ENERGY FUELS RESOURCES CORPORATION

October 18, 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 Additional Information No. 3 (RFI #3) Attachment 3
Piñon Ridge Mill License Application, Montrose County, Colorado

Dear Steve:

This letter and attachments (4 copies each) address issues and concerns raised by the Radiation Control Program (RCP) in Parts 1 and 2 of Attachment 3 to Request for Information (RFI) #3 dated August 19, 2010. Responses to Parts 3 and 4 of Attachment 3 will be submitted in accordance with the schedule stipulated in your letter of October 7, 2010.

Energy Fuels Resources Corporation (Energy Fuels) is submitting revised pages for the "Facility Operating Plan" in track change format plus Appendices E and F of the same document. Appendix E is the "Tailings Facility Operating Procedures" document that was previously submitted in Response No. 1 to RFI #2. It has been reformatted for inclusion into the Facility Operating Plan and is included here for ease of reference. Appendix F includes the Maintenance Procedures that have been developed to date in response to RFI #3, Attachments 1 and 3. The Regional Dust Analysis Report by Kleinfelder West, Inc. and the revised "Estimates of Radiation Doses to Members of the Public from the Piñon Ridge Mill" by Two Lines, Inc. are submitted in their entirety.

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 3, Section B2, "Facility Operating Plan"

1. *Page 0-8. Septic systems. Contained septic systems that can be sampled, pumped, and hauled are acceptable. However, leach fields are not recommended, particularly with respect to the one for the mill buildings as they can be a source of soluble uranium to the environment.*

Energy Fuels plans to connect only the toilets and urinals to the mill septic system and connect other sources of waste water (i.e., showers, sinks, clothes washing machines) to a gray-water system that would recycle these waters (reference the Water and Wastewater Plan, L2, Vol. 13). This arrangement would result in the recycling of the trace amounts of radionuclides and metals that could otherwise collect in the leach field. However, we have no objection to installing a waste tank without a leach field at the mill. See Exhibit 1 for the revised Facility Operating Plan text.

2. *Page 0-11. 1st paragraph. It states here that there will be overflow alarms on closed tanks. It would seem that open tanks would benefit from overflow alarms (as has been a problem at Cotter in the past). Please clarify.*

Closed and open top tanks will be equipped with a high/low level instrument and a transmitter with an alarm system. The level instruments are normally interlocked with an upstream pump. The pump stops running when the tank level reaches the predetermined set point. This prevents the tank from overflowing. The types of level instruments, locations and set points will be determined during final design engineering. Additional explanatory text has been added to the facility operating plan regarding tank alarms and pump interlocks (see Exhibit 1).

3. *Page 0-11. 0.4.3 Piping. It is stated here that some pipes may be buried. Please describe how buried pipes will be monitored for chronic leaks.*

All process, reagent, and wastewater lines will be equipped with secondary containment. Where these lines are buried, the pipe lines will enter and exit a double containment area through a dry sump or well instrumented to detect pipe line leakage. Explanatory text has been added to that section of the Facility Operating Plan (see Exhibit 1).

4. *Page 0-15. The text states that leaks in the tailings lines would be captured in the trench and flow downhill to the tailings piles or evaporation ponds. Don't they have berms around them that would preclude the fluids from going into the ponds? Wouldn't the fluids build up in the containment at the foot of the berms? Please clarify.*

The tailings and raffinate pipe lines rest inside a culvert or trench, or on top the tailings cell anchor trenches. There are no berms between the lines and the tailings impoundments or evaporation ponds. More detailed drawings of these pipeline arrangements will be submitted as part of our upcoming Response to RFI #4.

5. *Page 1-4. Section 1.1.2. System Controls. Raffinate water shall not be used for dust control outside of the impoundments.*

The text has been revised to limit the use of raffinate for dust control to the evaporation ponds and tailings cells. The reference to using raffinate for dust suppression in the ore pad area has been deleted (see the revised Facility Operating Plan in Exhibit 1).

