

**Piñon Ridge Uranium Mill Tailings Facility and Evaporation Pond
Construction Approval
40 C.F.R. Part 61, Subpart W
Background Information for Construction Approval**

EPA Region 8 reviewed the Application for Construction Approval submitted by Energy Fuels Resources Corporation (“Energy Fuels”) to EPA pursuant to 40 C.F.R. § 61.07 entitled “Piñon Ridge Mill Application for Approval of Construction of Tailings Facility” and “Piñon Ridge Mill Evaporation Pond Information” (collectively, the “Application”). The Application, submitted on August 30, 2010, and September 1, 2010, is for Phase 1 of a proposed operation for the Piñon Ridge Uranium Mill (the “Mill”). The Application states the Mill will process an average of 500 tons of ore per day. (See Application for Approval of Construction of Tailings Facility, p.3). In addition to the Application submitted, a telephone conversation took place on December 22, 2010, between EPA Region 8 and Energy Fuels representative, Frank Filas, regarding the size of the Phase 1 evaporation ponds (further discussion below; see Document EPA-PNR-005 in Administrative Record).

Additional documents relied upon in the review of the Application for construction of the tailings impoundments include the radioactive license application submitted to the Colorado Department of Public Health and Environment (“CDPHE”), State of Colorado, “Energy Fuels Inc. Piñon Ridge Uranium Mill Application,”¹ as well as all relevant revisions made to the original application submitted to the CDPHE.² EPA Region 8 looked into the RCRA requirements referenced in 40 CFR § 192.32(a), which is referenced in Subpart W. EPA Region 8 met with members of CDPHE and Energy Fuels’ representative and consultant to discuss the impoundment liner design. Additional information was submitted to EPA by Energy Fuels and the additional memo from the RCRA Program to the Air Program was written to reflect the additional insight gained in the review. Both memos from Steven Burkett are in the Administrative Record.

Facility Location

The proposed Mill is situated in Montrose County, Colorado on an 880-acre private parcel. The Property is located in Paradox Valley, approximately 12 miles west of Naturita and approximately 7 miles east of Bedrock, along the northeastern edge of Davis Mesa. The Mill’s address is 16910 Highway 90, Bedrock, CO 81411.

Energy Fuels Resource Corporation, owner and operator of the Mill, is located at 44 Union Blvd., Suite 600, Lakewood, CO 80228.

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¹ <http://www.cdphe.state.co.us/hm/rad/rml/energyfuels/application/index.htm>

² <http://www.cdphe.state.co.us/hm/rad/rml/energyfuels/postap/10docs/index.htm>

Regulatory Authority

EPA Region 8's authority over the Mill is derived from the Clean Air Act ("CAA"), as amended at 42 U.S.C. section 7401 *et seq.* The tailing cells and evaporation ponds at the Mill are regulated under 40 C.F.R. Part 61, National Emission Standards for Hazardous Air Pollutants ("NESHAP"), Subpart A – General Provisions ("Subpart A"); and Subpart W – National Emissions Standard for Radon Emissions from Operating Mill Tailings ("Subpart W").

Subpart W applies to "owners or operators of facilities licensed to manage uranium byproduct material during and following the processing of uranium ores, commonly referred to as uranium mills and their associated tailings." (40 C.F.R. § 61.250). Subpart W defines "uranium byproduct material or tailings" as "the waste produced by the extraction or concentration of uranium from any ore processed primarily for its source material content." (40 C.F.R. § 61.251(g)). Thus, any type of uranium recovery facility that is managing uranium byproduct material or tailings is subject to Subpart W. The requirements of Subpart W specifically apply to the structures at the uranium recovery facility that are used to "manage" or contain the uranium byproduct or tailings. At the Mill, these facilities are the tailings cell and evaporation ponds.

Subpart W requires that owners and operators meet either the standard in 40 C.F.R. § 61.252(a)³ for those facilities in existence prior to 1989, or choose one of two work practice standards in 40 C.F.R. § 61.252(b)⁴ for facilities constructed after 1989. In addition to the requirements of Subpart W, the requirements in 40 C.F.R. Part 61 Subpart A apply to Subpart W regulated structures. Subpart A requires owners or operators to submit to EPA an application for approval for either construction or modification of Subpart W regulated structures (i.e., tailings cells or evaporation ponds) before the construction or modification is planned to commence. (40 C.F.R. § 61.07). Energy Fuels submitted the Mill Application for Construction Approval in accordance with Subpart A, 40 C.F.R. § 61.07.

