



State of Utah

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DIVISION OF WASTE MANAGEMENT
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January 18, 2022

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

RE: Energy Fuels Resources (USA) Inc. September 7, 2021, Source Assessment Report for Uranium in Monitoring Well MW-29, White Mesa Uranium Mill
Utah Groundwater Discharge Permit No. UGW370004

Dear Ms. Weinel:

The Division of Waste Management and Radiation Control (DWMRC) has reviewed the Energy Fuels Resources (USA) Inc. (EFRI), September 7, 2021, document titled "*White Mesa Uranium Mill, State of Utah Groundwater Discharge Permit No. UGW370004, Source Assessment Report Under Part I.G.4 for Exceedances in MW-29 in the first Quarter of 2021*" (SAR). The SAR includes an evaluation of "out of compliance" (OOC) parameter (uranium) in Monitoring Well MW-29. Monitoring Well MW-29 is located hydraulically downgradient from the central and eastern portions of cell 1, and Mill processing areas.

Per Section 3.5 of the SAR, EFRI has concluded that current changes in groundwater chemistry and uranium OOC at Monitoring Well MW-29 are due to groundwater background variation and not due to Mill impacts. Section 3.5 discusses that the slight increasing uranium trend at MW-29 "*is attributable to mobilization of naturally occurring uranium from the formations hosting perched groundwater due to 1) conditions that are increasingly oxidizing at MW-29 and 2) increases in bicarbonate concentrations at MW-29.*"

The SAR further supports that the source of uranium in MW-29 is not the tailings management system with other information, including: 1. Findings discussed in the Mill groundwater background reports, 2. Mass balance calculations which demonstrate that MW-29 uranium concentrations are consistent with background conditions and not with a tailings source, 3. Indicator parameter analysis, 4. Review of increasing groundwater elevations due to infiltration and dissipation of water from the former wildlife pond and associated evaluation of chloride concentrations, and, 6. Data review of uranium concentrations in MW-29 with sitewide background comparison.

(Over)

DRC-2022-000602

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Per DWMRC review of the SAR and historical data for MW-29, the OOC status for uranium in Monitoring Well MW-29 does not appear to be associated with contamination from a tailings wastewater source or other Mill activities. DWMRC findings are detailed in a separate SAR review memorandum. Based on these findings it is appropriate to adjust the uranium Permit groundwater compliance limit for uranium in MW-29, consistent with the currently DWMRC approved groundwater data statistical process flow chart for the Mill and associated guidance.

Statistical Analysis

Based on DWMRC review of the SAR statistical analysis it was noted that analysis was conducted for the complete historic data set for MW-29 and for a post 2011 data set. DWMRC notes that per the MW-29 uranium historical data plot there is a slight shift starting in 2011 indicating rising concentration. Per above the rising uranium concentrations is associated with natural background (no corresponding changes indicate a Mill source). The complete data set and the post 2011 data set both show normal uranium (The uranium trend is slightly increasing post 2011).

EFR Statistical methods used in the SAR included: 1. Descriptive statistics for the complete and modified data sets; 2. Mean and Standard Deviation Calculation; 3. Shapiro-Wilk Test for normality; and 4. Mann-Kendall Trend Analysis (non-normally distributed data sets). Proposed GWCL’s were calculated based on Mean + 2σ of the complete and post 2011 data set, Highest Historical Value, Fraction of the Groundwater Quality Standard, and Mean X 1.5. The calculations and findings are summarized on a table in the SAR (Appendix B-1 of the SAR).

Per the SAR Section 4.2, EFR proposed that GWCL’s be adjusted according to 1.5 times the uranium background (Mean X 1.5) for the post 2011 data set. The DWMRC approved statistical flow chart for the White Mesa Mill groundwater monitoring wells clarifies that if an upward trend is apparent for a constituent, then a modified approach should be considered. The modified approach should allow for a GWCL which considers the increasing concentrations.

MW-29 Approved Modified GWCL

Per review of the SAR Section regarding proposed modifications to the GWCL and statistical analysis of the data the GWCL will be modified in the White Mesa Uranium Mill Ground Water Permit for Monitoring Well MW-29 uranium as summarized on the table below:

Well Number	Parameter	Current GWCL	Modified GWCL	Method of Analysis
MW-29	Uranium	15 µg/L	20.2 µg/L	1.5 X Background

**Based on 1.5 X background of the uranium background data mean of the post April 2011 data set for MW-29*

Note that the modified GWCL’s will not be effective until future issuance of a modified Permit, and that the modifications will be subject to formal public notice and public participation requirements. These Permit modifications are anticipated to be made during calendar year 2022.

If you have any questions, please call Tom Rushing at (801) 536-0080.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Phil Goble', written in a cursive style.

Phil Goble, Uranium Mills and Radioactive Materials Manager
Division of Waste Management and Radiation Control

PG/TR/wa

c: Grant Sunada, Health Director, San Juan Public Health Department
Ronnie Nieves, Environmental Health Director, San Juan Public Health Department
Russell Seeley, District Engineer, UDEQ