permitting oil and gas operations be amended to include an assessment of TENORM impacts and (d) compiling and maintaining a database of the concentrations and volumes of TENORM, among other recommendations.

The E-42 Task Force has not recommended the creation of new full scale regulatory programs to be imposed on oil and gas operations. Rather, the recommendations include incorporating TENORM evaluation and protections into existing regulatory programs. In the case of West Virginia that would involve the Office of Oil and Gas in the Department of Environmental Protection. A much more efficient and practical approach to evaluating the environmental and health impacts of TENORM in the oil and gas industry is to utilize the West Virginia Department of Environmental Protection's Office of Oil and Gas data collection and development of best management practices for the oil and gas industry. The Office of Oil and Gas has the expertise to understand how the oil and gas industry operates and how to best address TENORM as necessary and appropriate.

DHHR BPH does not mention a recent study of unconventional oil and gas wells in Monongalia County, West Virginia designed as the most comprehensive transparent analysis and study of Marcellus wells in the country. The Marcellus Shale Energy and Environmental Laboratory ("MSEEL") project is led by West Virginia University and the Ohio State University in partnership with Northeast Natural Energy, Schlumberger and the National Energy Technology Laboratory of the United States Department of Energy. It is the first-ever long-term, comprehensive field study of shale gas resources in which scientists will study the process from beginning-to-end. Preliminary findings concerning drill cuttings and completion fluids are consistent with the PA TENORM Report.

In addition, a WVDEP report that was provided by July 1, 2015, and included the Marshall University Center for Environmental, Geotechnical and Applied Sciences study of Radioactivity Associated with Marcellus Shale Exploration and Disposal of Related Material, further demonstrated that there was no cause for regulation of drill cuttings and similar materials. The report reflected results of studied radioactivity of leachate at landfills; some that accepted drill cuttings and some that did not accept them. Drill cuttings were also collected and analyzed; two sets from vertical drilling operations and three from horizontal Marcellus Shale wells. The study did find that drill cuttings from the Marcellus Shale formation contain radioactive compounds at levels higher than the overlying strata, and are likely contributing to radioactive compounds present in landfill leachate. However, radioactive compounds are also found at the landfills that don't accept drill cuttings. Landfills that accept drill cuttings are required to sample for radioactive materials once a month.

These sample results were analyzed to determine any statistical trends and it was found that no radioactive constituent showed evidence of accelerated increase over time and that such constituents showed steady levels or normal up-down fluctuations over time. The ultimate conclusion was that radioactive compound levels in landfill leachate are at similar levels at both landfills that accept drill cuttings, and landfills that don't accept drill cuttings. The study recommended that monitoring for radiological compounds in landfill leachate should continue, but that the frequency of monitoring should be reduced, as no trends have been observed that suggest radiological compounds have increased at a significant rate during the short-term time period that drill cuttings have been accepted into landfills. Again, the studies not referenced by the DHHR BPH simply do not find a significant threat regarding drill cuttings and landfill leachate.

The Associations have attempted to work with and educate DHHR BPH concerning oil and gas operations in an effort to develop meaningful and appropriate oversight of TENORM in the oil and gas industry. In fact, IOGA President, Scott Freshwater, sent a letter dated September 13, 2016 to the DHHR Secretary, Karen Bowling, objecting to DHHR's demand that certain oil and gas operators register as a TENORM generator and pay a $12,500 fee annually. That letter also noted that the PA TENORM Report concluded there is "little potential" for harm to workers or the public and noted a report by Paul Ziemkiewicz, Ph.D., concerning the MSEEL study which indicated that the risks associated with natural gas development at a well site in Monongalia County, West Virginia is manageable and does not pose a significant risk to public health. The letter suggested that existing regulatory programs administered by the West Virginia Department of Environmental Protection are adequate to protect the environment and worker and public safety. The DHHR has yet to respond to that September 13, 2016 letter.

4. The Fiscal Note Preceding the Proposed Rule Does Not Comply with the West Virginia Administrative Procedures Act and Does Not Acknowledge the Proposed Rule Is an Impediment to Economic Development in West Virginia

West Virginia Code § 29A-3-5, incorporating by reference § 29A-3-4(b), requires that a proposed rule "shall have a fiscal note attached itemizing the cost of implementing the rules as they relate to this state and to persons affected by these rules. The fiscal note shall include all

information included in a fiscal note for either house of the Legislature and a statement of the economic impact of the rule on the state or its residents." The fiscal note provided by DHHR BPH is devoid of any information concerning the cost of implementing the Proposed Rule.