Energy Fuels has opted for the work practice standard found in 40 C.F.R. § 61.252(b)(1), which allows for: "Phased disposal in lined tailings impoundments that are no more than 40 acres in area and meet the requirements of 40 C.F.R. [section] 192.32(a) as determined by the Nuclear Regulatory Commission. The owner or operator shall have no more than two impoundments, including existing impoundments, in operation at any one time." In addition, 40 C.F.R. § 61.252(c) requires that, "All mill owners or operators shall comply with the provisions of 40 C.F.R. [section] 192.32(a) in the operations of tailings piles..." Therefore, in addition to reviewing the Energy Fuels Application materials for compliance with Subparts A and W, EPA also reviewed Application materials to evaluate compliance with 40 C.F.R. § 192.32(a). The provisions in 40 C.F.R. § 192.32(a) are implemented and enforced by either the Nuclear Regulatory Commission ("NRC") or an NRC Agreement State. In the case of the Mill, Colorado is an Agreement State, and therefore, is

³ "(a) Radon-222 emissions to the ambient air from an existing uranium mill tailings pile shall not exceed 20 pCi/(m²-sec) (1.9 pCi/(ft²-sec)) of radon-222." 40 C.F.R. § 61.252(g).

⁴ "(b) After December 15, 1989, no new tailings impoundment can be built unless it is designed, constructed and operated to meet one of the two following work practices:

(1) Phased disposal in lined tailings impoundments that are no more than 40 acres in area and meet the requirements of 40 C.F.R. [section] 192.32(a) as determined by the Nuclear Regulatory Commission. The owner or operator shall have no more than two impoundments, including existing impoundments, in operation at any one time.

(2) Continuous disposal of tailings such that tailings are dewatered and immediately disposed with no more than 10 acres uncovered at any time and operated in accordance with § 192.32(a) as determined by the Nuclear Regulatory Commission." 40 C.F.R. § 61.252(b)(1)-(2).

authorized by the NRC to enforce and implement 40 C.F.R. § 192.32(a). Although Colorado is responsible for implementation and enforcement of 40 C.F.R. § 192.32(a), Subpart W requires EPA to ensure compliance with the requirements of C.F.R. § 192.32(a). EPA conducted an independent review of compliance with 40 C.F.R. § 192.32(a).

Mill Operations and Proposed Facilities for Approval

Uranium milling is the process of extracting uranium from uranium ore and processing it into uranium oxide (i.e., yellowcake) to be further processed into fuel rods for nuclear power. Energy Fuels proposes to construct and operate the Mill to process uranium and vanadium ore into uranium oxide and vanadium oxide with the resulting processing wastes (i.e., uranium byproduct) being disposed of on-site in a tailings cell and evaporation ponds. It is anticipated the Mill will process an average of 500 tons of ore per day in Phase 1 of operation.

The milling operation begins with the receipt of the ore at the ore pad. From there it is mixed with water and ground into a fine slurry, which is treated with sulfuric acid to dissolve the metals from the solid material. Uranium and vanadium are recovered from the leach solution using a solvent extraction process where the slurry containing the barren solids will be pumped into the lined tailings cell. Typically, approximately 30 percent of the wastewater that cannot be recycled will be disposed of in the evaporation pond. The wastewater from evaporation ponds may also be pumped back from the evaporation pond to the tailings cell for use in dust suppression.

EPA is approving both Tailings Cell A, 30.5 acres, and the evaporation ponds (occupying a maximum surface area of 40 acres) of Phase 1 of the milling operation with this action. EPA's determination is that both Tailings Cell A, and the Phase 1 evaporation ponds will be in compliance with 40 C.F.R. § 192.32(a), as required by 40 C.F.R. § 61.252(c). EPA's proposed determination is based on information found in the Application, information contained in the license application and revisions to the application submitted to CDPHE (see footnotes on page 1, and cite to EPA website for review of application on page 7), as well as information submitted to EPA by Energy Fuels, subsequent to the public review period.

Public Review Period

An informal public review period is not required for this approval, but due to specific requests from interested and affected communities, the Agency provided a public review period from March 7, 2011 thru April 18, 2011. The Agency provided access to all relevant documents on the Agency website, and has prepared a response to comments.