6. *Page 3-2. CCD tank area. This area, which has a large potential for leaks, spills, etc. should have a subsurface monitoring system to ensure that chronic leaks are not leading to a soil contamination issue. Since the area has to be excavated prior to construction anyway, consider a resistivity mat or some other detection system.*

Energy Fuels' experience with thickeners and CCD thickeners in particular does not lead it to the same conclusion as CDPHE that "chronic leaks" will be problematic in the Piñon Ridge CCD Thickener area. The mill design incorporates extensive instrumentation that will allow the mill operators to detect most problems before upset conditions are created. Energy Fuels does not believe that a resistivity mat or other type of leak detection system beneath the concrete floor slab is needed. The monolithic, 2% sloping floor slab in this area eliminates spread footings and reduces the number of joints that may possibly leak. A concrete inspection and maintenance procedure has been developed and will be in place during the life of the mill to quickly detect and patch any cracks in the concrete floor (see Appendix F of the Revised Facility Operating Plan in Exhibit 1). Furthermore, the CCD Thickner area also contains five double contained instrumented floor sumps with leak detection and collection recovery capabilities that will allow the Mill Control Room to monitor floor sump pump operations and detect leaks, should they occur, in the primary sump

7. *Page 3-8. 1st paragraph. Tailings cells. This report describes a practice where fines and coarse material will be intertwined. Recent correspondence relative to the cap design now indicates that slimes will be directed toward the center such that coarse material can be used to cover the fines for radon control at closure. Please clarify.*

The plan for tailings discharge during most of the cell life remains unchanged. The Facility Operating Plan has been edited to provide additional details of the pre-closure period consistent with more recent correspondence (see Exhibit 1). The Tailings Facility Operating Procedures Addendum that was submitted with Response No. 1 to RFI No. 2 has been incorporated as Appendix E to the Facility Operating Plan and is included in Exhibit 1 for ease of reference.

8. *Page 3-9. Wildlife Protection. All bird mortalities are to be reported to the Department and DOW.*

Text has been added to the Facility Operating Plan (Exhibit 1) to require the Radiation Safety Officer to report bird mortalities on a quarterly basis to CDPHE and the Colorado Division of Wildlife (CDOW).

9. *Page 3-9. Wildlife Protection. Consider close-woven fence near ground level (and perhaps below) to keep smaller animals out of the area, particularly burrowing animals.*

The close-woven fencing has been added to the Facility Operating Plan text (Exhibit 1) consistent with the fencing specified in the Environmental Report. This fencing will also be specified in the revised Technical Specifications.

10. *Page 4-3. Radiation Monitoring. While airborne may not be a hazard in the SX building, contaminated surfaces from dried spills, etc can become problematic here (and in the other production buildings, too) and as such, routine contamination monitoring and mitigation should be also listed (e.g. reference SOPs).*

A general housekeeping maintenance procedure for monitoring and mitigating contamination has been developed for the mill facilities and is now referenced in the Facility Operating Plan text (see Exhibit 1). This procedure and other maintenance procedures are included in Appendix F of the Facility Operating Plan (see Exhibit 1). Additional maintenance procedures and forms will be developed, as necessary, during mill pre-commissioning and commissioning.

11. *Page 4-5. Fire Alarm System and Controls. Please confirm that water sprays are appropriate for a potential fire of this magnitude and type. Other facilities use CO_2 –based mitigation systems.*

A water mist system with linear heat detection was recommended by our fire protection consultant, Rolf Jensen & Associates, based on our preliminary design of the solvent extraction building and associated equipment. At that time we were considering open top fiberglass settler mixers. We have since changed the design to covered stainless steel settler mixers. Given the change in configuration, we will reevaluate all components of the fire suppression and detection systems during final design. Fire suppression may include one or more of the following systems: water mist system, deluge foam system, and open-head water sprays. The text in the Facility Operating Plan has been modified in Sections 4 and 6 to state "fire suppression" system rather than "water spray" system and in Section 9.4.1 to include deluge foam system and open-head water sprays in addition to a water mist system. Please reference Exhibit 2 for additional information.

12. *Page 5-3. 1st full paragraph. Please verify that this sump is double lined and has a riser for monitoring any leaks.*

The floor sump in this area will be constructed as shown on SM&RC Inc. drawing 1000-S-001 that was previously submitted in Response No. 2 to RFI #1. The Facility Operating Plan text has been revised to indicate the presence of double containment and leak detection (see Exhibit 1).

