COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources
1313 Sherman Street, Room 215
Denver, Colorado 80203

December 11, 2023

Ben Langenfeld
Lewicki and Associates
3375 W Powers Circle
Littleton CO 80123

Re: Preliminary Review of a 112 Construction Materials Reclamation Permit Application Package, Ewing Gravel Pit, DRMS File M2023-033

Mr. Langenfeld:

The Division of Reclamation, Mining, and Safety has completed its preliminary adequacy review of your 112 construction materials reclamation permit conversion application. The application was called complete for review on September 26, 2023. All comment and review periods began on September 26, 2023, and the public comment period ended on November 22, 2023. No objections to the proposed operation were received by the Division during the public comment period. **The decision date for this application is December 25, 2023. Please be advised that if you are unable to satisfactorily address any concerns identified in this review before the decision date, it will be your responsibility to request an extension of the review period. If there are outstanding issues that have not been adequately addressed prior to the end of the review period, and no extension has been requested, the Division will deny this application. In order to allow the Division adequate time to review your responses to any adequacy issues, please submit your adequacy responses to the Division no later than two weeks prior to the decision date (December 18, 2023).**

Please note that any changes or additions to the application on file in our office must also be reflected in the public review copy, which has been placed with the Weld County Clerk and Recorder.

The review consisted of comparing the application content with specific requirements of Rule 6.1, 6.2, 6.4 and 6.5 of the Minerals Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials. As with most applications, there are items that will require clarification of the existing information. Any inadequacies are identified under the respective exhibit heading in italics and numbered for reference in the adequacy response.

APPLICATION FORM:

- ***Adequate as submitted***

6.2 GENERAL REQUIREMENTS OF EXHIBITS

6.2.1 General Requirements

(1) This Rule provides for the guidelines for, and information requirements of, each Exhibit required to be submitted with the permit application, as specified according to Section 6.1.

(2) **Maps and Exhibits Maps, except the index map, must conform to the following criteria:**

(a) show name of Applicant;

(b) must be prepared and signed by a registered land surveyor, professional engineer, or other qualified person;

(c) give date prepared;

(d) identify and outline the area which corresponds with the application;

(e) with the exception of the map of the affected lands required in Section 34-32.5-112(2)(d), C.R.S. 1984, as amended, shall be prepared at a scale that is appropriate to clearly show all elements that are required to be delineated by the Act and these Rules. The acceptable range of map scales shall not be larger than 1 inch = 50 feet nor smaller than 1 inch = 660 feet. Also, that a map scale, appropriate legend, map title, date and a north arrow shall be included.

1) *(d) The maps provided in the application show a "permit and affected area" of 157 acres, which corresponds to the property parcel boundary, and a "disturbed area" within that of approximately 116 acres.*

   Section 3.1.12(2) of the Construction Materials Rule states: "The boundaries of the affected area will be marked by monuments or other markers that are clearly visible and adequate to delineate such boundaries". Subsection 3.1.12(2)(b) further states "for Regular 112 Reclamation Operations the area proposed to be disturbed by mining operations for which a Financial Warranty and Performance Warranty have been posted shall be the affected area."

   The 157 acre "permit boundary/affected area" as shown on the provided maps is not able to be marked as required by rule as it crosses and lies within the South Platte River in several areas. The 116 acre "disturbed area" as shown on the provided maps correlates with the DRMS definition of "affected area" given above, and should therefore be marked as required by rule in the field, and identified as such on all provided maps for this application. Please revise all maps (and all application text) as needed for consistency to clearly identify the 157 acre permit boundary, as well as the 116 acre affected area.

   Alternately, if the applicant desires, they may also remove all reference to the 157 acre parcel/permit boundary currently shown in the application, and revise the permit boundary to define the 116 acre affected area in the application and on all maps.

   During the pre-operation inspection it was noted that the 116 acre affected area boundary was not marked in the field as required. This will need to be completed and verified by DRMS before the permit can be approved.

EXHIBIT A - Legal Description (Rule 6.4.1): The legal description must identify all affected land and be wholly adequate for field location of the property. It can be in the form of metes and bounds survey or a description by reference to township, range and section to at least the nearest quarter/quarter section. Where applicable, the street address or lot numbers may be used.

- ***Adequate as submitted***

EXHIBIT B - Index Map (Rule 6.4.2): An index map showing the regional location of all affected land and all roads and other access to the area. A standard U.S. Geological Survey topographic quadrangle or equivalent is acceptable. Scale criteria need not be followed for this map.

- ***Adequate as submitted***

EXHIBIT C - Pre-mining and Mining Plan Map(s) of Affected Lands (Rule 6.4.3): One or more maps may be necessary to legibly portray the following information:

(a) all immediately adjacent surface owners of record;

(b) the name and location of all creeks, roads, buildings, oil and gas wells and lines, and power and communication lines on the area of affected land and within two hundred (200) feet of all boundaries of such area

(c) the existing topography of the area with contour lines of sufficient detail to portray the direction and rate of slope of the affected land;

(d) the total area to be involved in the operation, including the area to be mined and the area of affected lands (see definition of "Affected Land");

(e) the type of present vegetation covering the affected lands; and

(f) in conjunction with Exhibit G - Water Information, Subsection 6.4.7, if required by the Office, further water resources information will be presented on a map in this section.