For example, the extensive and myriad requirements of the Proposed Rule will create an unnecessary burden upon the industry by requiring, among other requirements:

- Applications for registrations and renewals of registrations
- Inspection of containers
- Labeling of containers
- Expand the AST rule to TENORM tanks
- Sampling and analysis of TENORM waste and monitoring of equipment
- Manifest of shipments
- Radiation protection program, with associated monitoring of radiation levels/exposure
- Radiation safety officer
- 40 hours of training for safety officer
- 8 hours annual training for all employees
- Reclamation records
- Posting of financial assurance
- Quarterly report of TENORM transferred
- Recordkeeping
- Site closure requirements
- Statement to facility owner of use or storage of radioactive material at facility
- Deed annotations indicating presence of TENORM

The Associations are not aware of any attempt by DHHR BPH to gather information or otherwise to assess the cost of compliance with the Proposed Rule by the oil and gas industry, or any other industry. Thus, the promulgation of the Proposed Rule is legally deficient and should be withdrawn and re-proposed after developing a fiscal note that complies with legal requirements.

The Legislature is interested in the impact of proposed rules because such rules can and do adversely impact the business climate in West Virginia. The additional out-of-pocket and administrative costs associated with compliance with the Proposed Rule, no accompanying reduction in risk to the public or environment, will adversely affect economic investment in West Virginia and job creation. The Proposed Rule imposes significantly more burden on the oil and gas operations in West Virginia relative to TENORM than neighboring states like Pennsylvania and Ohio, which, all other things being equal, will drive investment decisions to budget development in neighboring states before investing in West Virginia natural resource development. The results of the Proposed Rule could be to divert billions of dollars of investment away from West Virginia, along with the direct and indirect jobs such investment would create. The risk of ill-advised rules and regulations can also cause loss of revenues to the state (severance and income (both individual and corporate) taxes), counties (ad valorem taxes)

and individuals (royalty income). None of these material economic impacts were considered by the DHHR BPH and, thus, none were included in the fiscal note for the Proposed Rule.

5. The Proposed Rule Should Exempt Wastes from Wells Drilled Pursuant to Well Work Permit Issued Under Articles 6 and 21, Chapter 22 of the W. Va. Code

The Proposed Rule is promulgated on the basis of reports that focus on hydraulically fractured horizontal shale wells that involve dramatically higher quantities of drill cuttings and waste fluids than conventional wells and coalbed methane (CBM) wells drilled pursuant to permits issued in accordance with W. Va. Code Chapter 22, Articles 6 and 21. Even assuming that the Proposed Rule is supported by existing statutory authority or scientific evidence, regulating conventional well and CBM operations within the Proposed Rule is unreasonable and unsupported by evidence. Oil and gas operators have drilled and operated conventional wells in West Virginia for a century and have drilled CBM wells for decades, and the Associations are aware of no example or evidence of radiation hazards to human health or the environment from those wells. In the absence of any evidence to the contrary, the Associations request that well work performed in accordance with permits issued under Articles 6 and 21, and the waste streams arising from such wells, be expressly exempt from the Proposed Rule.

6. The Proposed Rule Should Be Revised to Limit Incorporation of 64 C.S.R. 23

The stated purpose of the Proposed Rule is to "establish radiation protection standards for TENORM" including the "possession, use, processing, manufacture, distribution, transfer, and disposal of TENORM and of products containing TENORM." The purpose also states that the provisions of the Proposed Rule "are in addition to the definitions and applicable requirements of W. Va. Code R. § 64-23-1, *et seq.*" However, nowhere in the Proposed Rule are the applicable requirements of § 64-23-1, *et seq.* identified or otherwise listed. The Radiological Health Rules are 371 pages covering numerous industries, primarily related to health care applications. Those rules are referenced generally 11 times, and one reference is made to § 64-23-6, which section alone is 32 pages of detailed requirements. More specifically, §§ 4.1, 6.1.a., 7.1, 8.1.b., 9.4.a.2., 9.4.b., 9.4.c., 13.2., 15, 15.2. and 15.4. incorporate by reference the entire 371 page Radiological Health Rules. The Associations request that the Proposed Rule be revised to make references to the specific sections and subparts which are being incorporated by reference. Such broad references unreasonably complicate and burden the persons subject to the Proposed Rule with uncertain compliance obligations.

The Proposed Rule creates a conflict with § 16 "Radiation Safety Requirements for Technologically Enhanced Radioactive Materials (TENORM)" of 64 C.S.R. 23, which authorizes the receipt, ownership, possession, use, processing, transfer, distribution or disposition of TENORM pursuant to a general registration automatically issued to "possess, own, use, transfer, distribute or dispose of TENORM without regard to quantity." The general registration provides persons and entities the authority to possess and transfer TENORM waste, subject to §§ 16.5 through 16.8. No explanation or reconciliation of the Proposed Rule and § 16 of the Radiological Health Rules is provided.

