



State of Utah

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Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF WASTE MANAGEMENT
AND RADIATION CONTROL
Scott T. Anderson
Director

February 23, 2017

Kathy Weinel, Quality Assurance Manager
Energy Fuels Resources (USA) Inc.
225 Union Blvd., Suite 600
Lakewood, CO 80228

CERTIFIED MAIL
RETURN RECEIPT REQUEST
7003 2260 0003 2353 6347

RE: Executed Stipulation and Consent Agreement
White Mesa Uranium Mill
Radioactive Materials License Number UT 1900479

Dear Ms. Weinel:

Please find enclosed a copy of the duly executed Stipulation and Consent Agreement regarding the Cell 2 cover. If you have any questions, please call Tom Rushing at (801) 536-0080.

Sincerely,

Scott T. Anderson, Director
Division of Waste Management and Radiation Control

STA/TR/ka

Enclosure: Stipulation and Consent Agreement

c: Kirk Bengel, Executive Director and Health Officer, San Juan County Public Health
Rick Meyer, Environmental Health Director, San Juan County Public Health

DRC-2017-001268

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UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY

IN THE MATTER OF ENERGY FUELS RESOURCES (USA) INC. 225 UNION BLVD., SUITE 600 LAKEWOOD, CO 80228	STIPULATION AND CONSENT AGREEMENT
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A. STATUTORY AUTHORITY

This STIPULATION AND CONSENT AGREEMENT (“Agreement”) is hereby made between Energy Fuels Resources (USA) Inc. (“EFR”) and the Director (“Director”) of the Utah Division of Waste Management and Radiation Control (“Division”) pursuant to the Utah Solid and Hazardous Waste Act, Utah Code Ann. (UCA) §§ 19-6-101 to 125, the Utah Water Quality Act, UCA §§ 19-4-101 to 124, the Utah Radiation Control Act, UCA §§ 19-3-101 to 320 and the Utah Administrative Procedures Act, UCA §§ 63G-4-101 to 601.

B. APPLICABLE STATUTORY AND REGULATORY PROVISIONS

1. The Director is authorized to review and approve plans and issue administrative authorizations and orders in accordance with UCA §19-6-107.
2. Utah Administrative Code (“UAC”) R313-24-4, incorporating by reference 10 Code of Federal Regulations (“CFR”) Part 40 Appendix A Criterion 6—(1), provides in part: “In disposing of waste byproduct material, licensees shall place an earthen cover (or approved alternative) over tailings or wastes at the end of milling operations and shall close the waste disposal area in accordance with a design which provides reasonable assurance of control of radiological hazards to (i) be effective for 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years, and (ii) limit releases of radon-222 from uranium byproduct materials, and radon-220 from thorium byproduct materials, to the atmosphere so as not to exceed an average release rate of 20 picocuries per square meter per second (pCi/m²s) to the extent practicable throughout the effective design life”
3. UAC R313-24-4, incorporating by reference 10 CFR Part 40 Appendix A Criterion 6A—(1), provides in part: “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” (emphasis added).
4. EFR’s White Mesa Mill (as defined below) is subject to a Groundwater Discharge Permit No. UGW370004 (the “GWDP”). Part I.D.8 of the GWDP (the “Closed Cell Performance Requirements”) requires: “Before reclamation and closure of any tailings disposal cell, the Permittee shall ensure that the final design, construction, and operation of the cover system at each tailings cell will comply with all requirements of an approved Reclamation Plan, and will for a period of not less than 200 years meet the following minimum performance requirements:
 - (a) Minimize infiltration of precipitation or other surface water into the tailings, including, but not limited to the radon barrier,
 - (b) Prevent the accumulation of leachate head within the tailings waste layer that could rise above or over-top the maximum [flexible membrane liner] elevation internal to any disposal cell, i.e. create a “bathtub” effect, and,
 - (c) Ensure that groundwater quality at the compliance monitoring wells does not exceed the Ground Water Quality Standards or Ground Water Compliance Limits specified in Part I.C.1 and Table 2

of [the GWDP].”

