BASELINE DATA REPORT

Section 12.0

Present and Historic Land Use

September 2019

Revision 2

Submitted To:

New Mexico Mining and Minerals Division & U.S. Forest Service (Cibola National Forest) & New Mexico Environment Department

Prepared by: Roca Honda Resources, LLC Roca Honda Resources, Inc., 225 Union Blvd. Suite 600, Lakewood CO 80228

Contents

| 12.0 | Present and Historic Land Use | |
|------|--|--|
| 12.1 | Introduction | |
| 12.2 | Present and Historic Land Use of the Permit Area | |
| 12.3 | General Patterns of Land Use Surrounding the Permit Area | |
| 12.4 | Land Capability and Productivity | |
| 12.5 | References | |

12.0 Present and Historic Land Use

NMAC 19.10.6.602 D.(13) (j)

Baseline data shall include, as applicable:

(*j*) A description of the present and historic land use of the permit area, the general patterns of land use in the surrounding areas, and a narrative of land capability and productivity based upon U.S. Soil Conservation Service land use capability classes or a similar classification.

12.1 Introduction

The Roca Honda permit area encompasses all of Sections 9, 10, 16, 17 and the SE1/4SE1/4 of Section 8 of T13N R8W in McKinley County, New Mexico. Section 16 is owned by the State of New Mexico with the minerals leased to RHR and the surface leased to Fernandez Company, Ltd. (aka the Lee Ranch) as rangeland for grazing. Sections 9 and 10 are USFS lands within the Cibola National Forest. RHR has unpatented mining claims on these two sections. There are a total of 2600 acres within the proposed mine permit area.

12.2 Present and Historic Land Use of the Permit Area

Sections 9 and 10 are owned by the federal government, administered by the USFS, and open to the public. The land is used for a multitude of purposes including grazing, mineral extraction, hunting, hiking, and other outdoor recreation activities. Forest land use also includes commercial logging and personal and commercial gathering of firewood. While there is no evidence of commercial logging having occurred on Sections 9 and 10, there are a sufficient number of trails and roads on the property to provide easy access for wood gatherers.

The Lee Ranch controls a vast amount of range land through private ownership and leses of rangeland including the surface grazing lease in Section 16. In addition, the permit area has also been the subject of significant mineral exploration and develoment activity. As described in Section 10, Prior Mining Operations, the permit area was extensively drilled in the 1960s, '70s and early 80's and a shaft was sunk in Section 17 in the late 1970's. The long-term land use of the permit area has been rangeland, possibly since 1767 when the Fernandez Land Grant was issued and the dominant grazing animals were likely not domestic livestock.

As described in detail in Section 11 of this report, Historic Places and Cultural Properties, together with the supporting archeological survey documents, historic use of the permit area dates back to use by the native peoples of the region to before the birth of Christ. Archeological evidence indicates that the Anasazi, Basketmaker and Pueblo cultures have all used the permit area. More recently, the Navajo and Anglo cultures have made their imprint on the permit area.

12.3 General Patterns of Land Use Surrounding the Permit Area

The general land use patterns in the surrounding area are similar to that of the permit area. It is a mix of state, private and federal ownership dominated by the Lee Ranch and the Cibola National Forest. The area is sparsely populated, rural and largely undeveloped. Predominant land uses are low density grazing and cultivation and recreational activity such as hiking, sightseeing, picnicking and seasonal hunting.

The community of San Mateo is located approximately four miles to the southeast of the permit area. There are estimated to be lesss than 200 persons living there. The Lee Ranch headquarters and residence are also located approximately two miles southeast of the permit area. In addition, the Lee Ranch foreman has a residence on private property in Section 17. Several other rural residences are located along the San Mateo Valley west of the permit area.

Rio Grande Resources, Corp. owns the Mt. Taylor uranium mine located approximately four miles east of the project site. The mine is currently not operating and has been on stand-by status for a number of years. It operated from the late 1970's to the mid 1990's.

The Cibola National Forest administers most of the public land surrounding the permit area. Its responsibilities include general administration, management of timber resources, and development of specific land use management plans.

The permit area is located in an area known as the Grants Uranium Belt. Grants and Milan are the largest communities in the area and are the centers of what once was the uranium related populace in New Mexico.

The Grants Uranium Belt is an area about 100 miles long by 20 miles wide and extends from Gallup on the west to Rio Puerco on the east. It is located in one of the most diversified major energy-producing regions in the United States. Within or adjacent to the area are large oil and gas fields, and abundant accessible coal deposits. The Grants region was historically the major producer of uranium in the United States. It still contains approximately half of the nation's economically recoverable uranium reserves. A number of mines and mills operated in the region until the mid-to-late 1980s. Grants-Milan is primarily a mixture of state-owned and private land, although small parcels of BLM natural-resource lands are scattered throughout the area. BLM lands are managed under a multi-use land management system. The BLM lands in the area are generally used for grazing purposes.

