

August 29, 2016

Mr. Stephen G. Burns, Chairman
U.S. Nuclear Regulatory Commission
Mail Stop O-16G4
Washington, DC 20555-0001

Re: Proposed Revisions to 40 CFR Part 61 - Subpart W, National Emission Standards for Radon Emissions from Operating Uranium Mill Tailings

Dear Chairman Burns:

As a follow-up to the recent meeting between you and your staff and representatives of Energy Fuels Resources (USA) Inc. ("Energy Fuels"), we would like to summarize the major concerns Energy Fuels has with the U.S. Environmental Protection Agency's ("EPA's") proposed revisions to 40 CFR Part 61 – Subpart W, *"National Emission Standards for Radon Emissions from Operating Mill Tailings"* (the "Proposed Rules").

As you know, Energy Fuels operates the White Mesa Uranium Mill in Utah (the "Mill"), which is the only operating uranium mill in the United States, and is also in the process of permitting the Sheep Mountain project, which is a proposed uranium heap leach processing facility in Wyoming. As a result, we believe our comments are representative of the industry as they relate to conventional uranium milling and uranium heap leaching. Energy Fuels also owns and operates the Nichols Ranch in situ recovery ("ISR") uranium facility in Wyoming, under NRC licensing, and the Alta Mesa ISR facility in Texas, which is licensed by the Texas Commission on Environmental Quality and is currently on standby.

By a letter dated October 29, 2014 (the "Energy Fuels Response Letter"), a copy of which has been provided to you, Energy Fuels has submitted detailed comments to the EPA in response to the Proposed Rules. However, since EPA has not advised as to which if any of our comments have been addressed, the comments below are made on the basis that the final Proposed Rules will be the same as those originally published by EPA.

Although Energy Fuels agrees with a number of the positions taken by EPA in the Proposed Rules, we have identified the following provisions in the Proposed Rules that are of serious concern to the industry. We believe that, since these concerns relate to how uranium mills and heap leach operations are regulated, they should also be of concern to NRC. Please see the Energy Fuels Response Letter for a more detailed discussion on each of the points below.

1. Water Cover over Evaporation Ponds

The Proposed Rules require that the liquid level in evaporation ponds (referred to in the Proposed Rules as “non-conventional impoundments”) at conventional uranium mills shall be not less than one meter. Energy Fuels believes this requirement will be prohibitively burdensome with little or no benefit.

EPA has already noted that the radon emissions from saturated tailings are only approximately 2% of emissions from dry tailings, and adding one meter of water would result in a negligible reduction.¹ Therefore there is no significant risk that would justify such a requirement. However, the following are significant costs associated with this proposed requirement:

- the cost of maintaining this one meter of liquid would be significantly greater than EPA has estimated, given the high evaporation rates and scarcity of water at facilities such as the White Mesa Mill;
- this requirement will seriously impact, and may eliminate, a uranium mill’s ability to recirculate tailings solutions back into the process, because the addition of fresh water will change the chemistry of the solutions;
- evaporative and holding capacity at a uranium mill is at a premium, and adding fresh water to the system would displace needed capacity for process solutions. This would upset the engineered water balance at the facility and would generally require design, permitting and construction of additional evaporative and holding capacity, at significant capital cost and time delay, with a resultant interruption to operations; and
- a uranium mill will be prevented from reducing solution levels in evaporation ponds from time to time to inspect and, if necessary, perform maintenance activities.

These costs are significant and are prohibitive. They cannot be justified, given the negligible, if any, benefits. Even reducing this proposed requirement from one meter of liquid to one foot of liquid would not adequately address our concerns, because, although the overall cost may be reduced, the requirement would still interfere with the engineered and permitted water balance at the milling facility.

In the Energy Fuels Response Letter, we have recommended to EPA that the Proposed Rule be changed to require full saturation or water cover on evaporation and similar ponds, but not to require a minimum liquid level in the ponds. That will provide the required protections, and is achievable under current licensing without significant additional cost.

2. Definition of 11e.(2) Byproduct Material

The definition of 11e.(2) byproduct material in the existing 40 CFR Part 61, Subpart W (the “Existing Rules”) and Proposed Rules is different from the definition in the Atomic Energy Act of 1954, as amended (the “AEA”).

