



State of Utah

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DIVISION OF WASTE MANAGEMENT
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July 9, 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. January 15, 2019 Source Assessment Report for MW-30 and June 28, 2019 Uranium Reanalysis, 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), January 15, 2019 document titled "*Source Assessment Report for MW-30 White Mesa Uranium Mill*" (SAR) and; June 28, 2019 "*Reanalysis of uranium data for the calculation of a groundwater compliance limit in MW-30*" (Uranium Reanalysis). The SAR includes an assessment of selenium, uranium, and pH in monitoring well MW-30. The Uranium Reanalysis includes a re-evaluation of the SAR proposed uranium GWCL for MW-30, based on a June 18, 2019 telephone conference between DWMRC and EFR.

Findings Regarding SAR Data Trends

Selenium – DWMRC notes that the Permit GWCL was modified/raised to 47.2 µg/L (from 34 µg/L) in the January 19, 2018 Permit renewal. Measured concentrations of selenium remained below the modified GWCL until a first quarter 2019 exceedance. The well also exceeded the modified GWCL for the 2nd quarter 2019 and MW-30 is in Out-of-Compliance (OOC) Status for selenium. Per review of a time/concentration plot of selenium and as noted in the EFR Existing Wells Background Report, a long standing upward selenium trend is evident.

Uranium – Uranium in MW-30 went into Probable Out-of-Compliance (POOC) status per the 4th quarter 2011 sample result (9.83 µg/L) and accelerated monthly monitoring was started during the first

(Over)

quarter of 2012. Several stand-alone exceedances were noted since that time and subsequent consecutive exceedances of the GWCL were noted during May and June of 2018 putting MW-30 into OOC status and Permit requirements for an SAR. Per review of a time/concentration plot and as noted in the EFR Existing Wells Background Report, a long standing upward trend is evident.

Field pH – DWMRC notes that the GWCL (pH range) was modified to 6.47 S.U. – 8.5 S.U. (from 6.5 S.U. to 8.5 S.U.) in the January, 19, 2018 permit renewal. Per review of the field pH monitoring data since the permit renewal Jan. 2018 through the 1st Quarter 2019 sampling (15 samples), the modified GWCL was exceeded for three of the fifteen samples (1/23/18, 4/12/18 and 2/13/19). It was noted that the monitoring results were within the modified GWCL's for nine consecutive samples prior to the most recent exceedance. DWMRC notes that two consecutive exceedances have not occurred and MW-30 is not in OOC for pH. Based on these findings, DWMRC does not see a current need to evaluate MW-30 for an additional modification until consecutive exceedances occur in the well. Quarterly monitoring will be required to continue to better evaluate the pH trend in the well.

Source Assessment

Per review it was noted that Energy Fuels provided a source assessment and calculated proposed revised Ground Water Compliance Limits (GWCL's) for selenium, uranium and pH in monitoring well MW-30. Monitoring Well MW-30 is located hydraulically downgradient from Tailings Cell 2 and from the mill processing areas and is within the defined nitrate/chloride plume. Per the SAR, EFR notes that selenium and uranium were identified as having an increasing concentration trend since the development of the Existing Wells Background Report.

Based on DWMRC review of the SAR, it appears that Mill activities are not influencing selenium and uranium concentrations at monitoring well MW-30. This is based on the findings of several lines of evidence in the SAR including; 1. Decreasing pH effects on monitoring well geochemistry; 2. Evaluation of tailings solution indicator parameters (chloride, sulfate, fluoride and uranium); 3. Previous findings in the EFR Existing Wells Background Report that the SAR parameters showed long standing upward trends; 4. Potential effects of pyrite oxidation releasing selenium and other trace metals into solution; 5. Location of MW-31 within the nitrate/chloride plume, and, 6. Findings of the 2007/2008 University of Utah Groundwater Study.

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 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 GWCL's according to the highest historical value (HHV).

Based on DWMRC review of the proposed GWCL's it was noted that the HHV for uranium used was the 3rd quarter 2008 value of 11 µg/L. DWMRC noted that at that time this value would have been a statistical outlier in the data set and is likely not a valid result. Per the Uranium Reanalysis the HHV was 9.82 µg/L measured in May 2014. This value is more representative of HHV and is included in the approval below.

MW-30 Approved Modified Uranium 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 June 18, 2019 and the June 28, 2019 Uranium Reanalysis, it was agreed that the GWCL's will be modified in the White Mesa Uranium Mill Ground Water Permit for monitoring well MW-30 as summarized on the table below:

Well Number	Parameter	Current GWCL	Modified GWCL	Method of Analysis
MW-30	Uranium	8.32 µg/L	9.82 µg/L	Highest Historical Value*
MW-30	Selenium	47.2 µg/L	53.6 µg/L	Highest Historical Value

*Based on the Highest Historical Value of data points since October 2012 (post data inflection point) for MW-30

Note that the modified GWCL's 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 fall or winter of 2019.

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