Ute Mountain Ute Tribe

Environmental Programs Department
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January 8, 2020

Ty L. Howard, Director
Division of Waste Management and Radiation Control
Utah Department of Environmental Quality
195 North 1950 West
P.O. Box 144880
Salt Lake City, UT 84114-8440

RE: Aquifer pollution around the White Mesa Uranium Mill, San Juan County UT

Dear Mr. Howard,

As you know protection of the groundwater and seeps in and around White Mesa continues to be a matter of extreme concern to the Tribe and its members. We are reviewing the 3rd Quarter 2019 Groundwater Monitoring Reports recently submitted by Energy Fuels Resources, Inc. (EFRI) for the White Mesa Mill. These reports, as do reports for prior quarters, show progressive and alarming degradation of the quality of the shallow groundwater, with seven new exceedances of groundwater contaminant levels (GWCLs), lowering pH to more acidic conditions, and increasing trends in many monitored toxic metals and other parameters.

Ongoing corrective actions to address the chloroform contaminant plume and the nitrate/chloride contaminant plume have not achieved any significant reductions in the areal extent, concentrations or contaminant masses of these plumes after several years of corrective action. The Corrective Action Plan Comprehensive Monitoring Reports submitted by EFRI conclude that the current corrective actions will not remove the plumes or reduce them to acceptable levels for decades or hundreds of years, if ever.

We again urge the Division require that additional effective investigative and corrective actions be taken to identify and address the root causes of the contamination, rather than artificially relaxing groundwater contaminant levels (GWCLs) to excuse noncompliant data and allow further degradation of water quality.

The continued degradation of the groundwater and ineffectiveness of the strategy of continuously relaxing GWCLs in response to exceedances are clearly illustrated by the 3rd Quarter 2019 data from monitoring wells MW-31 and MW-14, which show that three of the five GWCLs that were relaxed by the Division in March of 2019 are already being exceeded. Two of these GWCLs were previously relaxed in 2018 before being relaxed again in 2019. MW-31 is located between the southeastern edge of Tailings Cell 2 and the northeastern edge of Tailings Cell 3. MW-14 is located along the southern edge of Tailings Cell 4A. In MW-31, Sulfate and TDS are already in exceedance of the recently relaxed GWCLs, and Uranium has already reached 95% of the relaxed GWCL. In MW-14, Fluoride is already in exceedance of its recently relaxed GWCL.

Monitoring Well	Parameter	Pre Mach 2019 GWCL	March 2019 Modified GWCL	3rd Quarter 2019 Data
MW-31	Total Dissolved Solids (TDS)	1700 mg/L	2132 mg/L	2580 mg/L
	Sulfate	697.6 mg/L	993 mg/L	1150 mg/L
	Selenium	86.1 ug/L	119.4 ug/L	91.1 ug/L
	Uranium	9.1 ug/L	15 ug/L	14.3 ug/L
MW-14	Fluoride	0.2 mg/L	0.22 mg/L	0.248 ug/L

DWMRC's decision to recently allow a new well to replace MW-24 in response to continued exceedances for beryllium, cadmium, fluoride, nickel and thallium will result in a multi-year delay while another well is installed and eight quarters of monitoring are conducted resulting simply in the establishment of higher GWCLs for these indicator parameters instead of requiring identification of the source and source control. We saw this happen at MW-03 and the new MW-03A recently which had a very similar list of exceedances. Monitoring wells MW-22, MW-25, MW-28, MW-39 and TW4-24 also exhibit elevated concentrations and increasing trends for most of these constituents. Rare toxic metals such as beryllium, cadmium, cobalt, nickel and thallium and ions like fluoride are found in great abundance in the tailings cells and facility process solutions and have not been scientifically shown to be naturally occurring in the local geology or groundwater.