¹ Fed. Reg. Vol. 79, No. 85, Friday, May 2, 2014, page 25398

The term “byproduct material” is defined in Section 11e.(2) of the AEA (42 USC 2014) as expanded and clarified by the NRC in 10 CFR 40.4, and reads as follows:

“Byproduct Material means the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes. Underground ore bodies depleted by such solution extraction operations do not constitute ‘byproduct material’ within this definition.”

This definition makes a distinction between tailings and other wastes and includes both in the definition of 11e.(2) byproduct material. As EPA has noted, “Uranium mill tailings are sand-like wastes that result from the processing of uranium ore. Tailings are stored in large surface impoundments called piles. . .”² The “wastes” referred to in the definition are all the other wastes generated in connection with uranium milling operations and site closure. These include: on-site generated trash, discarded piping and equipment, containers, drums, laboratory waste, used personal protection equipment, construction debris, windblown tailings and other contaminated soils, and any potential groundwater restoration liquids and residues etc., generated during milling operations and closure activities.

The regulatory regime applicable to uranium recovery facilities revolves around this definition of 11e.(2) byproduct material. The definition is intended to be very broad, to ensure that it captures all mill-related wastes, and that all such wastes are permanently disposed of in 11e.(2) tailings impoundments. Further, upon site closure, all 11e.(2) impoundments must be transferred to the US Department of Energy or the State for perpetual care and ownership. The definition of 11e.(2) byproduct material in the AEA may only be changed by Congress by an amendment to the AEA.

In contrast “Uranium byproduct material or tailings” is defined in the Existing Rules at 40 CFR 61.251(g) as follows:

“Uranium byproduct material or tailings means the waste produced by the extraction or concentration of uranium from any ore processed primarily for its source material content. Ore bodies depleted by uranium solution extraction and which remain underground do not constitute byproduct material for the purposes of this subpart.”

The Proposed Rules do not contemplate any changes to that definition.

This definition is different from the definition of 11e.(2) byproduct material under the AEA and the regulations promulgated thereunder. The definition under 40 CFR 61.251(g) purports to equate byproduct material and tailings as the same thing and defines them both as the wastes produced by the extraction or concentration of uranium ore etc. This blurs the distinction in the AEA between “tailings” and other “wastes”.

² Fed. Reg., Vol 58, No. 218, Monday, November 15, 1993, page 60340.

As 11e.(2) byproduct material impoundments are licensed to receive 11e.(2) byproduct materials, any regulations that apply to materials disposed of in an 11e.(2) byproduct material impoundment must use the AEA definition for those materials. Further, as will be discussed in more detail in paragraph 4 below, EPA derives its jurisdiction to regulate air pollutants from uranium mill tailings under the Clean Air Act by virtue of Section 275(d) of the AEA, which is tied to the AEA definition of 11e.(2) byproduct material. EPA's rules in Subpart W must therefore be tied to that same definition.

We don't believe EPA has the authority to promulgate a different definition of 11e.(2) byproduct material, and in any event a difference in such a key definition can lead to unnecessary confusion. That definition should be the same in the Proposed Rules as it is in the AEA and the regulations thereunder.

3. Definitions of "Operation" and "Closure Period"

There is confusion over the definitions of "operation" and "closure" in the Proposed Rules that needs to be clarified. Under the Existing Rules, EPA's jurisdiction over radon flux applies to tailings impoundments while in "operation" and ceases when "final closure begins". NRC or the applicable Agreement State has sole jurisdiction over radon emissions under 10 CFR Part 40, Appendix A, Criterion 6A, after "final closure" begins. Prior to the rescission of Subpart T, EPA asserted jurisdiction over radon emissions during the final closure process. However, because EPA determined that the NRC regulatory program protects public health with an ample margin of safety to the same level as would implementation of subpart T, EPA rescinded Subpart T in 1994, which left jurisdiction over radon flux to NRC after commencement of "final closure".