7. The Proposed Rule Fails to Follow the "Commensurate with Risk" Principal

If adopted, the Proposed Rule should provide for varying levels of regulation and protection based upon the risk of exposure to certain levels of radiation on an annual basis. The "one size fits all" approach of the Proposed Rule unnecessarily and unreasonably burdens operators where little or no risk is present. The application of the rule (and all rules for the safe management of radioactive material) should follow the "commensurate with risk" principal. For example, evaluations of the concentration and types of TENORM present and the potential exposure are recommended for potential registrants that are "commensurate with the potential magnitude of the anticipated impacts." In addition, the exemption for applicants which can demonstrate that maximum potential exposure from all sources of radioactive material is less than 100 mrem per year above background follows this principal. However, the prescribed levels of training for the RSO (40 hours) and additional "hard" requirements are not consistent. The rule should be consistent with the federal rule (Nuclear Regulatory Commission) provided below in this regard:

10 CFR 19 - NOTICES, INSTRUCTIONS AND REPORTS TO WORKERS: INSPECTION AND INVESTIGATIONS

§ 19.12 Instruction to workers.

(a) All individuals who in the course of employment are likely to receive in a year an occupational dose in excess of 100 mrem (1 mSv) shall be--

(1) Kept informed of the storage, transfer, or use of radiation and/or radioactive material;

(2) Instructed in the health protection problems associated with exposure to radiation and/or radioactive material, in precautions or procedures to minimize exposure, and in the purposes and functions of protective devices employed;

(3) Instructed in, and required to observe, to the extent within the workers control, the applicable provisions of Commission regulations and licenses for the protection of personnel from exposure to radiation and/or radioactive material;

(4) Instructed of their responsibility to report promptly to the licensee any condition which may lead to or cause a violation of Commission regulations and licenses or unnecessary exposure to radiation and/or radioactive material;

(5) Instructed in the appropriate response to warnings made in the event of any unusual occurrence or malfunction that may involve exposure to radiation and/or radioactive material; and

(6) Advised as to the radiation exposure reports which workers may request pursuant to § 19.13.

(b) In determining those individuals subject to the requirements of paragraph (a) of this section, licensees must take into consideration assigned activities during normal and abnormal situations involving exposure to radiation and/or radioactive material which can reasonably be expected to occur during the life of a licensed facility. The extent of these instructions must be commensurate with potential radiological health protection problems present in the work place. [Emphasis added.]

We believe that the Proposed Rule, with its requirements for manifesting and training for relatively low levels of radioactivity and potential exposure levels, is simply unjustified overkill with regard to oil and gas operations.

B. Specific Comments to Proposed Rule

§64-23.A-1. General

1.6. "Processing" is not included in Section 1.1, so it appears inconsistent to include "processes" here. "Distribution" is not included in Section 1.1, so it appears inconsistent to include "distributes" here.

1.7 "Processing" is not included in Section 1.1, so it appears inconsistent to include "processing" here. "Distribution" is not included in Section 1.1, so it appears inconsistent to include "distribution" here.

Why is the phrase ". . . and of products containing TENORM" used in Section 1.7, but not elsewhere, such as in Sections 1.6 or 1.8.a? Are there TENORM products that the DHHR BPH intends to regulate, in addition to TENORM waste?

"Licensing of TENORM, including registration termination" makes "licensing" and "registration" sound synonymous, or that one is a subset of the other. If they are synonymous, can a single term be used?

It is not clear to us which requirements of 64-23 are applicable in addition to this Proposed Rule. Will the DHHR BPH stipulate in the rule that compliance with Series 23.A constitutes compliance with Series 23?

1.8. Where references are made to pCi/g, we suggest that the comparable "per liter" thresholds should be provided for liquids (i.e. 5 pCi/g = 5,000 pCi/l)

1.8.a We urge the DHHR BPH to raise the exemption from 5.0 pCi/g to 50 pCi/g to match the recent WVDEP solid waste interpretive rule. That would be consistent with the 50.0 pCi/g limit for drums or shipping containers of TENORM waste in Section 3.2 of this Proposed Rule, as well.

A study conducted by the Argonne National Laboratory concluded that radiological doses and resultant health risks to the public are negligible when allowing disposal of petroleum industry wastes containing NORM at concentrations of 50 pCi/gm in nonhazardous landfills.

