

# Uranium Watch

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via electronic mail

Scott Anderson  
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RE: Energy Fuels Resources (USA) Inc., White Mesa Mill, License No. UT1900479,  
Approval of Reclamation and Decommissioning Plan Revision 5.1

Dear Mr. Anderson:

Below please find comments on the proposed approval of Reclamation Plan Revision 5.1 (Rev. 5.1) for the White Mesa Uranium Mill, San Juan County, Utah. The Mill is owned and operated by Energy Fuels Resources (USA) Inc. (Energy Fuels, or Licensee) under Radioactive Material License No. UT 1900479 and Utah Ground Water Discharge Permit No. UGW370004. The comments are submitted to the Utah Division of Waste Management and Radiation Control (DWMRC, or Division). Any older reference to the Division of Radiation Control (DRC) means the DWMRC. Reclamation Plan Revision 5.1. was submitted to the Division on August 10, 2016, and supplemented by the Signed Stipulation and Consent Agreement (SCA), White Mesa Mill, submitted by Energy Fuels on February 17, 2017.

Comments are submitted by Uranium Watch, Living Rivers, and the Utah Chapter of the Sierra Club. These comments incorporate by reference comments submitted by the Ute Mountain Ute Tribe and the December 21, 2011, comments submitted by Uranium Watch et al.

## 1. GENERAL COMMENTS

1.1. Revision 5.1 of the Reclamation Plan and the SCA were not placed on the list of License Renewal documents on the White Mesa webpage<sup>1</sup> where other License

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<sup>1</sup> <https://deq.utah.gov/businesses/E/energyfuels/whitemesamill.htm>

Renewal and Reclamation Plan documents were posted .<sup>2</sup> The Reclamation Plan 5.1 documents were later placed on a specific page, under “Project Information”<sup>3</sup> The Public Notice provided a link to these records. It was confusing to have the newest Reclamation Plan in another section, rather than where the other Reclamation Plan and License Renewal documents were posted.

1.2. The DWMRC “Technical Evaluation and Environmental Assessment” (TEEA) for the Radioactive Material License No. UT 1900479 and Utah Ground Water Discharge Permit No. UGW370004 was supposed to provide a technical analysis of the Reclamation Plan and an analysis of the environmental impacts associated with the Reclamation Plan Rev. 5.1 and the reclamation of Cell 2. The TEEA fails to provide a technical analysis and demonstrate why the Rev. 5.1 and the SCA meet the regulatory requirements for the reclamation of the Mill and Cell 2. The TEEA fails to include an environmental analysis of the Reclamation Plan, as required by the Atomic Energy Act (42 U.S.C. § 2021(o)(3)(C)). The pertinent AEA requirement for Agreement States reads:

(o) State compliance requirements: compliance with section 2113(b) of this title and health and environmental protection standards; procedures for licenses, rulemaking, and license impact analysis; amendment of agreements for transfer of State collected funds; proceedings duplication restriction; alternative requirements

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(3) procedures which—

(A) in the case of licenses, provide procedures under State law which include—

(i) an opportunity, after public notice, for written comments and a public hearing, with a transcript,

(ii) an opportunity for cross examination, and

(iii) a written determination which is based upon findings included in such determination and upon the evidence presented during the public comment period and which is subject to judicial review;

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(C) require for each license which has a significant impact on the human environment a written analysis (which shall be available to the public before the commencement of any such proceedings) of the impact of such license, including any activities conducted pursuant thereto, on the environment, which analysis shall include—

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<sup>2</sup> <https://deq.utah.gov/businesses/E/energyfuels/permits/denisonlicensereapp.htm>

<sup>3</sup> <https://deq.utah.gov/businesses/E/energyfuels/projects/reclamation-plan.htm>

- (i) an assessment of the radiological and nonradiological impacts to the public health of the activities to be conducted pursuant to such license;
  - (ii) an assessment of any impact on any waterway and groundwater resulting from such activities;
  - (iii) consideration of alternatives, including alternative sites and engineering methods, to the activities to be conducted pursuant to such license; and
  - (iv) consideration of the long-term impacts, including decommissioning, decontamination, and reclamation impacts, associated with activities to be conducted pursuant to such license, including the management of any byproduct material, as defined by section 2014 (e)(2) of this title; and
- (D) prohibit any major construction activity with respect to such material prior to complying with the provisions of subparagraph (C).