12.4 Land Capability and Productivity

Section 6, Topsoil, of this BDR discusses the soil capability classifications on the Roca Honda permit area obtained from two separate soil surveys. Both studies use the nomenclature "good," "fair," and "poor." The first survey was conducted by the USFS (Strenger et al. 2007) and covered Sections 9 and 10 of the permit area. The second survey covered Section 16 of the permit area and was conducted by the U.S. Department of Agriculture, Natural Resources Conservation Service (formerly Soil Conservation Service) in cooperation with the BLM, the Bureau of Indian Affairs, and the New Mexico Agricultural Experiment Station (NRCS 2006). The results of the two surveys indicate similar capability classes. Class 6 soils are typically restricted to use for pasture, rangeland, forestland, and wildlife habitat.

12.5 References

NRCS (Natural Resources Conservation Service), 2006. *Soil Survey of McKinley County Area, New Mexico, McKinley County and Parts of Cibola and San Juan Counties*, U.S. Department of Agriculture, Natural Resources Conservation Service, in cooperation with U.S. Department of Interior, Bureau of Land Management and Bureau of Indian Affairs, and the New Mexico Agricultural Experiment Station.

Strenger, S., S. Sebring, W. Robbie, F. Escobedo, C. Vaandrager, V. Andrew, E. Brooks, C. Krasine, B. Nielsen, and R. Fletcher, 2007. *Terrestrial Ecosystems Survey of the Cibola National Forest and National Grasslands*, USDA Forest Service, Southwestern Region.



Via Electronic Delivery

September 18, 2019

Clint Chisler, Permit Lead Mining Act Reclamation Program Mining and Minerals Division 1220 South St. Francis Drive Santa Fe, NM 87505

RE: Agency Comments on Baseline Data Report Addendum 1, Roca Honda Mine, Permit Application No. MK025RN

Dear Mr. Chisler:

In response to your letter of May 6, 2019 regarding the above referenced permit application, enclosed are the following:

1. A map showing surface water occurrences and drainage features within Sections 17 and 8 (Attachment A) pursuant to NMAC 19.10.6.602 D (13)(g). This map may be inserted behind Figure 8-2 in the January 2011 Roca Honda Baseline Data Report (BDR). Note that there are no perennial surface water occurrences or waterways within Section 17 or the SE1/4SE1/4 of Section 8.

2. Revised pages 12-1 and 12-2 from the January 2011 Roca Honda BDR) with information regarding the current and past land uses of Sections 17 and 8, and a map showing existing disturbances from prior mine development and exploration activities on a topographic base map (Attachment B) as required by NMAC 19.10.6.602 D (13) (h) and (j). These pages and the figure may also be inserted in Sections 12 and 10 respectively of the January 2011 BDR. Note that Section 10 of the January 2011 Baseline Data Report also describes previous mining-related activities in Section 17.

3. Responses to NMED's Mining Environmental Compliance Section and the Surface Water Quality Bureau May 1, 2019 Memorandum to Holland Shepherd regarding BDR Amendment No. 1 (Attachment C).

As noted in your letter, it is our expectation that with the submittal of these materials and the Revised Rio San Jose Work Plan that the Baseline Data Report Addendum No. 1 can be determined to be complete and approvable. As discussed in recent meetings Roca Honda Resources (RHR) is in the process of updating the MORP to include mine development in Sections 17 and a small portion of Section 8, and the southern reuse pipeline route. We currently anticipate submittal of the updated MORP later this year.

Roca Honda Resources 225 Union Blvd, Suite 600 Lakewood CO 80228 We appreciate MMD's assistance and look forward to jointly moving the permitting process toward completion. Please contact me at 208-354-0588 or Scott Bakken, Sr. Director of Regulatory Affairs for Energy Fuels at 303-389-4132 with any questions regarding this submittal.

Sincerely,

michael Menun

Michael Neumann Sr. Project Consultant

cc: Jeff Lewellin, NMED MECS Holland Shepherd, MMD MARP Ashlynne Winton, NMED Alan Klatt, NMED SWQB Scott Bakken, Energy Fuels Attachment A

Figure 8-2A, Surface Water Resources

Attachment C

Response to NMED MECS 5/1/19 Comments

Attachment B

Figure 10-1A, Prior Mining Operations BDR Replacement Pages





Response to New Mexico Environment Department May 1, 2019 Memorandum from Ashlynne Winton, Alan Klatt and Neal Butt to Holland Shepherd, Program Manager, MARP

Comment (from February 8, 2019 Response to Comments)

Mining Environmental Compliance Section

5) Appendix B, January 2014 ARCADIS-SENES page 6 & 7: Please discuss how Energy Fuels intends to address the areas with elevated levels detected in the survey and the process for "documentation prior to future mining operations".