The study made the following conclusions regarding the potential doses and risks associated with disposing of 2,000 cubic meters of waste containing an average Ra-226 concentration of 50 pCi/g:

- Potential radiological doses and resultant health risks for workers actively involved in landfill operations would be negligible.

• Potential doses to an individual living adjacent to the landfill during the NORM disposal action and to the general population living within a 50-mi radius would be negligible.

• Potential doses to future industrial and recreational users of the landfill property would be negligible.

• Potential doses to hypothetical future residential users of the landfill property are most sensitive to depth of the NORM waste layer and integrity of the landfill cap; These doses would be negligible on the basis of the assumption that (a) the NORM wastes would be placed at a depth greater than approximately 10 ft below the cap and (b) the landfill cap would not be breached during construction of the home.

• Provided the NORM wastes are placed deeper than approximately 10 ft. below the landfill cap, the Michigan policy allowing wastes containing up to 50 pCi/g to be disposed of in Type II landfills is protective of human health.

1.8.b. It is not clear to us what is intended by this section. Does it allow persons to receive TENORM which is registered in accordance with Section 4.1 of this Proposed Rule without having to be registered themselves? Does that transfer of registered TENORM constitute TENORM that is "distributed in accordance with" such registration?

1.8.c. and 1.8.f . These exemptions would appear to exempt TENORM materials from specific industries regardless of the TENORM (Ra-226/Ra-228) concentrations. Commenters believe that the oil and gas industry should be similarly eligible for such an exemption, based on the lack of any clearly empirically demonstrated TENORM risk. We would appreciate an explanation of why these two industries receive these broad exemptions and the oil and gas industry does not.

1.8.e. We agree with the premise that generators who can demonstrate that the reasonably maximally exposed individual (RMEI) at a facility will not receive a public dose of greater than 100 millirems per year should be exempt from the Proposed Rule. We believe that each generator should be able to make that determination itself, subject to confirmation by the DHHR BPH. We can provide both quantitative and qualitative data to prove worker and public exposure is below 100 mRem/yr even though TENORM thresholds are exceeded. This is primarily due to the limited time spent at the facility, the primary and secondary containment, and the distance from the source. Therefore, we urge the DHHR BPH to remove the phrase ". . . the Bureau makes a determination, upon its own initiative or upon request for such determination, that . . . ."

We also suggest that this section be changed to clarify that generators who conclude that the RMEI at a location will be exposed to less than 100 mRem/yr are exempt from the DHHR BPH's Title 64, Series 23 rule, in addition to this Series 23A rule.

In this section there is a reference to millirems; in Section 3.3, to microroentgen. We suggest that one term be chosen, defined, and used throughout, unless the difference is a distinction that is important to maintain.

1.8.g. We propose that the DHHR BPH add another exemption, for TENORM generated at oil and gas production facilities. At a minimum, facilities that are the site of activities that are only regulated under W. Va. Code Chapter 22, Articles 6 and 21 (conventional oil and gas wells and CBM wells) should be exempt. In light of our knowledge of these sorts of wells, and the results of the Pennsylvania TENORM study, these wells simply do not produce TENORM in concentrations or quantities to merit application of this rule to them. The results of the PA TENORM Report also do not support the level of regulation proposed in this rule for horizontal well facilities permitted pursuant to W. Va. Code § 22-6A-1, *et seq.*, lacking any clear DHHR BPH evidence to the contrary.

§64-23.A-2. Definitions.

2.1 The term "registrant" is used throughout this rule, in addition to "applicant," but "registrant" is not defined in this Section 2. We request clarification as to whether "applicant" and "registrant" are intended to mean the same thing, as the definition of "Applicant" would seem to imply or, if not, what the difference is.

2.2 The defined term "beneficial to the product" is not used anywhere else in the Proposed Rule; should this definition be deleted? However, if retained for any reason, the word "necessary" in the proposed definition should be changed to "beneficial," since constituents of products can be legitimately beneficial even if not entirely necessary.

2.8 Is there any reason that the definition of "radiation safety officer" in 64-23A is different than in 64-23, which reads "one who has the knowledge and responsibility to apply appropriate radiation protection rules"?

It also appears that the reference to "section 12" should be to "section 17."

2.9. We request any guidance the DHHR BPH can offer with regard to cost effectively determining the RMEI in association with oil and gas facilities.

2.10. The definition of "reclaiming" presumes that at some time the property presented a health or safety hazard or threat to the environment, which will not necessarily be the case for every registered facility subject to this rule. In light of this definition, will the DHHR BPH confirm that Sections 8.3, 8.4, and 14.3 only apply to sites that did, in fact, present a health or safety hazard or threat to the environment?