Effective Date of Approval

EPA's approval of the construction of 30.5 acres in Uranium Tailing Cell A, and up to 40 acres of Phase I evaporation ponds, shall be effective immediately upon receipt of the signed hard copy Approval to Construct by the applicant.

Paperwork Reduction Act

Any requirements established by this Approval for the gathering and reporting of information are not subject to review by the Office of Management and Budget (OMB) under the Paperwork Reduction Act, because this Approval is not an "information collection request" within the meaning of 44 U.S.C. § 3502(4), 3502(11), 3507, 3512 and 3518. Furthermore, this Approval and any

information-gathering and reporting requirements established by this Approval are exempt from OMB review under the Paperwork Reduction Act because it is directed to fewer than ten persons, 44 U.S.C. § 3502(4) and 3502(11); 5 CFR § 1320.5(a).

Environmental Justice Considerations

On February 11, 1994, the President issued Executive Order 12898, entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." The Executive Order calls on each federal agency to make environmental justice (EJ) a part of its mission by "identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations."

This Subpart W Approval applies only to radon-222 emissions resulting directly from the operation of Tailings Cell A and the Phase I evaporation ponds. We have considered EJ in this action. An analysis of the Census data for the area surrounding the proposed mill indicates a likelihood that the percentage of area residents in poverty is at or slightly above the Colorado average, and that the percentage of area minority residents is below the Colorado average. In reviewing the application, EPA determined that the impoundment and the evaporation pond at the uranium mill will not cause a violation of the subpart W standards when properly operated; therefore, the proposed approval will not have substantial adverse human health or environmental effects on surrounding communities (including low-income populations). Despite this, and in the interest of providing an opportunity for meaningful involvement in the process for all interested individuals (including low-income populations), EPA has gone beyond the regulatory requirements and allowed for an informal public comment period on our Rad NESHAPs Construction Approval Intent to Approve, in which we specifically invited commenters to identify EJ impacts. With the exception of the commenter, who only referenced unnamed reports and did not make them available, no commenter identified an EJ community in the vicinity of the proposed mill.

Tribal Interests

Based on our research and on previous communications by the state of Colorado, we believe that the facility will not affect properties of religious or cultural significance to any Indian tribe. In 2009, CDPHE solicited input from three tribes with historic ties to the project area—the Ute Mountain Ute Tribe, the Southern Ute Tribe, and the Ute Tribe of the Uintah and Ouray Reservation. CDPHE also consulted with the SHPO as to potential properties of religious or cultural significance. CDPHE received no responses from the three Indian tribes. In 2010, CDPHE solicited input a second time from Indian tribes, and again received no input. We notified the three Indian tribes of their opportunity to provide input into EPA's decision, and received no comments from the tribes.

Explanation of Conditions and Adjustment to Facility's Application for Approval of Construction

The Application for Construction Approval requests approval for Tailings Cell A, which will be 30.5 acres (see Application for Approval of Construction, Piñon Ridge Tailings Facilities, page 3), and approval for an area of 41.3 acres of evaporation ponds (Evaporation Pond Design Report, Piñon Ridge Project, Montrose County, Colorado, page ES-1). EPA had to adjust the request since the regulations allow only two impoundments of no more than 40 acres each. EPA's approval, as

stated above, is for 30.5 acres for Tailings Cell A, and up to 40 acres of evaporation ponds in Phase 1 of the evaporation ponds, as that is what the regulations allow. (*See* 40 C.F.R. § 61.252).

In a telephone conversation on December 22, 2010, between EPA Region 8 (Dr. Angelique Diaz) and an Energy Fuels representative (Frank Filas), regarding the size of the Phase 1 evaporation ponds, Dr. Diaz informed Mr. Filas that any approval would only be for up to 40 acres of evaporation ponds, not the 41.3 acres outlined in the “Piñon Ridge Mill Evaporation Pond Information.” Mr. Filas indicated that this would not be an issue.

In addition, EPA added a condition to the Approval to minimize the amount of organic material placed in Tailings Cell A and the Phase 1 evaporation ponds. Minimizing the amount of organics in the impoundments will help to maintain the integrity of the liner system.

EPA is requiring that Energy Fuels submit a surface and groundwater monitoring plan at a future date because we understand that the plan cannot be finalized until the impoundment design is final and it is clear exactly where the groundwater monitoring wells will be placed.

Administrative Record

EPA has prepared an index to the Administrative Record. EPA amended the record after the informal public review period to include all comments received, a response to comments, and new documents considered in our decision.