



May 24, 2023

Amy Veek
GCC Rio Grande, Inc.
3372 Lime Road
Pueblo, CO 81004

**Re: Second Adequacy Review for the Pueblo Cement Plant and Quarry M-2002-004
2022 Annual Groundwater Report**

Dear Ms. Veek

On April 19, 2023, the Division of Reclamation, Mining and Safety (Division/DRMS) received your responses to the Division's preliminary adequacy review regarding your 2022 Annual Groundwater Report submission for the Pueblo Cement Plant, Permit No. M-2002-004. After reviewing your responses, the Division has additional items that need to be addressed or clarified. Please respond to the following:

1. *"In the Groundwater Monitoring Data Collection section, it is stated that all wells were sampled according to the methods in the approved TR-11. A review of the field sheets in Attachment 1 indicates there is information missing that demonstrates stability was achieved when three consecutive measurements did not vary more than 3% for conductivity and temperature, +/- 10 millivolts for ORP and +/- 0.1 standard units for pH and well purging was done at the lowest rate on the order of 0.03 to 0.1 gpm. Please provide information that demonstrates the stated conditions were met. If sampling deviated from the approved methods, please provide an explanation."*

GCC Response: All wells were in fact sampled according to the methods in the approved the TR-11 Sampling and Analysis Plan (TR-11 SAP). Per Section 3.3 in the TR-11 SAP, "The final field water quality parameters will be recorded in the mobile field form (Appendix A)." Those final field parameters are given for each sampling event in each respective field form, as shown in 2022 Annual Groundwater Report as Attachment 1. While the TR-11 SAP Section 3.4 discusses the well purging methodology which includes a demonstration to the sampler of field parameter stability when three consecutive measurements do not vary more than 3% for conductivity and temperature, +/- 10 millivolts for ORP and +/- 0.1 standard units for pH, only the final parameters are to be recorded on the mobile field form. For GCC's internal QAQC use, as well as for potential data requests such as this, all field water quality measurements are data logged at 20-second intervals by the sampling team using their In-Situ AquaTroll 400 water quality sonde, which are time/date-stamped by location. Collectively these individual data log files represent a large data set that is processed only on an as-needed basis. If that level of detail is required to satisfy this Division comment, the full compilation of field water quality data log files, or a sample subset, can be provided electronically upon request.



Additionally, the purge and sampling flow rate (both the same for low-flow groundwater sampling) is already given in the mobile field forms under the Sampling Details -> Sampling section with the Flow Rate (gpm) question.

DRMS Response: While the Operator states the sonde used recorded measurements every 20 seconds typically 3-5 minutes is required to allow sufficient time to pass for volume “turn over” of at least one flow-through-cell volume between measurements. The Division requests the Operator provide the last three consecutive measurements, at least 3 minutes apart, used to determine that parameters had stabilized and a sample could be collected.

In TR-11 it is stated that wells shall be pumped at the lowest practical rate possible, on the order of 0.03 to 0.1 gallons per minute (gpm). In the first quarter purging rates varied from 0.1 to 0.63 gpm, rates in the second quarter were from 0.01 gpm to 1.4 gpm, and rates in the third and fourth quarter varied from 0.02 gpm to 0.16 gpm. Please clarify how the pumping rates, primarily in quarters one and two, are in compliance with TR-11.

Low-flow sampling requires water level measurements to be collected during pumping to minimize drawdown in the well. USEPA guidance is to minimize drawdown not to exceed 0.3 feet while ASTM D6771-21 recommends 0.1 feet. If the minimal drawdown that can be achieved exceeds 0.3 feet, but remains stable, purging may continue. In the first quarter drawdown noted on the field sheets ranged from 3 to 106 feet with MW-9 showing an increase in water level at the end of sampling. It is stated that MW-14 sampled using a bailer and not sampled using low-flow groundwater sampling methods. Bailing is not sampling method discussed in TR-11 and the typical removal of three casing volumes prior to collecting a sample was not completed. Please discuss the sampling deviations that occurred in all quarters as it relates to water level drawdown and the apparent instability of the water level during purging and sampling. In addition, a discussion is required about sampling methods that deviated from those methods approved in TR-11. Note in the first quarter monitoring wells 6, 11 and 13 had 3 or close to 3 casing volumes removed during purging and this occurred again in the second quarter at monitoring wells 6 and 7.