The Division has not produced a written analysis of the Reclamation Plan and SCA that accessed the 1) radiological impacts to the public health; 2) the impacts to surface water and groundwater; 3) alternatives, including alternative engineering methods; 4) or long-term impacts, which include impacts of decommissioning, decontamination, and reclamation. Such an environmental analysis was not available prior to the June 8, 2017, hearing in Salt Lake City, as required by 42 U.S.C. § 2021(o)(3)(A). Further, the Division has permitted the Licensee to conduct construction activity on Cell 2 prior to compliance with the provisions of subparagraph (C).

1.3. Section 2021(o)(3) demands that the Division produce a written environmental analysis of the Reclamation Plan Rev. 5.1, as supplemented by the SCA; hold a hearing, after public notice, on the Reclamation Plan after the environmental analysis is complete and made publicly available; and not authorize reclamation and decommissioning of Cell 2 until such a process is complete. The Division must also produce a technical evaluation of the Reclamation Plan Rev. 5.1 and SCA.

## **2. RECLAMATION PLAN REVISION 5.1**

**2.1. Referenced Documents.** The Reclamation Plan Rev. 5.1 (pages 1-2, 3-7, and R-1 to R-10) includes references to a number of documents previously submitted by the Licensee and documents produced by the Nuclear Regulatory Commission (NRC), the Division, or other entity.

### **COMMENT**

2.1.1. Any document that the Licensee relies on as part of the Rev. 5.1 and the Division is reviewing an relying on should be acknowledged by the Division and placed on the DWMRC webpage for the White Mesa Mill Reclamation Plan or a link to the document should be provided.

**2.2. Archaeological Resources.** Section 1.3 of Rev. 5.1 discusses Archaeological Sites and the Current Status of Excavation. Section 1.3 briefly discusses and lists the archaeological sites at the Mill and their status.

**COMMENT**

2.2.1. The Reclamation Plan does not provide any discussion of the short-term and long-term impacts to Archaeological Sites during decommissioning and reclamation activities and after site reclamation is complete. There is no mention of possible impacts to archaeological sites and other cultural resources when borrow material is obtained. There is no discussion of whether sites that may have been covered by excavated soils will be rehabilitated after final closure. Further, there is no discussion of other cultural resources in the vicinity of Mill that will be impacted; for example, traditional uses of the land for hunting and gathering. Revision 5.1 makes no mention of the responsibility of the Bureau of Land Management (BLM) to protect the archaeological sites on land that was transferred from the BLM to the Licensee in the 1980s.

**2.3. Fauna.** Section 1.7.1.2 of Rev. 5.1 discusses the fauna.

**COMMENT**

2.3.1. The discussion of “fauna” makes no mention of domestic livestock in the vicinity of the Mill. Livestock grazes on Mill land and nearby areas. Livestock has been known to be present on the berms of tailings impoundments. Rev. 5.1 should have discussed domestic livestock in addition to wildlife.

2.3.2. The discussion of fauna makes no mention of the wildlife ponds, efforts to keep wildlife from using or being impacted by the Mill operation, including the adverse impacts to bird life.