It is faulty to assume that background quality in a contaminated aquifer underlying a 40-year old uranium mill is changing due to natural conditions, rather than taking meaningful direct action to investigate and address the root cause of the site-wide degradation of shallow groundwater quality. The Tribe again urges the DWMRC to take a holistic approach and look at the big picture in light of the overwhelming data showing significant trends of increasing groundwater contaminants and acidification in the shallow groundwater beneath the Mill, rather than simply readjusting background levels to justify relaxation of compliance limits.

We refer the Division to the Tribe's repeated comments submitted over the course of two decades expressing its concerns about the Mill's impacts on groundwater and offering technical approaches. Most recently, we submitted comments in connection with the Division's 2018 renewal of the Mill's Radioactive Materials License and Groundwater Protection Discharge Permit, and again, in early 2019, in connection with the Division's relaxation of certain GWCLs. In those comments, we pointed out numerous actions that could and should be taken, including, among others, updated isotopic studies and liner testing. We also refer the Division to the technical assessment of groundwater conditions at the Mill prepared by Geo-Logic Associates (Geo-Logic Associates, 2017), which was submitted in connection with the Division's 2018 renewal of the License and Permit

We also want to bring to your attention the dissolved oxygen (DO) data presented in EFRI's recent monitoring reports from field measurement of DO. The widely ranging values for DO reported by EFRI – some over 100 – are implausible. Typical readings for groundwater are under 8 mg/L. Possibly, there has been operator error in the use of the DO meter. We recommend the Division bring this issue to EFRI's attention and seek explanation.

Sincerely,

Ute Mountain Ute Tribe
Environmental Programs Department

cc:
Manual Heart, Ute Mountain Ute Tribal Chairman
Peter Ortego, Ute Mountain Ute General Council
Ute Mountain Ute Tribal Council
Kai Elgethun, ATSDR
Rick Meyer, Acting, Health Officer/Environmental Health Director, San Juan Public Health
Scott Hacking, P.E., UDEQ District Engineer
Treasure Bailley, USEPA Region 8

References

Applied Geochemistry, 2013. Miao, Ziheng. Akyol, Hakan N. McMillan, Andrew L. Brusseau, Mark L. Transport and fate of ammonium and its impact on uranium and other trace elements at a former uranium mill tailing site.

Applied Geochemistry, 2008. Hart, Megan. Whitworth, T.M. Atekwana, Eliot. Hyperfiltration of sodium chloride through kaolinite membranes under relatively low heads- Implications for groundwater assessment.

Energy Fuels Resources (USA) Inc., November 1, 2013. White Mesa Uranium Mill 2013 Annual Tailings cells Wastewater Sampling Report.

Hydro Geo Chem, Inc. 2007. Site Hydrogeology and Estimation of Groundwater Travel Times in the Perched Zone White Mesa Uranium Mill Site Near Blanding, Utah. February 26, 2007.

Utah Division of Waste Management and Radiation Control, February 16, 2017. Re: Response to Ute Mountain Ute Tribe Letters Dated December 16, 2016 and January 20, 2017. DRC-2017-001146.

USGS 1995. Dam, William L. Geochemistry of Ground Water in the Gallup, Dakota, and Morrison Aquifers, San Juan Basin, New Mexico. U.S. Geological Survey. Water Resources Investigations Report 94-4253.

USGS 1992. Hem, John D. Study and Interpretation of the Chemical Characteristics of Natural Water Third Edition. U.S. Geological Survey Water-supply paper 2254.

US EPA, 01/19/2017. Health and Environmental Protection Standards for Uranium and Mill Tailings, Proposed Rule. 82 FR 7400.

US EPA, September 2014. Draft Technical Report Considerations Related to Post Closure Monitoring of Uranium In-Situ Recovery (ISL/ISR) Sites Background Information Document for the Revision of 40 CFR Part 192. EPA-402-D-14-001

US EPA, August 1999. Understanding Variation in Partition Coefficient, Kd, Values. Volume 1: The Kd Model, Methods of Measurement, and Application of Chemical Reaction Codes. EPA 402-R-99-004A.