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

3.1 This rule has "registration" requirements, not "licensing" requirements. We suggest that the same term be used throughout, unless licensing and registration are meant to convey different things.

3.2. It is not clear to us what standard is being applied when the Proposed Rule states that "containers of TENORM waste which are not of an average concentration must not exceed an average concentration of 50 pCi/g]. . ." Commenters request, at a minimum, that the words "which are not of an average concentration' be deleted.

3.3 We realize that the DHHR BPH regulates exposure, while the WVDEP is regulating concentrations of radioactive material, but in order to harmonize this Proposed Rule with the WVDEP's rule regulating disposal, we suggest that 50 pCi/g be added as an acceptable limit for equipment contaminated with TENORM.

3.4 No time frame is identified for how long containers can be stored at a facility. Please confirm that, as long as inspections are completed/documented, TENORM can be stored for as long as the registrant is following the registration guidelines.

3.4.a. Is there a distinction between "TENORM" and "TENORM waste"? If not, one term should be used; if so, a definition of "TENORM waste" and an explanation of what different rules apply to it, would be helpful. The terms appear to be used interchangeably throughout the Proposed Rule.

3.4.g.4. We urge the DHHR BPH to rely solely on OSHA and DOT for the labeling requirements and the levels of radiation that require labeling, in order to maintain consistency across multiple programs. If the DHHR BPH insists on a separate state labeling requirement, we suggest the label refer to "TENORM waste" rather than "radioactive material", to avoid conflict or confusion with OSHA labeling requirements for "radioactive materials" at 29 C.F.R. 1910.1096(e)(6), the DOT definition of radioactive materials at 49 C.F.R. 173.403, and labeling requirements at 49 C.F.R. 172.403.

3.4.h. What is the significance of five years? According to Sections 3.8.c and 3.9 of the Proposed Rule, reports must only be retained for three years. Also, three years is the time that SPCC inspections are required to be retained. Uniformity would be beneficial.

3.5 . W.Va. Code R. § 64-23-3 reads "Disposal and transfer of waste for disposal" but the heading for 3.5 identifies TENORM generally. This should be changed to identify TENORM waste, if that is a separate category. If the intent of this heading was to also encompass ASTs containing TENORM in, e.g., production tanks in which sediment has settled, but not been removed, then many sections such as 3.4.c. and 3.4.g are not feasible.

3.5.a. We are concerned that these tank inspection requirements are directed at many tanks that are not regulated under the Aboveground Storage Tank Act, W. Va. Code 22-30-1, *et seq*. There should not be two different programs evaluating tank integrity. We urge the DHHR BPH to leave regulation of aboveground storage tanks to the WVDEP. As presented here, the AST regulatory inspection requirements would be more than is necessary or justified by the hazard or risk.

3.6 . We do not believe there is a need for a manifest system for the transport of TENORM. Regulation should correlate to the risk, and the risk posed by the transfer of TENORM from oil and gas sites does not merit the burden of a manifest system. Any appropriate shipping paper, rather than a "manifest," should be adequate for transportation of TENORM.

3.6.b. Is the "radioactive material registration number of each transporter" actually required for transporters of all TENORM $\geq$ 5 pCi/g? If a DOT Class 7 is not triggered, transporters need not have a radioactive material registration number, so it can't be put on a manifest.

3.6.e. For liquid TENORM wastes, the total quantity should be allowed to be expressed in gallons rather than in tons or cubic yards. Same comment applies to section 3.9 as well.

3.7. We suggest this certification statement be changed to "I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked, and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national government regulations" to be consistent with DOT requirements, and only be required under this rule when the TENORM waste meets DOT definition of radioactive material at 49 CFR § 173.403.

3.8. Section 3.8 is essentially requiring the same manifest requirements as for hazardous waste. This TENORM waste is not hazardous waste, so the same level of manifesting should not be required unless clearly justified, which has not be done in this case.

3.8.d. This implies use of a multi-copy manifest, which is not specified anywhere in this rule. Section 3.6 already requires that the manifest/shipping paper accompany the shipment, so there is no need to include a requirement here to give it to the transporter; that's implied by section 3.6.

3.8.e. Notification of a missing manifest should only be required if the missing manifest is not found or its absence resolved. Generally a missing manifest is a document management error, not a missing load of waste. DHHR BPH can audit those manifests when it wishes to do so.

3.9. Annual reports should be sufficient. We see no justification for requiring quarterly reporting, which imposes cost on the industry without providing any environmental benefit.

§64-23.A-4. Registrations.