Under the Existing Rules, a tailings impoundment is considered to be in "operation" and hence subject to EPA's jurisdiction under Subpart W, so long as *tailings* from active milling operations are being disposed of in the impoundment. This is *absolutely the correct approach*. The intent of the current regulatory regime is that mill tailings impoundments are in "operation" so long as tailings sands from active milling operations are being disposed of in the impoundment or the impoundment is on standby for such placement. After tailings sands from active milling operations cease to be disposed of in the impoundment and it ceases to be on standby for such placement, the impoundment ceases to be in "operation", at which time EPA's jurisdiction under Subpart W ceases, and the closure process and NRC's sole jurisdiction begins, even though "non-tailings" 11e.(2) byproduct material may be disposed of in the impoundment after final closure begins. The existing regulations at 40 CFR 192.32(a)(3)(iv) and (v), and NRC's rules in 10 CFR Part 40, Appendix A, Criterion 6A(3), make it abundantly clear that *11e.(2) byproduct material* may be disposed of in tailings impoundments during the closure process, and that the closure process is subject to NRC jurisdiction, not EPA jurisdiction.

However, under the Proposed Rules, a tailings impoundment is considered to be in "operation" and hence subject to EPA's jurisdiction under Subpart W, so long as *11e.(2) byproduct material* is being disposed of in the impoundment. Operations for a conventional tailings impoundment should be tied to the disposal of *tailings sands* from active process operations, not the broader

category of *11e.(2) byproduct material*. Otherwise, EPA would be extending its jurisdiction under Subpart W into the closure process, which, with the rescission of Subpart T, is to be within the sole jurisdiction of NRC.

In the Energy Fuels Response Letter, we have proposed revisions to the Proposed Rules such that a conventional tailings impoundment would be considered to be in operation so long as it is being used for the continued placement of *tailings sands* from process operations or is on standby for such placement.

4. Dual Jurisdiction

The Existing Rules require that tailings impoundments shall comply with the requirements of 40 CFR 192.32(a)(i), *as determined by the Nuclear Regulatory Commission*. Under the Proposed Rules the phrase “*as determined by the Nuclear Regulatory Commission*” has been deleted.

The removal of the phrase “*as determined by the Nuclear Regulatory Commission*” in 40 CFR 61.252(b)(1) and (2) and a number of the additional record-keeping requirements in the Proposed Rules amount to dual jurisdiction over the construction and operation of uranium mill tailings impoundments. This is in contravention of Section 275(b)(1) of the AEA under which EPA is required to set standards of general application for the management of 11e.(2) byproduct material, and the implementation and enforcement of the standards is expressly stated to be the responsibility of NRC and Agreement States in the conduct of their licensing activities under the AEA. Section 275(b)(2) of the AEA also expressly states that no permit is required by EPA for the processing, possession, transfer, or disposal of 11e.(2) byproduct material.

Under the Existing Rules, Section 275(b)(1) of the AEA is honored, because whether or not the impoundment meets the standards in 40 CFR 192.32(a)(i) is to be determined by NRC, not EPA. However, under the Proposed Rules, EPA would give itself jurisdiction to also determine if those standards are met. This means that an operator would effectively need to simultaneously go through the entire design and permitting process for new tailings cells with the NRC or Agreement State and with the EPA. Otherwise, the facility would be subject to possible different implementation of the rules by EPA after the fact. There is no need for such dual jurisdiction in order to implement the NESHAPs requirements under the Clean Air Act, and it will unnecessarily burden the regulatory process. Such dual jurisdiction is tantamount to EPA requiring a permit for the disposal of 11e.(2) byproduct material, in contravention of the AEA.

In the Energy Fuels Response Letter, we have proposed to EPA that the phrase “*as determined by the Nuclear Regulatory Commission*” be retained in those and other sections of the Proposed Rules. We believe that NRC should also require that phrase to be retained. If EPA believes that NRC is not properly regulating the construction and operation of tailings impoundments, then EPA should propose amendments to the standards of general applicability set out in 40 CFR Part 192, or enter into a Memorandum of Understanding or other instrument with NRC under which both agencies agree on how the standards will be applied by NRC. The licensee should not be faced with unnecessary dual jurisdiction.

5. Proposed Application of Subpart W to Heap Leach Facilities

Under the Proposed Rules, Subpart W would be applied to heap leach piles for the first time. However, a conventional heap leach pile is not a tailings impoundment or 11e.(2) byproduct facility while in operation, and should therefore not be subject to Subpart W. Heap leaching is part of the milling process, and the Proposed Rules would interfere with such processing operations. Subpart W should apply only to tailings impoundments and 11e.(2) byproduct material and not extend to regulating process operations.