**2.4. Mill Site Background.** Section 1.7.4 of Rev. 5.1 discusses Mill Site Background and quotes from Section 2.10 of the Final Environmental Statement (FES), White Mesa Uranium Project, Energy Fuels Resources, Nuclear Regulatory Commission, NUREG-0556, May 1979 (DRC-2009-008036). Rev. 5.1 and the 1979 FES state:

The concentration of radon in the area is estimated to be in the range of 500 to 1,000 pCi/m<sup>3</sup>, based on the concentration of radium-226 in the local soil. Exposure to this concentration on a continuous basis would result in a dose of up to 625 millirems per year to the bronchial epithelium. As ventilation decreases, the dose increases; for example, in unventilated enclosures, the comparable dose might reach 1,200 millirems per year.

The FES provides 2 footnotes for this information: a 1974 report and a 1975 report. These reports are not available online, as far as I am able to determine, and have not been

included in any submittals to the DWMRC.

## COMMENT

2.4.1. It is impossible to determine the basis for, and accuracy of, the information from the 1979 FES. The concentration of radium-226 in the local soils is not provided. There is no information regarding the results of soil sampling for radium-226 in the vicinity of the Mill prior to the construction of the Mill, or after Mill construction and commencement of operation, or currently. The range of 500 to 1,000 pico Curies-per square meter (pCi/m<sup>3</sup>) does not indicate a time frame, so one does not know if they are emissions per second, per minute, per day, per week, per month, per year. The Licensee cannot rely on decades-old information where there is no actual data available to support the assertions.

2.4.2. The Licensee and the Division cannot rely on and cite any data in the 1979 FES, unless it is backed up by documents that are readily available to the public and have undergone a current assessment. This is why the Division is obligated to conduct a current environmental analysis of the Reclamation Plan and the License Renewal.

**2.5.** Reclamation Cell 1. Section 3.2.2.2 of Rev. 5.1 discusses the reclamation of Cell 1. After the removal of the current Cell 1 liner and contents, the Plan discusses the construction of a Cell 1 Disposal Area to dispose of contaminated materials and debris from the Mill site decommissioning and windblown tailings cleanup. This area would have a clay liner, not a synthetic liner with a clay base.

## COMMENT

2.5.1. The Division must demonstrate that the proposed Cell 1 Disposal Area meets current federal requirements for the disposal of 11e.(2) byproduct material, pursuant to 40 C.F.R. Part 61 Subpart W.<sup>4</sup> Section 61.252(a)(2)(i) references the requirements of 40 C.F.R. 192.32(a)(1),<sup>5</sup> which references the provisions of 40 C.F.R. § 264.221 Design and operating requirements.<sup>6</sup> The Licensee did not discuss how the Cell 1 Disposal Area would meet these requirements. The Division must demonstrate that the Cell 1 Disposal Area will meet the EPA requirements for 11e.(2) byproduct material disposal cells.

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<sup>4</sup> 40 C.F.R. § 61.252(a)(2)(i): “(2) After December 15, 1989, no new conventional impoundment may be built unless it is designed, constructed and operated to meet one of the two following management practices: (i) Phased disposal in lined impoundments that are no more than 40 acres in area and comply with the requirements of 40 CFR 192.32(a)(1). . . .”

<sup>5</sup> <https://www.law.cornell.edu/cfr/text/40/192.32>

<sup>6</sup> <https://www.law.cornell.edu/cfr/text/40/264.221>

**2.6. Milestones for Reclamation.** Section 6 of Rev. 5.1 discusses Milestones for Reclamation. Section 6 references and quotes from Utah Administrative Code R313-24-4, incorporating by reference 10 CFR Part 40 Appendix A Criterion 6A(1): provides that:

For impoundments containing uranium byproduct materials, the final radon barrier must be completed as expeditiously as practicable considering technological feasibility after the pile or impoundment ceases operation in accordance with a written, Commission-approved reclamation plan. (The term as expeditiously as practicable considering technological feasibility as specifically defined in the Introduction of this appendix includes factors beyond the control of the licensee.) Deadlines for completion of the final radon barrier and, if applicable, the following interim milestones must be established as a condition of the individual license: windblown tailings retrieval and placement on the pile and interim stabilization (including dewatering or the removal of freestanding liquids and recontouring). The placement of erosion protection barriers or other features necessary for long-term control of the tailings must also be completed in a timely manner in accordance with a written, Commission-approved reclamation plan.