As a general comment, licensing of TENORM is not the same as licensing the use of by-product material such as Cs-137, where specific quantities of material are known and controlled. For oil and gas operators, 100 wells could be drilled, completed and produced with levels below 5 pCi/g. On the 101st well, analysis could register more than 5pCi/g, but on the 102nd well and the next 100 wells, it's back to less than 5pCi/g. Is the operator required to register that one pad, then deregister that one pad immediately after?

Registrations should only be required for disposal facilities. A RSO can establish relevant safety procedures at a well site, or other location, and transporters are regulated under DOT regulations. The TENORM generator should have a safety plan in place, and use appropriate transporters to take the TENORM to a registered facility or out-of-state.

4.1. Existing W.Va. Code R. § 64-23-16.9.a says that "a registration is hereby issued to possess, own, transfer, distribute, or dispose of TENORM without regard to quantity." It's not entirely clear if this new 64-23A-4.1 is requiring something different, or it the "hereby issued" registration from 64-23-16.9.a is intended to satisfy this requirement.

The "without regard to quantity" appears to ignore the < 5 pCi/g exemption at Section 1.8.a and the 100 millirem per year exemption of Section 1.8.e. We suggest the DHHR BPH add the words "except as provided by Section 1.8 of this rule" at the end of Section 4.1.

4.2. The reference to "registrant" appears to include all sites with TENORM that are operated by the registrant. Registrants will usually own or operate many physical locations that do not contain TENORM and/or are not subject to the registration. The statement should be clarified that it encompasses only those facilities that are part of the registration.

The limitation on allowable maintenance is problematic since it prohibits the registrant and contractors under its control from performing non-routine maintenance, with no further explanation as to who would be allowed to perform that maintenance. The registrant, or contractors under its control, should be allowed to perform any maintenance that is necessary, recognizing that if certain activities have increased radiation exposure potential, appropriate measures should be implemented. Those safety measures are one of the principal purposes of the registrant's safety plan.

The term "decontamination" is used but not defined in this rule or in existing W.Va. Code R. § 64-23, which makes this sentence potentially problematic since it could be interpreted to mean simple routine cleaning. It's also unclear who are "persons registered by the Bureau" who could perform the decontamination. Does that include TENORM registrants and their employee and contractors, or does it mean someone else? This is something better addressed in a site safety plan, rather than develop some sort of decontamination licensing program.

The phrase "decontamination of equipment, facilities and land" should be followed by "exceeding the thresholds listed in section 1.8.a and 3.3 of this rule."

4.3. As noted in comments above, it's not clear how the registration requirements "under this rule series" may or may not differ from the existing registration language in W.Va. Code R. § 64-23-16.9 and 16.10.

4.3.b. Two description requirements are listed in 4.3.b. and 4.3.c. We request guidance on what information will be required within the description of each location. Furthermore, "facilities" (plural) suggests that a registrant can have multiple facilities, and perhaps (or presumably) obtain one registration (with one registration fee) for those multiple facilities, which we believe is the proper approach.

4.4.a.1 We suggest the following changes: <u>The equipment and facilities that contained TENORM or materials containing TENORM are to be used by the recipient for a similar purpose or managed in a similar manner, until decontaminated, if appropriate,</u> These suggested edits would allow for transfer of materials other than "equipment," "facilities," and "land," which are the only things addressed in 4.4.a.1 or a.2 as currently drafted. For example, we may want to transfer flowback or produced water (which may be considered TENORM if concentrations of Radium have increased over background) from one operator to another for use in fracturing fluids.

4.4.a.2. Identifying sites "contaminated" with TENORM in deed notations is inaccurate, in the sense that contamination is not necessarily present, and there is no residual danger for

which annotation is needed. Furthermore, the registrant may not have an interest in property other than a leasehold, or similar non-fee interest, which might make deed notation difficult. It also works a hardship on the surface owner, which will have a notice in the land records that could devalue the land.

4.4.b Transfer of TENORM to out-of-state facilities will not be between West Virginia-registered persons. Companies that ship TENORM out-of-state would, according to the Proposed Rule, have to get advance approval for the shipment from the DHHR BPH. This is unwieldy and unnecessary.

4.5 We suggest changing "distribution" to "transfer" consistent with the title of the preceding section 4.4 and the wording throughout the other 4.4 subsections. If "distribution," as used here, was intended to mean something different than "transfer," then that requires further explanation and definition.

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

5.1. According to W.Va. Code R. § 64-23-16.9.a, "a registration is hereby issued to possess, own, transfer, distribute, or dispose of TENORM without regard to quantity," so it's unclear why this new section 5.1 requires an "application" for situations where a registration is already "hereby issued" per W.Va. Code R. § 64-23-16.9.a. In addition, we would appreciate having a copy of the application to review so we know how much information is being required.

