



ENERGY FUELS RESOURCES CORPORATION

November 5, 2010

Mr. Steve Tarlton, Program Manager
Radiation Control Program
Hazardous Materials & Waste Management Division
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South HMWMD-B2
Denver, CO 80246-1530

Re: Response to Request for Information No. 3, Attachment 3, Part 3
Piñon Ridge Mill License Application, Montrose County, Colorado

Dear Steve:

This letter and the attached "Exposure Pathways Report" by SENES Consultants Limited (SENES) address issues and concerns raised by the Radiation Control Program (RCP) in Part 3 of Attachment 3 to Request for Information No. 3 (RFI #3). The Exposure Pathways Report has been updated by SENES to include information on both radiological and non-radiological constituents. Because this report also forms the basis for the revised risk assessment, which is currently being completed, we would appreciate an expeditious review by the RCP of this report. If you find any omissions, we can address them prior to finalizing the revised risk assessment.

The RCP's comments are indented and listed in italics below. Energy Fuels' responses are provided at full page width in regular font.

Comments on Volume 11, Section J3, "Radiological Exposures Pathways Report"

- 1. Neither this report nor the Risk Assessment adequately addresses heavy metals that are also associated with uranium recovery. EF must provide an analysis of the non-radiological health hazards, and should include at the least, vanadium, arsenic, lead, molybdenum, and cadmium. This is considered to be a major deficiency in the application.*

Analyses of representative ore samples from the area were reviewed to identify potential heavy metals of concern. These metals were then assessed in Sections 2.2, 5, 8 and 9 of the attached report.

- 2. What about organics used in the SX process? What are the hazards of the reagents used at the site? UMTRA is a law that regulates the radiological and non-radiological components of byproduct material. The report is inadequate.*

Organic solvents, acids and caustics are discussed in Sections 2.2 and 5 of the attached report. Air emission controls result in very low emissions of these chemicals to both on-site and off-site receptors. Other risks associated with these chemicals such as their flammability and corrosiveness are discussed in the risk assessment report.

- 3. A conceptual site model is normally presented in an analysis of this type. While Figure 3 is beneficial, it is not complete or adequate. For example, there is no groundwater or surface water pathway from spills or leaks, nor is there a direct gamma exposure pathway presented in the figure (e.g., from windblown). Reference to NUREG-0706 is not recommended here due to its being outdated with respect to environmental pathway analysis' standard of care. One can reference the RESRAD manual, or numerous other citations that are more current or germane.*

Conceptual site models for humans and ecological receptors are included in the attached report as Figures 3.1 and 3.2, respectively.

- 4. Page 1. Sources of radiation. The first paragraph generally describes the source to receptor relationship: source pass through an exposure medium and produce a radiation dose. This statement would be better if it included the step of a release of a portion of the source material and step of an intake or an uptake rather than just an exposure. Just because there is an exposure, that does not mean necessarily that there is an uptake or an intake (for internal) to cause a dose. This is often overlooked when discussing pathway analysis.*

We agree and SENES has attempted to clarify this aspect in Sections 3 and 4 of the report.

- 5. While it doesn't have a very long half life, there should also be some discussion of Po-210. While normally discussed in conjunction with Pb-210, they are often not in equilibrium in the environment after industrial processing. Po-210 is a significant ingestion hazard.*

Po-210 has been added in Section 2.1.

- 6. Page 2. 1st bullet. Default particle size distributions in MILDOSE-AREA need to be compared to expected particle sizes from use of the newer SAG mills vs. older crusher technology. In addition to the smallest particles being exhaled, the smallest particles may also be able to cross the blood barrier, which is of more concern. Dosimetry has progressed significantly since the time of the writing of the guidance, the ICRP 60 et al series incorporates a 5-compartment lung model that is more sophisticated than the 3-compartment model used in ICRP 26/30.*

The effect of particle size on dose was analyzed in the revised MILDOS-AREA modeling report prepared by Dr. Craig Little. This study was submitted to the RCP as Exhibit 4 of Response to RFI #3, Attachment 3 – Parts 1 and 2 on October 18, 2010.

7. Page 4. 3rd paragraph. *How will dust suppression be applied in the winter? There seems to be the potential for a safety hazard if the ore pad is repeatedly sprayed with water during the winter. It should also be noted that only end dumps will be able to use the wall, all side dumps and bottom dumps will have to access the pad to dump their load and then be released from the site.*

The ore pad stockpiles will be sprayed with water for dust suppression purposes during the course of routine operations from a trailer-mounted water cannon and/or from an installed dust suppression piping and spraying system. Non-active ore pad stockpiles will form an ice crust as the temperatures drop below freezing, reducing the requirements for repeated water spraying for dust suppression purposes. Active ore pad stockpiles and travel ways will be sprayed with water as necessary to minimize fugitive dust. The loading and unloading movements of the CAT loader will, in most cases, thaw the ore pad travel-way surfaces to acceptable driving conditions for any ore trucks entering and exiting the ore pad for dumping purposes. Sand will be applied if ice forms in low or rutted areas along ore pad travel ways, especially on the north facing side of stockpiles.

