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CERTIFIED MAIL – RETURN RECEIPT REQUESTED

October 28, 2021

Bruce Norquist, Facilities Manager
Mount Taylor Mine
Rio Grande Resources Corporation
P.O. Box 1150
Grants, NM 87020

RE: Comments on Reclamation and Post-Reclamation Radiological Survey Work Plan, MMD Permit No. CI002RE and NMED Discharge Permit 61, Rio Grande Resource Corporation, Mount Taylor Mine

Dear Mr. Norquist:

The Energy, Minerals and Natural Resources Department (EMNRD) Mining and Mineral Division (MMD) and the New Mexico Environment Department (NMED) Mining Environmental Compliance Section (MECS), collectively “the Agencies” received a Reclamation and Post-Reclamation Radiological Survey Work Plan (Rad Survey Work Plan), dated June 8, 2020, from Rio Grande Resources Corporation (RGR) in partial fulfillment of Condition 9.L.3 of Revision 13-2 to Permit No. CI002RE for the Mount Taylor Mine. MMD and NMED have reviewed the Rad Survey Work Plan and have the following comments.

1. General comment – an Acronym and Definition page at the beginning of the document would be helpful.
2. Section 1. Introduction, Page 2, paragraph 4th states, “The commitment for post-closeout contamination surveys of building retained for the PMLU is not specific, and there is no discussion of this issue in the MMD/NMED Joint Guidance”. Condition 9.L.2 of MMD Permit Revision 13.2 requires that, “Radiation levels in the facilities that will be retained for PMLU shall not exceed NMED Radiation Control Bureau 20.3 NMAC criteria for the facilities’ unrestricted release and use.” Bruce Norquist has stated that the Multi-Agency Radiation Survey and Site Investigation Manual (MARRSIM) requirements of 25 mrem/yr. alpha and gamma is the standard that these

building must meet. Clarification of the acceptable radiation levels in the PMLU buildings is needed.

3. Section 2.0, Radiological Release Criteria, Page 3, #2 states that the "Site Post-Reclamation Radiation Level ("PRRL")...shall not exceed the site-specific value of gamma radiation that correlates to 5 pCi/g Ra-226 above background at the 95th percentile." The next paragraph states that an equivalent PRRL of 24 uR/hr has been identified based on based on a prior, Site-specific statistical regression between Ra-226 concentrations and terrestrial gamma radiation levels (see Section 3.2.1). Based on a review of Figure 5 and Section 3.2.1, the PRRL appears to correspond with the 17.5 uR/hr value, not the 24 uR/hr value. In addition, it appears that only seven data points were used to correlate the mean Ra-226 with the mean gamma and to calculate the 95th percentile. A sample size of n=7 may not yield a strong statistical correlation and also decrease the statistical accuracy when calculating the 95th percentile. Please provide additional justification as to why the 24.5 uR/hr is being chosen as the upper limit and not the 17.5 uR/hr. In addition, please address if the sample size used in the correlation should be increased to yield a more reliable statistical correlation and calculation of the 95th percentile.
4. Section 3.1, Operational History, Page 3, paragraph 2 states, in part, "potential impacted land areas are in expected to include..., 2) adjacent and/or hydrologically downgradient arroyos or ephemeral runoff drainages,". Affected areas may include impacts from windblown sources must be considered.
5. Section 3.2.1, Onsite Gamma Radiation Surveys, Pages 4-6. See Comment Number 3, above. The proposed radiation cleanup requirements and the MMD/NMED Joint Radiation Cleanup Guidance requirements needs clarification.
6. Section 3.2.1, Onsite Gamma Radiation Surveys, Pages 4-6. Larger scale drawings of Figure 3 are needed to depict more clearly the measured and predicted Ra-226 concentrations in surface soil at the mine site. In addition, the Figure 3 drawing of the predicted Ra-226 concentrations shows an area of elevated in the Borrow Area A. Borrow Area A may need additional investigation of the source of the higher predicted Ra-226 concentrations in that area.
7. Section 3.2.1, Onsite Gamma Radiation Surveys, Figures 4 and 5, Page 5. See Comment Number 3, above. Discussion on the Sampling Adequacy and calculation of the 95th Percentile Value data is needed.
8. Section 3.2.1, Onsite Gamma Radiation Surveys, Page 6, paragraph 1. See Comment Number 3, above. According to the Joint MMD/NMED Radiation Cleanup Guidance of Existing Mining Operations in New Mexico, March 2016, in order to demonstrate adequate radiation reclamation, the Post-Reclamation Radiation Level (PRRL) will not exceed the 95th percentile value. If 17.5 uR/hr. gamma exposure rate is the background radiation 95th percentile value for the Mt. Taylor Mine, as stated in this section, then the statement that, "*a gamma exposure rate of 24.5 uR/hr. will be the PRRL*" is not in accordance with the Joint MMD/NMED Radiation Cleanup Guidance, rather a gamma exposure rate of 17.5 uR/hr. should be the PRRL.
9. Section 3.2.2, Radiological Data for Offsite Areas, Page 6 and Figure 6 and Table 1, Page 7. Using the 17.5 uR/hr. gamma exposure rate as the PRRL, Sample Location # MTE-1, MTE-3, MTE-4, and MTE-5 are above the PRRL. Additional gamma exposure rate sampling and soil sampling for Ra-226 concentration may be needed.
10. Section 3.2.2, Radiological Data for Offsite Areas, Page 6 refers to a study performed in 2012 (Fitch, 2012). See Comment Number 3, above. The 2012 Fitch field soil investigation studied the