We assume that the registration is a one-time event, and the registration fee of $500 is a one-time fee, not an annual assessment, and request confirmation of that.

5.2. It appears that the word "may" was inadvertently omitted before the word "require."

5.3. If the DHHR BPH intends to regulate only horizontal wells, and clearly states that, the exemption for sites permitted in accordance with W. Va. Code Chapter 22, Article 6A makes sense. If the Proposed Rule is intended to reach conventional and CBM wells, too, an exemption should be created for those wells permitted in accordance with W. Va. Code Chapter 22, Articles 6 and 21. We strongly urge the DHHR BPH to leave conventional and CBM well sites unregulated by the DHHR BPH.

For those oil and gas sites that are not permitted by the Office of Oil and Gas, the background check, and information about the applicant, are intrusive and simply unnecessary for the types of TENORM and low levels of radioactivity that would be generated at well sites. If there is some sort of criminal activity, or likely pattern of environmental culpability likely to occur as a result of TENORM handling, we suggest that the DHHR BPH identify it and tailor its rule accordingly, but not engage in the sort of paperwork exercises that provide no environmental protection. If the DHHR BPH is concerned about bad actors, we suggest it limit these requirements to those who could actually pose some harm, such as those generating a level of radioactivity (Ra-226/Ra-228) at the DOT threshold for classifying something as "radioactive material", which is 270 pCi/g or 270,000 pCi/l.

5.3.a. The exemption for Chapter 22, Article 6A permit holders is repetitive of the introductory statement in Section 5.3, which therefore already applies to Sections 5.3.a through 5.3.c. By including this statement again only in 5.3.a and 5.3.c below, a reader might conclude that the

exemption does not apply to 5.3.b, so we suggest either removing it from 5.3.a and 5.3.c, or adding it to 5.3.b.

5.6. As mentioned in the comment above at 4.3.b, we would appreciate the DHHR BPH confirming that a registrant with multiple locations (e.g. well sites) can cover all those location with one registration and one $500 registration fee.

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

6.1.a. W. Va. Code R. 64-23-1, *et seq*. is a lengthy rule, and we urge the DHHR BPH to specify the parts of 64-23-1 that apply to applicants under this rule. The general rule should be that a registration will issue if the applicant has a RMEI onsite that will receive more than 100 mRem/yr and the generator has demonstrated through a site safety plan and other measures that appropriate action will be taken to protect worker health and public safety.

6.1.d. It's not clear what is meant by "all applicable special requirements" since there is nothing in this rule identified as "special requirements." This section 6.1 just deals with approving the application, so this should simply refer to the "application requirements."

6.1.f.3. When emergencies occur, the use of contractors will often depend on the site location, the type of emergency (which likely will not involve concerns about TENORM) and other factors that cannot be predicted in advance. In addition, it is not clear to us what is meant by "procedures for waste reduction and quality assurance for items released for unrestricted use" means in the context of emergency response.

6.1.g. Not all TENORM material is "used;" some is simply generated and stored prior to transfer offsite. The wording "use location" should be changed to "location".

6.1.g.2. The term "facility" is undefined in this rule and is more applicable in normal settings of radiological concerns (health care facilities, x ray departments, etc.) It is not sufficiently descriptive in the oil and gas setting. Is the well a facility? Is the facility owner the producer? Is the facility owner the surface owner, mineral owner? Who has to be informed?

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

7.1. As in the comment to Section 6.1.a above, a broad statement requiring compliance with all of W.Va. Code R. § 64-23 seems unreasonable here. We suggest this section be changed to simply require the application to meet the requirements of this rule.

We would appreciate an explanation of what the agency has in mind with regard to "form" and "conditions and limitations" that they may deem appropriate or necessary for oil and gas facilities. This is very open ended, as drafted, and could essentially allow the agency to require almost anything beyond what's already stated in the regulations.

7.2. This section appears to be redundant of Section 7.1. If it is intended to impose any new substantive requirements, we would appreciate knowing what they would be. If it is the same, we offer similar comments here as well.

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

8.1.a. Requiring compliance with all "rules and orders of the Bureau" is overly broad. This apparently would require compliance with requirements even beyond W.Va. Code R. § 64-23-1 *et. seq*. We would appreciate clarification as to which parts of that rule, or other rules and orders of the DHHR BPH, may apply to oil and gas operations.

8.4. Commenters suggest that the beginning of the sentence be modified to read "When a registrant has permanently ceased use or possession of TENORM at a site or portion of a facility . . . ."

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

9.1. It's not clear how long a registration term is intended to be. We believe it should be no less than 5 years, and would prefer a longer term.