Applicant Response – See ERG Response #4 in Attachment A. At least three months prior to beginning pipeline construction, RHR will re-survey the "midsection" of the pipeline route as described in the ARCADIS_SENES report using similar methods and equipment as used for the survey documented in the January 2014 report. While the higher gamma values obtained during the baseline survey suggest there may have been some contamination from historic mining operations in Ambrosia Lake, the radiation doses to potential receptors associated with gamma readings less than 50 μ R/hr would be negligible. None-the-less representative soil samples will be collected where gamma readings exceed 25 μ R/hr during construction to determine soil concentrations of Ra-226, Th-232 and U nat. During construction, soils exhibiting gamma levels greater than 25 μ R/hr will be placed in the bottom of the trench and covered with cleaner soils to ensure that the New Mexico Radiation cleanup criteria of 5 pCi/g Ra-226 greater than background will be achieved. Should any soils with Ra-226 concentrations greater than 5 ρ Ci/g above background be encountered, they would be removed and placed on waste rock piles at the Roca Honda mine for eventual underground disposal.

Comment (from 5/1/19 memo)

NMED will require additional information regarding the origin of the threshold values of 25 and 50 μ R/hr. It is not clear how samples can be sent to the lab simultaneously during construction and determinations made to bury contaminated soil instead of placing it on the waste pile. This information should be included in the operation and reclamation plan.

Response:

The requested information, as described below, will be included in the updated operation Mining, Operations and Reclamation Plan (MORP). In summary, soils along the planned pipeline route will be sampled at least 3 months prior to construction so that a correlation between soil radium 226 concentrations and gamma readings can be established. Results of this sampling will then be used to establish site-specific gamma radiation criteria for classifying soils as suitable for cover or removal to the mine site.

The State of New Mexico Joint Guidance for the Cleanup and Reclamation of Existing Uranium Mining Operations in New Mexico, March 2016, (the "guideline") specifies that post-reclamation radiation levels for gamma radiation should not exceed the site-specific value of gamma radiation that correlates to 5 pCi/g <u>above background</u> radiation levels, averaged over the first 15 cm of soil below the surface. At the Roca Honda mine site the mean baseline soil Ra-226 level as determined during the 2010 baseline survey performed by DeNuke (see Roca Honda SAP, November 2010 Baseline Radiation Survey) was 1.08 pCi/g

Ra-226 with a high value of 1.4 pCi/g. This equated to gamma radiation readings of 18.6 to 19.5 μ R/hr. The radiation survey of the reuse pipeline route completed by Senes Consultants in 2013 (see July 2018 BDR Addendum 1, Appendix B-3, Baseline Radiological Survey of Pipeline Corridor and Reuse Water Discharge Area, ARCADIS-SENES, January 2014) yielded similar results with gamma readings generally in the range of 15 to 17 μ R/hr but also, as noted by NMED, significant stretches of the proposed pipeline route that exhibited gamma levels greater than 20 μ R/hr. As noted in the SENES report, such areas of elevated gamma readings were likely caused by historic ore and tailings transportation along Hwy 509. Assuming that pre-construction sampling of soils along the pipeline route confirmed a similar gamma-radium 226 correlation as the Senes survey, those results can be used to quickly screen and classify soils along the pipeline route on the basis of the gamma measurements.

Assuming the conservative baseline value of 1.1 pCi/g Ra-226 for the mine site, a post-reclamation radiation level (PRRL) concentration of 6.1 pCi/g Ra-226 would be allowable. The corresponding gamma radiation level is approximately 25 μ R/hr. Therefor any soils yielding a gamma reading of less than 25 μ R/hr would meet the post-reclamation standard specified in the Guideline. Applying this same criteria to the reuse pipeline suggests that any soils yielding gamma values of less than 25 μ R/hr would be suitable for surface cover material. Material exhibiting gamma levels greater than 25 μ R/hr but less than 50 μ R/hr would be either buried in the bottom two feet of the trench and covered with at least one foot of material with less than 25 μ R/hr gamma levels or transported to the mine site for temporary storage on lined development rock pads until placed underground as part of concurrent mine backfilling operations. Any material exceeding 50 μ R/hr would be also be taken to the mine site for temporary storage as above and eventually backfilled into the mine.