A review of the purge data from quarters three and four indicates the total amount of water removed from the wells, prior to sample collection, was equal to the tubing volumes provided in TR-11 Table 3. The Division’s interpretation of this data is the samples that were collected consisted of stagnate water and not representative samples of formation water. The Division did note purging of MW-14 did exceed the tubing volume in both quarters. A response is required.

DRMS (Additional): Pending the responses to item #1 above the Division, starting with the Second Quarter 2023, will require the Operator to begin submitting Quarterly Groundwater Monitoring Reports to demonstrate sampling can be conducted according to the approved methods and plans in the permit and consistent with industry standards. Collection of representative groundwater samples is required to demonstrate that affects to hydrologic balance are being minimized pursuant to Rule 3.1.6. The due dates for the quarterly groundwater monitoring reports are as follows:

- First quarter report due by May 1st of every year.
- Second quarter report due by August 1st of every year.
- Third quarter report due by November 1st of every year.
- Fourth quarter report due by February 1st of the following year.

Once the Operator has sufficiently demonstrated that samples can be collected in accordance with the approved methods the Division may allow the Operator to revert back to annual reporting.

2. *"Table 2 needs to be updated to bold the sample results that exceed the standard, e.g. Fluoride, Arsenic, Cadmium, Cobalt, Lead and Selenium all have exceedances that need to be revised."*

GCC Response: The Table 2 lab sample analyte exceedances have been updated to be shown in bold type, with a footnote for that designation.

DRMS Response: The remaining concentration exceedances have now been bolded in Table 2, except for those that state they are less than a value greater than what the agricultural standards are. See the following:

- Arsenic:
 - MW-6, MW- 7, and MW-7 (duplicate) for June 2019
- Cadmium:
 - MW-6 for June 2019
- Cobalt:
 - MW-6, MW-7, MW-10, and MW-7 (duplicate) for May 2020
- Selenium:
 - MW-6 for January 2018 and April 2018
 - MW-7 for all the 2018 entries and March 2019
- Lead:
 - MW-7 and MW-7 (duplicate) for June 2019

Please, either bold these entries, or provide a precise measurement that indicates the value is lower than the agriculture standards provided on Table 3 in the CDPHE Water Quality Control Commission Regulation 41 document.

5. *"In Table 2, analyte results from samples that exceeded hold times need to be clearly indicated, e.g. 1Q2022 nitrite and nitrate/nitrite in MW-7 and MW-13, and TDS values for MW-9, MW-13, and duplicate for MW-7."*

GCC Response: Analyte results from samples that exceeded lab hold times have been shown as underlined in the updated Table 2, with a footnote for that designation.

DRMS Response: Table 2 now contains a footnote indicating the exceedance of method holding times through the use of an underline. However, the samples mentioned on page 9 of the narrative that specifically address exceeding holding times are not underlined in the table. Please underline the following items on Table 2:

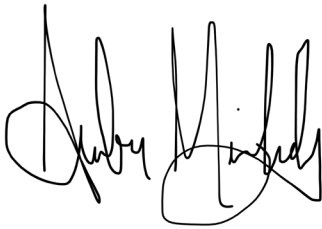
- The samples for nitrate and nitrate/nitrite that exceeded holding times mentioned on page 9.
- The samples for TDS that exceeded holding times on page 9.

This concludes the Division's review of the responses provided to the Division's preliminary adequacy review regarding your 2022 Annual Groundwater Report. The Division reserves the right to further supplement this document with additional items and/or details as necessary.

The due date for your response has been set for **June 7, 2023**.

If you need additional information or have any questions, please contact me by telephone at 720-836-0967, or by email at amber.michels@state.co.us.

Sincerely,

A handwritten signature in black ink, appearing to read 'Amber Michels', with a stylized, cursive script.

Amber Michels
Environmental Protection Specialist

Cc: Patrick Lennberg, DRMS
Jared Ebert, DRMS
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