



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

L. Scott Baird
Interim Executive Director

DIVISION OF WASTE MANAGEMENT
AND RADIATION CONTROL
Ty L. Howard
Director

September 5, 2019

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

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
7004 1160 0005 0005 5671 3594

RE: Energy Fuels Resources (USA) Inc. June 27, 2019 Source Assessment Report for MW-11 and MW-24 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), June 27, 2019 document titled "*Source Assessment Report for MW-11 and MW-24 White Mesa Uranium Mill*" (SAR). The SAR includes an assessment of manganese in monitoring well MW-11, and; beryllium, cadmium, fluoride nickel thallium and pH in monitoring well MW-24.

Findings Regarding SAR Data Trends

MW-11 (Manganese) – DWMRC notes that manganese concentrations in MW-11 have been indicating an increasing trend since the beginning of monitoring for the parameter at the monitoring well. DWMRC notes that the trend is more evident starting in 2012 when a new laboratory and more sensitive methods of analysis were implemented. Per the SAR, the complete historical dataset for Mn shows a normal distribution of data. A review of other indicator parameters does not indicate that the increasing Mn or decreasing pH is being caused by the release of tailings solution. Monitoring well MW-11 was part of the University of Utah Study and findings indicated that the monitoring well was unaffected by Mill activities. The SAR discusses that the increasing trend is potentially related to dissolution of manganese in clays and carbonate minerals in the aquifer in the region of MW-11.

DRC-2019-010126

(Over)

MW-24 (Beryllium, Cadmium, Nickel, Thallium, Fluoride, pH) – DWMRC notes that beryllium, cadmium, nickel, thallium and fluoride are showing increasing trends at MW-24 and that pH is showing a significant decreasing trend. Recent pH values at MW-24 have been as low as 4.45. The SAR discusses that the rising concentrations of metals is potentially due to desorption of minerals from hydrous ferric oxides due to decreasing pH and/or the dissolution clay and sulfide minerals in the Brushy Basin and Burro Canyon Formations. Based on review of the groundwater data, including tailings wastewater indicator parameters, the SAR discusses that the trends do not appear to be associated with Mill activities, however, per DWMRC review recent increasing trends for certain parameters has resulted in out-of-compliance status and warrants further investigation.

Source Assessment

Based on DWMRC review of the SAR, it appears that Mill activities are not influencing SAR concentrations at monitoring well MW-11. This is based on the findings of several lines of evidence in the SAR including: 1. Decreasing pH effects on geochemistry in MW-11: 2. Evaluation of tailings solution indicator parameters (chloride, sulfate, fluoride and uranium) for MW-11 and evaluation of the historical data at MW-11: 3. Potential effects of pyrite oxidation releasing selenium and other trace metals into solution, and: 4. Findings of the 2007/2008 University of Utah Groundwater Study Regarding MW-11.

Per DWMRC review, these findings are consistent with previous EFR SAR's and it does not appear that the GWCL exceedances and/or manganese trends at monitoring well MW-11 are being caused by mill activities. Based on the increasing trend, adjustment of the GWCL for manganese in the Permit is appropriate.

In the case of SAR parameters at monitoring well MW-24 it was noted that several of the parameters have a large number of non-detected concentrations during the early time, and recent increasing trends for certain parameters has resulted in out-of-compliance status. Based on DWMRC review findings and a September 3, 2019 conference call discussion with EFR, it was decided that additional source assessment needs to be conducted for monitoring well MW-24. EFR mentioned that there is a potential chance that monitoring well construction could be the cause of the out of compliance parameters and that additional evaluation to determine if this is the cause could include the construction of nearby monitoring well and subsequent tandem sampling of the two wells to determine if well construction is an issue. Based on discussion, this was determined to be a useful and reasonable evaluation of the non-compliance. Consideration is given that based on a review of indicator parameters and the comprehensive historical data record, the parameter trends and out-of-compliance do not appear to be caused by tailings wastewater source.

Statistical Analysis

Per the DWMRC approved statistical flow chart for the White Mesa Mill groundwater monitoring wells, it was noted that if an upward trend is apparent and is related to rising background concentrations for an analyte then a modified approach should be considered. The modified approach should allow for a GWCL which considers the increasing concentrations. Based on this, EFR calculated a proposed modified GWCL for manganese at monitoring well MW-11 according to the highest historical value (HHV). DWMRC reviewed the proposed modified GWCL to ensure that it is reflective of the collected data and provides for a continuing regulatory mechanism.

In the case of monitoring well MW-24 it was recognized that two of the data sets have significant early time not detected values (83% non-detects for beryllium and 58% for nickel), and that cadmium and thallium also have a high amount of non-detects in the early time (24% and 28% respectively). Fluoride also shows a period of relative stable readings in the early time followed by a rising trend. This anomalous data does not clearly establish pre-identified trends and it appears that trends began at various times after well construction.

Per additional discussion above and below, it was agreed that the rising trends will need more investigation prior to potential GWCL modification.

MW-11 and MW-24 SAR Findings

Per review of the SAR Sections and tables regarding proposed modifications to the GWCL's and statistical analysis of the data, and a telephone conference amongst DWMRC representatives and EFR representatives on September 3, 2019, it was agreed that the MW-11 Manganese GWCL will be modified in the White Mesa Uranium Mill Ground Water Permit as summarized on the table below:

Well Number	Parameter	Current GWCL	Modified GWCL	Method of Analysis
MW-11	Manganese	164.67 µg/L	237 µg/L	Highest Historical Value

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. This is expected to take place in the winter of 2019.

During the September 3, 2019 telephone conference call it was discussed that based on review of the GWCL exceedances at MW-24 and well data, it does not appear that tailings wastewater is the source. However, beryllium was measured as non-detectable from July 2005 until April 2016, and likewise nickel shows a significantly large amount of non-detect data until the recent rising trend. Based on these data anomalies it was discussed that problems with the well (e.g. design and installation) may be the cause of the out-of-compliance status for the SAR parameters. EFR suggested that in order to determine whether the well is the cause, an additional well, screened at the same well interval will be placed close-by the existing MW-24, and monitored in tandem. This is similar to the approach used at other wells which showed similar anomalous data. Until conclusion of the tandem well monitoring the GWCL's will remain the same in the Permit with recognition that the exceedances are being actively investigated. This will allow more monitoring data to be collected at MW-24 for better evaluation of data trends.

Per the September 3, 2019 telephone conference, EFR will submit a plan for the new monitoring well installation for Director review and approval on or before 30 calendar days from receipt of this letter.

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

SENDER. COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

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

2. Article Number

(Transfer from service label)

7004 1160 0005 5671 3594

PS Form 3811, February 2004

Domestic Return Receipt

102595-02-M-1540

COMPLETE THIS SECTION ON DELIVERY

A. Signature

 Agent AddresseeB. Received by (*Printed Name*)

J. Della

C. Date of Delivery

9/9/19

D. Is delivery address different from item 1? YesIf YES, enter delivery address below: No

3. Service Type

 Certified Mail Express Mail Registered Return Receipt for Merchandise Insured Mail C.O.D.4. Restricted Delivery? (*Extra Fee*) Yes

UNITED STATES POSTAL SERVICE

CO 512
12 SEP 19
51121L



First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4 in this box •

Department of Environmental Quality
Division of Waste Management
and Radiation Control
P.O. Box 144880
Salt Lake City, UT 84114-4880

RETURN SERVICE REQUESTED TR-Kb

DRC-2019-010126

UT 6370004