9.2. The wording "radioactive material" should be changed to "TENORM" consistent with the scope of the Proposed Rule.

9.4.a.2 A more specific reference than W.Va. Code R. § 64-23-1 *et seq*. is needed here.

9.4.a.3. It's not clear what was meant by "dispose of the TENORM specified in the registration," since not all registered TENORM will necessarily be intended for disposal. Commenters suggest this section be revised to read "Properly dispose of any TENORM waste."

9.4.a.4. Is the form "Certificate: disposition of radioactive material" available for review?

9.4.a.5. The detailed monitoring requirements in Sections 9.4.a.5.A through 9.4.a.5.F seem unnecessary for the levels and types of TENORM associated with oil and gas sites, particularly since the Pennsylvania study that the DHHR BPH refers to as a basis for this rule concluded that the onsite radiation levels were not of significant concern.

9.4.a.5.E. and F. These two subparagraphs require laboratory analyses, which may not be able to be completed and submitted prior to the expiration date, as required by 9.4.a.

9.4.b and c. We are requesting specificity as to which sections of W.Va. Code R. § 64-23 are being referred to here.

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

10.1. We suggest adding a reference to Section 9.3.a, since the requirement to submit the application at least 30 days prior to expiration is stated in Section 9.3.a, but is not repeated here in Section 10.1.

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

What action constitutes an official amendment? Will an amendment be required each time a facility is identified that is over the listed thresholds or each time TENORM is removed from a tank? In addition, an amendment should not require another $500 fee.

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

13.1. We suggest deletion of this section. Existing registrations should be grandfathered until their expiration and potential renewal dates. Changes to rules and orders subsequent to the issuance of a registration should not be grounds for automatically amending, revising, or revoking a registration. If changes to rules or orders suggest that changes to registrations may be needed, the Bureau can invoke the provision in Section 5.2 to pursue that without this Section 13.1 language.

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

We suggest adding the acronym "TENORM" before the word "contaminant" or "contamination," and substituting that acronym for "radioactive materials".

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

There is no need for financial assurance for oil and gas facilities for purposes of compliance with this rule. There is no significant long term environmental damage that is likely to occur that isn't already addressed by the bonding requirements of the WVDEP Office of Oil and Gas. In addition, rather than broad references to compliance W.Va. Code R. § 64-23-1, *et seq.*, we urge the DHHR BPH to specify the regulatory provisions it is referring to that apply to registrants.

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

16.1. W.Va. Code R. § 64-23-6 is 32 pages of detailed, highly technical requirements that the oil and gas industry is not yet familiar with. We need more clarity so we can better understand what exactly 64-23-6 requires and how to demonstrate compliance with those standards.

16.4 We assume that the RSO can be responsible for multiple sites, and multiple registrations, and request confirmation of that. It would be prohibitively expensive to have multiple RSOs, one for each well site, given the low levels of radiation, and the significant training required for each RSO.

16.7. Requiring 8 hours [note - typo in the rule, where "hours" is "house"] of classroom training per year for all employees far exceeds what is needed for the relatively low levels of radiation in TENORM at oil and gas facilities. Eight hours of classroom training would align more with an individual whose exposure would exceed the general public limit of 100 mRem/yr. Based on the location setup, limited time of exposure, and expanded distances between the employee and sources, this limit would not be exceeded in most circumstances.

16.8 To the extent these records must be kept, the retention time should be three years, not five, to make them consistent throughout.

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

17.1. An initial 40 hour training and 8 hour annual refresher seems to be more than is necessary for regulation commensurate with risk. This requirement is much more stringent than those of other states, such as Texas and Louisiana, which have long regulated NORM and TENORM. It is difficult to imagine the annual changes that would require such a rigorous training schedule. We suggest replacing "completed a Bureau-approved training program consisting of forty hours of classroom training and an eight hour refresher training in the following areas "with" sufficient knowledge of radiation with regard to the areas listed below to effectively oversee the management of TENORM covered by the registration."

The E-42 2015 report (page 36) suggests placing an RSO in charge of the program only if TENORM exposures are above 100 mEem/yr. The report also references the exposure range of 25-100 mRem/yr to a source of radiation with an activity concentration of 5 pCi/g.

17.2 This section is generally duplicative of section 17.1, and can be eliminated.

The Associations request that these comments be given serious and careful consideration. We look forward to reviewing the response to comments required pursuant to the West Virginia Administrative Procedures Act.

Respectfully Submitted,

West Virginia Oil and Natural Gas Association

By: *Anne C. Blankenship*

Its: Executive Director

Independent Oil and Gas Association of West Virginia, Inc.

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