



State of Utah

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Department of
Environmental Quality

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DIVISION OF WASTE MANAGEMENT
AND RADIATION CONTROL

Ty L. Howard
Director

November 26, 2019

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 23, 2019 Source Assessment Report for MW-25,
White Mesa Uranium Mill
Groundwater Discharge Permit No. UGW370004

Dear Ms. Weinel:

The Utah Division of Waste Management and Radiation Control (DWMRC) has completed review of the Energy Fuels Resources (USA) Inc. (EFR), September 23, 2019 document titled "*Source Assessment Report for Cadmium in MW-25 White Mesa Uranium Mill*" (SAR).

Findings Regarding MW-25 Cadmium Data Trends

Per DWMRC review of the MW-25 cadmium concentration scatter plot, a slightly increasing trend may be present per the data plot of all historical data, however; it is more evident that the data shows a higher variability starting approximately 2012 and no apparent data trend after this point of inflection. This coincides with the time period that EFR changed laboratories. The higher variability of the data is likely due to higher sensitivity of laboratory equipment and analytical methods.

DWMRC does not agree with EFR findings in the SAR regarding trend analysis and statements that a significant increasing trend is present in the complete data set for cadmium in MW-25 (Page 10 and Appendix E). Review of the statistical analysis shows a normal distribution of data for both the complete data set and for a culled data set post laboratory change and visual examination of the data plots do not depict a significant increasing trend. Per the EFR SAR analysis of trends using only the post 2012 data (Mann Kendall Trend Analysis), it was noted that no significant trend was evident.

Proposal of a revised GWCL based on a modified approach, due to a significant data trend is not accurate and is not in conformance with the currently approved statistical flow chart. Per the flow chart a revised GWCL should be calculated based on mean + 2 standard deviations.

(Over)

Source Assessment and Statistical Analysis

Monitoring well MW-25 is located on the eastern berm of the Mill Tailings Cell 3 and is hydraulically cross-gradient from Mill Tailings and processing areas. Based on DWMRC review of the SAR, it appears that Mill activities are not influencing cadmium concentrations in monitoring well MW-25. This is based on the findings of several lines of evidence in the SAR including: 1. Evaluation of tailings solution indicator parameters (chloride, sulfate, fluoride and uranium); 2. Evaluation of the historical data for all monitoring parameters at MW-25, and; 3. Findings of the 2007/2008 University of Utah Groundwater Study at the Mill.

Per review it was noted that Energy Fuels provided a source assessment and calculated a proposed revised Ground Water Compliance Limit (GWCL) for cadmium in monitoring well MW-25 based on mean + 2 standard deviations of the complete and culled (post 2012) data sets. Both calculations showed a normal data distribution and the same calculated GWCL (1.6 µg/L). Modification of the GWCL, from 1.5 µg/L to 1.6 µg/L, is in conformance with the Director approved statistical flow chart for the White Mesa Mill and with 2009 EPA Statistical Guidance.

MW-25 Approved Modified Cadmium GWCL

Per review of the SAR Section regarding proposed modifications to the GWCL's and statistical analysis of the data, and a telephone conference amongst DWMRC representatives and EFR representatives on November 20, 2019, it was agreed that the GWCL will be modified in the White Mesa Uranium Mill Ground Water Permit for monitoring well MW-25 as summarized on the table below:

Well Number	Parameter	Current GWCL	Modified GWCL	Method of Analysis
MW-25	Cadmium	1.5 µg/L	1.6 µg/L	Mean + 2 Standard Deviations

Note that the modified GWCL will not be effective until future issuance of a revised Groundwater Discharge Permit, and that the modifications will be subject to formal public notice and public participation requirements.

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

Sincerely,



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

PRG/TR/kb

- c: Kirk Bengé, Health Officer, San Juan Public Health Department
- Rick Meyer, Environmental Health Director, San Juan Public Health Department
- Scott Hacking, P.E., DEQ District Engineer