The access road and the gravel portion of the truck dumping platform will be treated with magnesium chloride or equivalent dust suppression chemicals to minimize the need for water application in these areas. These areas are also open and exposed to solar radiation during daylight hours, when most ore will be delivered. Side dumps will have to dump directly on the ore pad; however, please note that bottom dumps are no longer approved to transport uranium ores and will not be utilized.

8. Page 5. Tailings Disposal. *An important step has been omitted here, i.e., drying out of the tailings impoundments prior to the construction of the cap. It is at this point in time when the possibility of dusting is most acute.*

Dr. Craig Little modeled the tailings for radon emissions assuming a worst-case situation where a 30-acre tailings cell is totally exposed (i.e., no water or soil cover) and no dust control measures are in place. The study was conducted using the MILDOS AREA Model and is presented as part of the Regional Dust Analysis Report found in Exhibit 5 of Response to RFI #3, Attachment 3 – Parts 1 and 2. It is important to note that the assumption that no dust control measures would be in place is contrary to Energy Fuels' operating plan which requires that dust control measures (e.g., water sprays, chemical dust suppressants) be implemented during all phases of operation including the period prior to cover placement.

Dust emissions from the tailings are discussed throughout the Exposure Pathways Report. Quantification of the impacts from these emissions will be provided in the risk assessment.

9. *Page 6. Equipment released from the mill. Please state that the vehicle will be surveyed after it leaves the truck wash station.*

Section 4.1 of the attached report includes a subsection on “Release of Equipment from the Restricted Area.” Radiation surveying of the equipment after washing is included in this description.

10. *Page 6. Sources of Waterborne Radioactivity to Humans. This section is not complete. What about benthic organisms? What about other biota? Just saying that the dose to a human receptor is low is in no way sufficient; biota other than humans should at least be given a discussion. There should at least be a reference to the Risk Assessment, section 3, which has some discussion on this topic.*

These pathways are illustrated in Figures 3.1 and 3.2 and discussed in Sections 4 and 5.

- 11 *Page 6. De Minimus Pathways. What value is used to make the determination that a pathway is de minimus? 1 mrem/y? 5 mrem/y? This needs to be further quantified. While these pathways are considered de minimus by the author, many stakeholders have concerns that need to be better addressed in the application by providing some quantification of the range of likely exposures (which are partially addressed in the risk assessment).*

De minimus pathways are defined in Sections 4.3 and 5.3 as incomplete pathways and pathways with less than 5% contribution to the overall radiological or non-radiological dose or concentration, respectively, of the contaminant of potential concern (COPC).

12. *This report and the Risk Assessment focus on current land use, population, etc. Yet, the MILDOSE-AREA report data shows that in out years, members of the public may approach the 25 mrem/y organ dose limits at some fence line locations (the MILDOSE report did not discount for time, and so we realize is conservative). Nonetheless, it is difficult for the Department to reconcile the two; a projected dose that approaches a regulatory limit cannot be considered trivial or de minimus. If properties around the mill were to be developed, members of the public will need to meet all dose limits. Please reconcile.*

The MILDOS Area Model was rerun using modified water cover controls on the tailings facilities and projected radiation levels for both the coarse-grained and fine-grained tailings. The revised “Estimates of Radiation Doses to Members of the Public from the

Piñon Ridge Mill” was provided as Exhibit 4 of Response to RFI #3, Attachment 3 – Parts 1 and 2. With the additional water cover controls, the estimated doses at the property boundaries are significantly lower. The projected maximum dose to a hypothetical receptor living on the property boundary is discussed in Section 6.0.

Currently, the nearest residents to the mill are a little more than two miles from our property boundary, and they are part-time residents. All together, there are currently less than 10 part- and full-time residents within five miles of the mill site. Although there are a number of undeveloped private parcels in the immediate vicinity of the Piñon Ridge site that could be used for future housing development, Energy Fuels believes that it is more likely that they would be used in the future for small-scale commercial purposes, if developed at all.

13. Page 8. Ore Trucks. It is stated that accidents are possible but unlikely. Reference should be made to Appendix A5 of the Risk Assessment.

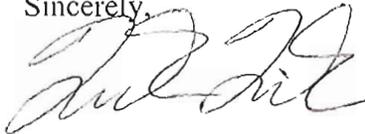
The reference is provided in Section 4.3 of the report.

14. Page 8. Toxicological Assessment. See comment 1.

See the response to Comment 1 above.

Please contact me if you have any questions or need additional information.

Sincerely,



Frank Filas, P.E.
Environmental Manager

Attachments

Cc: S. Brown, D. Chambers, M. Monabbati (SENES)
B. Monok, Z. Rogers, S. Antony (Energy Fuels)