Section 6 also states:

Under Section 5.3.1 of the Company's Reclamation Plan Revision 3.2, placement of cover materials will be based on a schedule determined by analysis of settlement data, piezometer data and equipment mobility considerations. This gives the regulator authority to set deadlines and milestones as conditions allow, through the future approval of the schedule. The deadlines and milestones in the approved schedule would then serve as the deadlines and milestones for reclamation of the Mill, as contemplated by 10 CFR Part 40 Appendix A, Criterion 6A(1).

## **COMMENT**

2.6.1. Rev. 1 references Reclamation Plan Revision 3.2. It is unclear if Revision 3.2 is incorporated into the White Mesa Mill License. It is not mentioned in any License Condition. Any previous NRC or DWMRC approved Reclamation Plans that are being referenced by and included in Rev. 5.1 must also be incorporated into the License.

2.6.2. The Rev. 5.1 states that the regulator (that is, DWMRC) has authority to set deadlines and milestones as conditions allow, through the future approval of the schedule. The DWMRC has the authority to approve reclamation milestones and changes to the milestones, upon receipt of a license amendment request by the Licensee. The DWMRC does not have the authority to independently establish milestones and other reclamation schedules. Therefore, it appears that the proposed milestones in the SCA should be

included in an amendment request by the Licensee to the DWMRC. Upon receipt of the amendment request, the Division is required to provide an opportunity for public comment. The Division is also required to provide an opportunity for public comment on the intent to approve the proposed milestone(s).<sup>7</sup>

**2.7. Milestones: Existing Tailings Management System at the Mill.** Section 6.2.1c) discusses the existing tailings cells at the Mill: Cells 1, 2, 3, 4A, and 4B.

## COMMENT

2.7.1. The License and the DWMRC should acknowledge that Cell 3, an operational tailings impoundment, must enter closure before the Licensee can use Cell 4B for tailings sands. EPA regulation (revised in 2017) at 40 C.F.R. § 61.252(a)(2)(i) states: “The owner or operator shall have no more than two conventional impoundments, including existing conventional impoundments, in operation at any one time.” A conventional impoundment is defined as “a permanent structure located at any uranium recovery facility which contains mostly solid uranium byproduct material or tailings from the extraction of uranium from uranium ore.”

**2.8. Leaving a Portion of an Impoundment Open for Disposal of On-site Generated Trash or 11e.(2) Byproduct Material from ISR Operations.** Section 6.2.3d) of Rev. 5.1 states:

The License authorizes a portion of a specified impoundment to accept uranium byproduct material or such materials that are similar in physical, chemical, and radiological characteristics to the uranium mill tailings and associated wastes already in the pile or impoundment, from other sources, during the closure process, and on-site generated trash.

## COMMENT

2.8.1. License Condition 10.1.B states: “The licensee may not dispose of any material on site that is not “byproduct material,” as that term is defined in 42 U.S.C. Section 2014(e)(2) (Atomic Energy Act of 1954, Section 11(e)(2) as amended).”

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<sup>7</sup> “EPA expects the NRC and Agreement States to act consistently with their commitment in the MOU and provide for public notice and comment on proposals or requests to (1) incorporate radon tailings closure plans or other schedules for effecting emplacement of a permanent radon barrier into licenses and (2) amend the radon tailings closure schedules as necessary or appropriate for reasons of technological feasibility (including factors beyond the control of the licensees). Under the terms of the MOU, NRC should do so with notice timely published in the *Federal Register*. In addition, consistent with the MOU, members of the public may request NRC action on these matters pursuant to 10 CFR 2.206. EPA also expects the Agreement States to provide comparable opportunities for public participation pursuant to their existing authorities and procedures.” 59 Fed. Reg. 36280, 36285, column 3.