gamma exposure rate and the Ra-226 concentration in soil samples taken from “offsite” areas nearby the controlled area of the mine. The report states that, “Regression analysis of the data [in Table 2] indicates very poor statistical correlation between the dose rates and the concentrations of Radium-226 in the soil.” Please provide the data and results of the regression analysis.

11. Figure 7, Page 8. A larger scale drawing of this figure is need that more clearly show the sample location identifications.
12. Section 3.2.3, Data Gap Analysis, Page 9, paragraph 1 states that, “Subsurface soil core samples will be collected only in areas where, based on operational history and Site knowledge, buried radiological contamination may exist...”. Subsurface core samples should be collected wherever the soil surface exceeds the PRRL.
13. Section 4., Methods, Page 9 lists the approaches, methods and analytical objectives of the proposed reclamation and post-reclamation radiological surveys. See Comment 2, above regarding the radiation cleanup levels in the facilities retained for the PMLU. In addition, this section does not address the State of New Mexico Radiation Cleanup Criteria (Section 2.0 of the Joint MMD/NMED Radiation Cleanup Guidance for Existing Mining Operations, March 2016) for contaminated material repository cover material to achieve a radon flux equal or less than 20 pCi/m²/s.
14. Section 4.1.1, Instrumentation, Page 10, 1st paragraph states that, “the detector will be positioned at approximately 0.5 meters above the ground surface...” Please specify whether the detector will be shielded or un-shielded and explain why.
15. Section 4.1.5, Gamma/Ra-226 Correlation. Comment No. 3 applies to this section.
16. Section 5.1 Remedial Support Surveys, General Approach, Page 14, paragraph 2. See Comment 3, above.
17. Section 5.4, RSS Soil Sampling, Page 16. This section states that, “RGR has recently developed a rapid, onsite Ra-226 soil sample analysis capability...” Please provide information that demonstrates that this sample analysis capability is an acceptable method for on-site soil analysis for Ra-226.
18. Section 6.1, FSS Statistical Design and Compliance Evaluation, Page 17-19. The Agencies request a meeting to discuss the statistical design and compliance evaluation methodology proposed in this section. A meeting should be scheduled within 30-days of receipt of this letter.

Please contact David Otori at (505) 216-8945/ David.Otori@state.nm.us or Anne Maurer at (505) 660-8878 / Anne.maurer@state.nm.us if you have any questions, concerns, and to arrange a meeting.

Sincerely,



David Otori, Senior Reclamation Specialist
Mining Act Reclamation Program

Anne Maurer, Mining Act Team Leader
Mining Environmental Compliance Section

Cc: Holland Shepherd, Program Manager Mining Act Reclamation Program, MMD
Kurt Vollbrecht, Program Manager, NMED MECS