In the Energy Fuels Response Letter, there is a detailed discussion on how the proposed requirements cannot be met technically. For example, the requirement to maintain a 30% moisture content on a heap leach pile would have the effect of diluting process solutions and impacting operations. This is in stark contrast to a tailings impoundment at a uranium mill, where Subpart W does not apply to process operations, but only to tailings that have been finally disposed of after processing, and hence cannot impact processing.

Further, once process operations have ceased at a conventional heap leach facility, the fully leached ore would become 11e.(2) byproduct material, but the facility would then go into closure in place and be subject to the requirements of 10 CFR Part 40 Appendix A, not Subpart W. Hence, there is no place for regulation under Subpart W at conventional heap leach facilities, other than any non-conventional impoundments that may exist at those facilities. The radiological protection programs required under 10 CFR Parts 20 and 40 include adequate protections and monitoring for radon at such facilities.

EPA has taken the position that as ore is being leached, 11e.(2) byproduct material is being created; therefore EPA has jurisdiction over the pile while it is being leached. However, applying the same logic to a uranium mill would give EPA jurisdiction over the entire milling process, because, under EPA's logic, 11e.(2) byproduct material would be constantly being created during process operations. This amounts to EPA attempting to assert jurisdiction over uranium process operations that are required to be regulated by NRC under the AEA.

6. ISR Facilities

The Proposed Rules require that all evaporation ponds (non-conventional impoundments) meet the design and construction standards set out in 40 CFR 61.252(c). However, the Proposed Rules should expressly exclude one type of waste water storage and disposal method currently used at ISR operations from these requirements. This method involves discharge of treated waste water into reservoirs and disposal via land application. Prior to discharge, the waste water is treated for the removal of radium-226 to meet the NRC's 10 CFR Part 20, Appendix B, Effluent Concentration Limits and, as such, poses an insignificant risk of radon flux.

Although the treated water in these reservoirs could be considered to contain 11e.(2) byproduct material and hence could be considered to be subject to the requirements of Subpart W, we do not believe that such treated water reservoirs should be subject to Subpart W requirements.

Further, certain of these reservoirs were not designed, licensed or constructed to meet the requirements of 40 CFR 61.252(c). Therefore, requiring them to comply with the design and construction standards set out in 40 CFR 61.252(c) would require costly retrofits or replacement entirely with new facilities at significant cost, for no good reason.

7. Burdens and Costs of Proposed Rules

Finally, as discussed in detail in the Energy Fuels Response Letter, in its cost analyses EPA has underestimated the economic burdens and costs on industry that would result from implementation of the Proposed Rules.

All of the foregoing issues are of serious concern to the industry. Energy Fuels requests that NRC review these concerns carefully and take appropriate action. To the extent NRC agrees with our technical concerns and the unnecessary burdens imposed on operations by the Proposed Rules, we ask that NRC discuss those concerns with EPA. To the extent NRC agrees with our concern that the Proposed Rules will result in unnecessary dual regulation, in contravention of the AEA, we ask that NRC take steps to maintain its sole jurisdiction to apply the standards set by EPA in 40 CFR 192. To the extent that EPA has concerns about the manner in which NRC is implementing those standards, we believe EPA and NRC should work out those matters through a Memorandum of Understanding or other instrument, rather than through dual jurisdiction.

Energy Fuels would be happy to answer any questions you might have and provide additional information to assist you in your review of these matters.

Sincerely



David C. Frydenlund
Senior Vice President and General Counsel

cc: NRC Commissioner Kristine L. Svinicki
NRC Commissioner Jeff Baran
John Tappert, Andrea Kock, Bill von Till (NRC)
Jonathan Edwards (EPA)
Philip Goble (Utah Division of Waste Management and Radiation Control)
Jay Morris (Utah Division of Air Quality)
Laura Lockhart (Utah Attorney General's Office)
Katie Sweeney (National Mining Association)
Mark Chalmers, H. Roberts, S. Bakken, (Energy Fuels)