13. *Page 5-5. Radiation Monitoring. While the hazards are lower due to moisture, the cake does present an ingestion hazard if the workers are not vigilant in their work practices. Contamination monitoring should be performed routinely in this area.*

A general housekeeping maintenance procedure for monitoring and mitigating contamination has been developed for the mill facilities and is now referenced in the Facility Operating Plan text (see Exhibit 1). This procedure and other maintenance procedures are included in Appendix F of the Facility Operating Plan (see Exhibit 1). Additional maintenance procedures and forms will be developed, as necessary, during mill pre-commissioning and commissioning.

14. *Page 5-6. Packaging system. It states that the lid will be placed on the drum after packaging and on the next page that the drums are cracked to equilibrate. This is not adequate, in that there may not be enough time, particularly towards the end of a shift for the contents to equilibrate. A very powerful exothermic reaction can occur if the drums are not adequately allowed to reach equilibrium with the outside air pressure. See NRC Information Notice 99-03.*

The text for sealing the uranium drums in the Facility Operating Plan (Exhibit 1) has been revised to postpone drum sealing until equilibrium is achieved.

15. *Page 10-2. 1st full paragraph. It states here that people will be frisked with a gamma meter before leaving the area. This is not acceptable. The surveys need to be for particulates, so a beta or alpha survey is more appropriate. One can just do a beta survey and calculate the associated alphas or use detectors that can read both alpha and beta particles. The SOPs describe this activity.*

Scanning with a gamma meter has been replaced in the text with a mandatory alpha survey. Text has also been added for other discretionary surveys (see Exhibit 1).

16. *Page 10-3. 2nd paragraph. All material that is scanned for release from the site shall be documented and the records available for inspection.*

This requirement has been added to the referenced text and also included in Radiological Health and Safety Procedure RH070, Release of Equipment to Unrestricted Areas.

Comments on Volume 11, Section J2, "Estimates On Radiation Doses To Members Of The Public From The Pinon Ridge Mill (MILDOSE-Area Report)"

1. *There is no quantitative data supporting an average ore value of 0.23%. Please provide supporting data. We note that Cotter has used values for western slope ore ranging from 0.25% up to 0.43%. Ore concentrations will vary from mine to mine, and will even vary at the same mine. An increase of a few percent in the ore average can result in significantly higher radium values in the tailings, which can affect public and occupational dose. EF must provide supporting data for the 0.23% used in the application. Short of adequate documentation of the 0.23% value, the Department may use a higher value in its license review.*

Exhibit 3 provides a detailed description as to how the 0.23% mill head grade was determined for the Piñon Ridge Mill. As discussed in the exhibit, the weighted average head grade with dilution for Energy Fuels' properties is 0.227% U_3O_8 while properties controlled by others in the region average 0.218% U_3O_8. These grades are further supported by historic records for the mills in that area. The Uravan mill processed an average head grade of 0.22% U_3O_8 from Union Carbide's (a.k.a., Umetco Mineral's) mine operations from 1949 to 1990 (see Exhibit 3) while Atlas also reported an average head grade of 0.22% during the last several years of operation at the Moab mill (Personal Communications between Frank Filas and Richard Blubaugh).

The price of uranium was relatively low during the recent time period when Cotter was processing its Western Slope ores; accordingly, the company's mining operations had to high grade in order to make the shipping and milling economical. This ultimately proved to be unsuccessful because of low mill recoveries. When high grading, the miners only mine the highest grade ores, leaving the lower grade ores for later when the price of uranium and vanadium may be higher. Based on our knowledge of the Cotter mine properties, we believe that their average ore grades with dilution are similar to those projected for our mines and other mines in the region.

2. *Guidance for MILDOSE provides suggested ratios for particle size. Up to three particle size distribution sets are available. Set number one is assigned to the yellowcake dryer packaging or equivalent source type. Set number 2 is assigned for the crushers, grinders, rod mills, conveyers, fine ore blending, and other mill-process source types. Set number 3 is assigned to tailings and ore-storage piles source types. Both the default Particle Size and the Fractional Size Distribution may be modified if a source releases particles with different sizes or distributions. Particle Size (PTSZ): defines up to four AMADs (um) per distribution set. Default particle size values are 1.5, 3.0, 7.7, and 54 um. Provide a technical basis for*

using the default values in MILDOSE to model particle size from the SAG mill, the dryer vent, and tailings/ore.