<https://www.epa.gov/sites/production/files/2015-08/documents/subpart11994.pdf>

Therefore, the License cannot dispose of “materials that are similar in physical, chemical, and radiological characteristics to the uranium mill tailings and associated wastes already in the pile or impoundment, from other sources, during the closure process or prior to closure. These “other materials” cannot be disposed of if they do not meet the definition of 11e.(2) byproduct material in the AEA and NRC and EPA regulation. The definition of “11e.(2) byproduct material” in the AEA and NRC and EPA regulations is discussed in Exhibit A to the comments on the White Mesa Mill License Renewal.

**2.9. Windblown Tailings Retrieval.** Section 6.2.4a) of Rev. 5.1 discusses Mill Demolition and Windblown Tailings Retrieval and Placement in a Tailings Impoundment. The retrieval of windblown tailings takes place during final closure of the Mill takes place.

#### **COMMENT**

2.9.1. The Licensee should be required to retrieve off-site windblown tailings and contaminated soils and other materials from the Mill operation at least annually. The Licensee should be required to retrieve on-site windblown tailings and on-site contaminated soils above the Mill cleanup standard at least annually. Spills of radioactive materials from materials shipped to or from the Mill should be cleaned up immediately. There is no justification to wait decades to retrieve windblown tailings and remediate contaminated areas at the Mill and areas outside the Mill boundaries. Retrieval and cleanup of these materials should be part of an ongoing remedial action program.

**2.10. Reclamation Schedules**

#### **COMMENT**

2.10.1. Commenters support the establishment of general schedules for decommissioning and reclamation as set out in the Reclamation Plan and SCA. This provides the Licensee, DWMRC, the White Mesa Community, and other members of the public and interested agencies and persons a basis for moving forward when a tailings impoundment is undergoing closure and reclamation and for final Mill closure.

**2.11. Radon Attenuation During Closure**

#### **COMMENT**

2.11.1. The Reclamation Plan fails to mention radon attenuation during closure, particularly during the period of dewatering when radon emissions increase, as was demonstrated during the dewatering of Cell 2. The monitoring and annual reporting of the Cell 2 radon emissions, pursuant to 40 C.F.R. Part 6 Subpart W requirements for “existing” tailings impoundments (constructed prior to December 15, 1989), showed that radon emissions can be expected to increase during the closure period and, particularly, when active dewatering takes place. The radon monitoring results meant that the Licensee was required to measure the radon emissions monthly and take mitigative

measures. If the monitoring had not taken place, there would have been no data to show that the emissions were increasing significantly, that mitigative measures were needed, and the locations where the placement of clean soils would be most effective in reducing the radon emissions. Subsequently, the DWMRC determined that Cell 2 was in “closure,” and the Subpart W monitoring and reporting requirement were no longer applicable. However, the Division, under its regulatory authority, on July 23, 2014, ordered the Licensee to continue to monitor the radon emissions from Cell 2, reporting twice yearly, and taking any necessary steps to reduce the emissions if they were above the 20 pico Curie-per square meter-per second (20 pCi/m<sup>2</sup>-sec) Subpart W emission standard (DRC-2014-004489).

2.11.2. Therefore, Commenters request that, during closure, the Licensee measure the radon emissions from Cells 3, 4A, and 4B at least twice a year according to EPA Method 115, report the results to the Division in a timely manner, and take measures to reduce the emissions if they exceed 20 pCi/m<sup>2</sup>-sec (or less, as established by the Division). The continued monitoring during closure, when the reduction of water in the tailings cells—through natural evaporation or active dewatering—results in an increase in radon emissions, is necessary to assure that the radioactive emissions are kept as low as reasonably achievable during the closure period. This is one of the most important measures that the DWMRC can take to protect public health and safety during operation and closure of the White Mesa Mill.

Thank you for providing the opportunity to comment.

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