C. RELEVANT FACTS

1. EFR receives and processes natural uranium-bearing ores including certain specified alternate feed materials, and possesses byproduct material in the form of uranium waste tailings and other uranium byproduct waste generated by EFR’s White Mesa Mill milling operations (the “White Mesa Mill”), pursuant to State of Utah Radioactive Materials License UT1900479 (the “License”) and the GWDP. The White Mesa Mill is located approximately 6 miles south of Blanding, Utah on White Mesa in Sections 28, 29, 32, and 33, Township 37 South, Range 22 East, Salt Lake Baseline and Meridian, San Juan County, Utah.
2. In accordance with License condition 9.11, the Director approved Reclamation Plan, version 3.2 (the “Reclamation Plan Version 3.2”) on January 26, 2011.
3. EFR submitted an application to the Director for renewal of the License on February 27, 2007 and for renewal of the GWDP on September 2, 2009. Updated GWDP renewal applications were submitted by EFR in 2012 and 2014. Recent EFR documents reviewed by the Director for the License and Permit renewals include EFR’s proposed Reclamation Plan, White Mesa Mill, Revision 5.0 dated September 2011 (“Reclamation Plan, Revision 5.0”).
4. The proposed Reclamation Plan, Revision 5.0 presents a proposed evapotranspiration (“ET”) cover (the “Proposed Cover Design”) as a component of the reclamation plan for the tailings cells, to replace the rock armor cover design (the “Existing Cover Design”) set out in Appendix D of the Reclamation Plan Version 3.2. The Proposed Cover Design will have a minimum thickness of 10.5 feet for Cell 2, and will consist of the following layers listed below from top to bottom:
 - “Layer 4” - 0.5 ft (15 cm) thick Erosion Protection Layer (topsoil-gravel admixture or topsoil)
 - “Layer 3” - 3.5 ft (107 cm) thick Water Storage/Biointrusion/Frost Protection/Secondary Radon Attenuation Layer (loam to sandy clay)
 - “Layer 2” - 4.0 ft (122 cm) thick Primary Radon Attenuation Layer (highly compacted loam to sandy clay)
 - “Layer 1” - 2.5 ft (76 cm) thick (minimum) Secondary Radon Attenuation and Grading Layer (loam to sandy clay)

All the layers combined comprise the monolithic ET cover system. Layer 1 was placed in stages on Cell 2 as interim cover from 1991 through 2008 and is approximately 3 feet thick. Additional minor volumes of Layer 1 interim cover (less than 1 foot in thickness) were placed in select areas of Cell 2 after 2008.

5. The Director provided interrogatories from review of the proposed Reclamation Plan, Revision 5.0 in March 2012. EFR provided responses to those interrogatories in May and September 2012. The Director provided review comments on EFR’s responses in February 2013. EFR completed supplemental investigations in 2013 and 2014 in response to the Director’s February 2013 review comments. EFR submitted responses to the Director’s February 2013 review comments in August 2015.
6. Infiltration modeling was conducted for the monolithic ET cover and a complete description of the analyses were provided in EFR’s March 2010 Revised Infiltration and Contaminant Transport Modeling (ICTM) Report. The modeling was updated to address the Director’s March 2012 and February 2013 comments on the ICTM Report and to incorporate supplemental field investigations

conducted in 2010 and 2012 for cover borrow material and in 2013 for in situ tailings. The updated infiltration modeling results were presented in EFR's submitted responses to the Director's March 2012 and February 2013 review comments in August 2012 and August 2015.

7. According to the EFR August 15, 2015 response to the Director's Review Comments, P. 10, *"Conceptually, the model simulation results are in agreement with the general consensus that the establishment of vegetation is the most critical factor in reducing long-term infiltration rates through an ET cover system. For this reason, among other factors mentioned below, infiltration rates are only presented for a 40 percent vegetative cover scenario. Forty percent vegetative cover is the targeted reclamation goal success criterion, and is supported by vegetation reconnaissance near the site and studies published in the literature."*
8. On November 11, 2015, the Director held a conference call with EFR and recommended submittal of this Agreement outlining a plan to complete reclamation of tailings Cell 2. This plan would consist of completing placement of the Proposed Cover Design on Cell 2 and demonstrating acceptable cover performance via a performance monitoring program.
9. On August 11, 2016, EFR submitted Reclamation Plan, Revision 5.1, with an Updated Tailings Cover Design Report (the "Updated Cover Design Report") attached thereto as Appendix A which details the Proposed Cover Design and incorporated current comments received from the Director.
10. On December 5, 2016, EFR submitted the final version of Reclamation Plan, Revision 5.1, which incorporated additional comments received from the Director.
11. The Director will approve Reclamation Plan 5.1 (the "Approved Reclamation Plan") upon completion of a public notice and comment period, and in conjunction with and conditional upon the execution and delivery of this Agreement by EFR and the Director. This Agreement sets out the commitments and time frames for completing placement of reclamation cover on Cell 2 and performance assessment of the cover system, in accordance with the Approved Reclamation Plan.

D. AGREEMENT

The Director and EFR agree as follows:

1. Phase 1 Cover Construction

EFR will complete Phase 1 cover construction in accordance with Sections L.1, L.2 and L.3 of Appendix L ("Appendix L") to the Updated Cover Design Report, which will include placement of: (1) additional interim cover (Layer 1) to achieve design grades prior to placement of cover Layer 2; and (2) the entirety of Layer 2.

