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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 24, 2021

Mr. Kevin Williams, Director
Division of Materials Safety, Security, State and Tribal Programs
Office of Nuclear Material Safety and Safeguards
United States Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Re: Draft Completion Review Report
Rio Grande Resources Corporation
Panna Maria Uranium Facility
Radioactive Material License Number R02402
IDA#: 26046472

Dear Mr. Williams:

Thank you for the NRC's letter from Michael Layton dated August 17, 2020, regarding TCEQ's request dated August 23, 2019, for NRC's review and comment on the draft Completion Review Report (CRR) for the full license termination of the Rio Grande Resources Corporation, Panna Maria Uranium Facility site. The NRC letter was in response to the discussions between NRC and TCEQ staff that occurred on March 4, 2020 and June 30, 2020. The draft CRR was prepared using the guidance provided in the NRC Office of State and Tribal Programs (STP) Procedure Number SA-900: *Termination of Uranium Milling Licenses in Agreement States*.

NRC indicated that the CRR needs to more accurately describe the technical rationale for removing the secondary groundwater protection standards for nickel and molybdenum. We understand that the rationale for the removal of nickel and molybdenum cannot be based solely on removal of the Maximum Concentration Limits of these two metals from the federal safe drinking water standards. We will reevaluate the site groundwater monitoring data to determine if these constituents need to be included with groundwater compliance in accordance with regulatory requirements.

NRC also indicated that "the comprehensive approach" used to establish the uranium background levels at the Panna Maria Site is novel. Novel is a term used to describe "atypical with normal" in SA-900. Ideally, background levels are media specific, and groundwater background levels are derived from groundwater monitoring well data. In that sense, this comprehensive approach could be considered novel, but it does not mean it is incorrect. TCEQ adopted this approach for establishment of uranium background groundwater levels at the Panna Maria Site as amendment No. 9 issued January 7, 2019 to Radioactive Material License R02402.

The early groundwater investigations conducted at the Panna Maria Site were mainly focused on the southern portion of the site down-gradient of the tailings pond. The background groundwater quality of the A Sand and Alluvial Sand was presumed to be of suitable quality for domestic use. The tailings pond was considered the source of groundwater contamination and adversely impacted the A Sand and Alluvial Sand groundwater.

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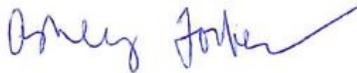
Beginning in 2008, the licensee conducted additional groundwater investigations for development of a groundwater flow and transport model using MODFLOW SURFACT. Both A Sand and Alluvial Sand as uppermost aquifers were found to extend to the north and both sands were merged as one shallow hydrographic layer in the model. Later, several unmined uranium roll-front deposits, both up-gradient of the site as well as beneath the site were interpreted from the geophysical logs of hundreds of boreholes. The site groundwater conceptual model was refined, and it was determined that this natural uranium residual roll-front mineralization in near surface sediments also was a contributor to the groundwater contamination. The licensee attempted to reestablish uranium background levels by installing new monitoring wells up-gradient of the tailings pond. Three new wells were installed and had enough water available to sample and analyze. To obtain sufficient data, the licensee utilized uranium data from up-gradient wells both on site and in the region. The statistically calculated uranium background level was determined at 0.885 mg/L.

Considering uranium concentrations are extremely heterogeneous in groundwater, bottle roll tests served as the best estimate of uranium concentrations of roll-front sediments. This resulted in uranium concentrations ranging from 0.174 to 32.8 mg/L. Further, this range was verified with the PHREEQC equilibrium geochemical modeling code, which generated uranium concentrations from 0.84 to 11.32 mg/L. Finally, a uranium background was determined at 2.5 mg/L. This 2.5 mg/L level was a scientifically defensible estimate for the uranium background value. Based on the revised site conceptual model and comprehensive analyses, the TCEQ accepted the 2.5 mg/L uranium background level as the groundwater protection standard for the recent license amendment. Consideration was given to the unique site geological conditions and over 30 years of groundwater data.

We understand that NRC has concerns using the 2.5 mg/L value as a background for uranium. However, in order to allow us to better communicate with our licensee, we would like to have a discussion with you and your staff either via a Microsoft TEAMS videoconference or in person to better understand NRC's position on this matter.

If you have any questions regarding the content of the letter, please do not hesitate to contact me at (512) 239-0493 or Gehan Flanders at (512) 239-1923, or by electronic mail at Gehan.Flanders@tceq.texas.gov.

Sincerely,



Ashley Forbes, Deputy Director
Radioactive Materials Division
Office of Waste
Texas Commission on Environmental Quality