Particle size distribution is addressed in Appendix B of the revised "Estimates of Radiation Doses to Members of the Public from the Piñon Ridge Mill" that is attached as Exhibit 4.

3. *The final report that was submitted with the application does not discuss calculated doses at the administration building (which is out of the restricted area). We note that the administration building was modeled, but not discussed in the report. While no dose limits are exceeded based on the modeling, some of the organ doses come very close to the limit, it would appear that the location of the administration building is not ALARA. NRC guidance (NUREG-0859) for evaluating compliance with 40 CFR 190 notes the limit applies "…to any member of the public". While EF may plan on classifying all workers in the administration building as radiation workers, this may not hold true over time if policy changes. Many administrative staff has no need to access the restricted area. CDPHE has had considerable experience with a similar situation at Cotter. Consider placing the administration building to the north of the impoundments rather than the north-east. If not, please provide an ALARA analysis for leaving the administration building where proposed.*

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 (see Exhibit 4). These modeling results indicate that doses at the fence line and administration building will be well below regulatory limits for members of the public. Doses at the proposed administration building and alternate on-site locations are addressed in Appendix A of the revised "Estimates of Radiation Doses to Members of the Public from the Piñon Ridge Mill" that is attached as Exhibit 4. Although, the predicted doses for an alternate north site are lower than those at the proposed northeast site, both sets of doses are relatively low and well below regulatory limits. This is especially true if you take into account that the model assumes a 24-hour per day, 7-day per week exposure (i.e., 168 hours per week) while most mill employees will be on site for 40 to 50 hours per week. Given the relatively low doses at both the north and northeast sites, Energy Fuels would prefer to keep the administration building in its current northeast location near the primary access road, as this allows for more efficient operations and improved security compared to the north location.

4. *The report did not address the loading/unloading areas, which are outside the restricted area. A receptor point for the loading dock area should be added to the model.*

Appendix A (see Exhibit 4) also addresses estimated doses at the ore dumping platform and mill delivery docks. The estimated doses in these areas are higher due to their proximity to the ore pad and mill; however, these doses are again based on 168 hours per week of exposure while most delivery personnel would be on site for less than 10 hours per week.

5. *The MILDOS-AREA model uses Gaussian-plume algorithms, assumes flat terrain, and uses wind rose patterns that do not accurately represent low-duration, high wind events, such as the dust storms being experienced in the West in recent years. It is adequate for modeling potential dose under normal operations and conditions. Please provide an analysis of the regional impact of Energy Fuels with respect to particulate deposition from these type events. Since ore piles and tailings piles will be subject to dust suppression and mitigation during operations, the review should focus on times when the tailings ponds will be dewatered and dried prior to placement of the final cap.*

Energy Fuels respectfully disagrees with the assertion that the tailings will be dry prior to placement of the final cap, as dust control measures (water sprays, chemical dust suppressants) will still be in place during this time to keep the tailings surface moist and/or sealed off from potential wind entrainment. Nevertheless, we commissioned Kleinfelder West Inc., to conduct the requested modeling using a "worst-case" scenario in which a 30 acre tailings cell is assumed to be uncovered and dry. Kleinfelder's Regional Dust Analysis Report, which is based on AERMOD PM-10 modeling, is presented in Exhibit 5. Because PM-10 modeling does not analyze radioactivity levels, we also commissioned Dr. Craig Little to run the MILDOS-AREA model using the same "worst-case" scenario. His results are also included in the Kleinfelder report. The results of both modeling efforts indicate that the mill will have negligible impact on local and regional residents and communities. These modeling results are not surprising given the relatively small footprint of the mill and tailings facilities and the relatively low radioactivity levels of the ore and tailings.

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

Sincerely,

Frank Filas, P.E.
Environmental Manager

Attachments (Exhibits 1 – 5)

Cc: C. Pray (Colorado Air Pollution Control Division)
C. Little (Two Lines)
M. Steyskal (Kleinfelder)
M. Montoya (Visus)
S. Sheldon (Rolf, Jensen & Associates, Inc.)
B. Monok, Z. Rogers, S. Antony (Energy Fuels)