Instrumentation for monitoring Cell 2 after Phase 1 cover placement is described in Sections L.4.2 and L.4.4 of Appendix L, and will include the existing settlement monuments and newly installed piezometers.

Cell 2 Phase 1 cover placement commenced in April 2016, and will be completed on or before August 31, 2017, or such later date as may be approved by the Director.

An as-built report for Cell 2 Phase 1 cover placement will be provided to the Director within 90 days after completion of construction, or such later date as may be approved by the Director.

2. Test Section Design and Construction

(a) Primary Test Section

EFR constructed a performance monitoring test section within the Cell 2 cover (the “Primary Test Section”) concurrently with the Phase 1 cover placement. The Primary Test Section was constructed as a design-build project in accordance with Section L.4 of Appendix L and the Installation Instructions set out in Attachment L.2 of Appendix L.

A weather station was installed adjacent to the Primary Test Section, in accordance with Section L.4 of Appendix L.

The Primary Test Section, including the weather station, will be completed as of the date of this Agreement.

The properties of the soil used to construct the Primary Test Section will be tested in accordance with Section L.4.2 of Appendix L to determine whether the soil properties are characteristic of base case, upper, or lower bound conditions.

An as-built report for the Primary Test Section construction, as well as the test results for the soil properties, will be provided to the Director within 90 days after completion of construction of the Primary Test Section and receipt of the laboratory test results, or such later date as may be approved by the Director.

(b) Supplemental Test Section

EFR will construct a supplemental vegetation/erosion monitoring test section (the “Supplemental Test Section”) concurrently with the Phase 1 cover placement. The Supplemental Test Section will be constructed at the location specified in and in accordance with Section L.4.3 of Appendix L. Work on the Supplemental Test Section is scheduled for the fall of 2017 after an adequate amount of composted biosolids can be produced for soil amendment prior to seeding.

The Supplemental Test Section will be completed on or before November 30, 2017, or such later date as may be approved by the Director.

A construction report summarizing the Supplemental Test Section construction will be provided to the Director within 90 days after completion of construction of the Supplemental Test Section, or such later date as may be approved by the Director.

3. Test Section Monitoring

(a) Monitoring of Percolation Performance

EFR will assess the performance of the cover system design by monitoring the Primary Test Section in accordance with the provisions of Section L.4.2 of Appendix L.

EFR will monitor the Primary Test Section in two stages: (i) calibration monitoring and (ii) performance monitoring, in accordance with the provisions of Section L.4.2 of Appendix L, as follows:

i) Calibration Monitoring

Calibration monitoring will be conducted for two full calendar years (the “Calibration Period”) after construction is complete to confirm monitoring systems are functioning properly, vegetative cover has had time to establish itself, and the cover has equilibrated prior to entering the performance monitoring period. The first calendar year of calibration monitoring will begin on January 1 after construction of the Test Section has been completed.

ii) Performance Monitoring

Official performance monitoring of the Primary Test Section will commence on January 1 after the two calendar years of calibration monitoring are complete. Performance monitoring will be conducted for five years (the “Performance Period”).

(b) Monitoring of Vegetation Properties

Vegetation properties will be measured on the Primary Test Section, in accordance with Section L.4.2 of Appendix L. Vegetation properties will be measured on the Supplemental Test Section, in accordance with Section L.4.3 of Appendix L. Such monitoring on the Primary Test Section and Supplemental Test Section will commence one year after seeding and continue for a minimum of five years after calibration monitoring is complete. The Supplemental Test Section will not include evaluation of the entire cover profile but will demonstrate that vegetation can be established and that erosional influences will not be detrimental to long-term establishment according to the acceptance criteria set out in Section L.4.3 of Appendix L.

(c) Monitoring of Meteorology

EFRI will monitor on-site meteorological conditions during the seven-year test period, in accordance with Section L.4.2 of Appendix L.

(d) Determination of Soil Properties

Soil properties of the Primary Test Section will be tested during Primary Test Section construction, in accordance with Section L.4.2 of Appendix L. In-service soil properties of the Primary Test Section cover system will be determined during the last year of the Performance Period via sampling and testing in the buffer area of the Primary Test Section outside the lysimeter, in accordance with Section L.4.2 of Appendix L.

(e) Monitoring Plans

EFR will submit for Director approval sampling plans for the monitoring contemplated by Items D.3(a)-(d) above, within 90 days after the date of this Agreement.

4. Performance Criteria

The cover design will be tested by monitoring as set out in Item 3 above and comparison of the results to the performance criteria set out below.

(a) Percolation Performance Criteria

The percolation rate from the base of the lysimeter in the Primary Test Section will be used as the