(g) Show the owner's name, type of structures, and location of all permanent or man-made structures contained on the area of affected land and within two hundred (200) feet of the affected land.

(h) In conjunction with Exhibit I - Soils Information, Subsection 6.4.9, soils information may be presented on a map in this section;

(i) Aerial photos, if available, may be included in this section.

2 *The application states that significant amounts of overburden, sand, and topsoil will be maintained on-site for reclamation, and that all stockpiles will be placed in Pod 3 outside of the Flood Plain. Please show the locations and expected volumes of all topsoil and overburden/sand stockpiles on the Mining Plan map. Note that the Act/Rule requires that Topsoil and Overburden be segregated and maintained separately for reclamation.*

3 *What is the anticipated volume of the "concealment berm" shown on the mining plan map, and the "barrier berm" shown on the north side of the processing area?*

4 *Please include the affected acreages of the 3 "Pods" on the mining plan map.*

5 *The permitted discharge point referred to in the application in section G-1 is not shown on the Mining Plan map – please correct.*

EXHIBIT D - Mining Plan (Rule 6.4.4): The mining plan shall supply the following information, correlated with the affected lands, map(s) and timetables:

(a) description of the method(s) of mining to be employed in each stage of the operation as related to any surface disturbance on affected lands;

(b) earthmoving;

(c) all water diversions and impoundments; and

(d) the size of area(s) to be worked at any one time.

(e) An approximate timetable to describe the mining operation. The timetable is for the purpose of establishing the relationship between mining and reclamation during the different phases of a mining operation. You will not be required to meet specific dates for initiation, or completion of mining in a phase as may be identified in the timetable. This does not exempt you from complying with the performance standards of Section 3.1. Such timetable should include:

(i) an estimate of the periods of time which will be required for the various stages or phases of the operation;
(ii) a description of the size and location of each area to be worked during each phase; and
(iii) outlining the sequence in which each stage or phase of the operation will be carried out.
(Timetables need not be separate and distinct from the mining plan, but may be incorporated therein.)

(f) A map (in Exhibit C - Pre-Mining and Mining Plan Maps(s) of Affected Lands, Subsection 6.4.3) may be used along with a narrative to present the following information:

(i) nature, depth and thickness of the ore body or deposit to be mined and the thickness and type of overburden to be removed (may be marked "CONFIDENTIAL," as per Paragraph 1.3(3)); and
(ii) nature of the stratum immediately beneath the material to be mined in sedimentary deposits.

(g) Identify the primary and secondary commodities to be mined/extracted and describe the intended use; and

(h) name and describe the intended use of all expected incidental products to be mined/extracted by the proposed operation.

(i) Specify if explosives will be used in conjunction with the mining (or reclamation). <u>In consultation with the Office, the Applicant must demonstrate pursuant to Rule 6.5(4), Geotechnical Stability Exhibit, that off-site areas will not be adversely affected by blasting.</u>

(j) <u>Specify the dimensions of any existing or proposed roads that will be used for the mining operation. Describe any improvements necessary on existing roads and the specifications to be used in the construction of new roads.</u> New or improved roads must be included as part of the affected lands and permitted acreage. Affected land shall not include off-site roads which existed prior to the date on which notice was given or permit application was made to the office and which were constructed for purposes unrelated to the proposed mining operation and which will not be substantially upgraded to support the mining operation. Describe any associated drainage and runoff conveyance structures to include sufficient information to evaluate structure sizing.

6 *The operator will be required to salvage and stockpile/maintain all topsoil from the processing and stockpile areas for use in reclamation prior to installing these features – please acknowledge.*

7 *Please clarify if both slurry walls will be installed at the same time prior to commencing mining activity, or if the Pod 3 slurry wall will be installed at a later date.*

8 *Please correct the text in the first paragraph of page D-2 which states "Excavated material will be conveyed to the center of the site for processing". The application as provided does not show or discuss any conveyor routes. Please clarify how mined material will be transported to the Processing Area at the north end of Pod 3 as shown on the Mine Plan map. If conveyors will be used, they will need to be shown on the Mine Plan Map.*

9 *Mining will begin in Pod 1 proceeding west to east as depicted on the Mining Plan Map. The application states that the active mining face will not exceed 500' in length, and that the flood control inlet/outlet structures will be installed when mining reaches within 300' of the river bank.*

Therefore, site specific designs, specifications, installation costs, as well as US Army Corps of Engineers approval for the construction of these flood control features, will need to be provided prior to commencing excavation activity in Pod 1 – please acknowledge/provide.

EXHIBIT E - Reclamation Plan (Rule 6.4.5):

(1) In preparing the Reclamation Plan, you should be specific in terms of addressing such items as final grading (including drainage), seeding, fertilizing, revegetation (trees, shrubs, etc.), and topsoiling. You are encouraged to allow flexibility in your plans by committing to ranges of numbers (e.g., 6"-12" of topsoil) rather than specific figures.

(2) The Reclamation Plan shall include provisions for, or satisfactory explanation of, all general requirements for the type of reclamation proposed to be implemented by you. Reclamation shall be required on all the affected land. The Reclamation Plans shall include:

(a) A description of the type(s) of reclamation you propose to achieve in the reclamation of the affected land, why each was chosen, the amount of acreage accorded to each, and a general discussion of methods of reclamation as related to the mechanics of earthmoving;

(b) A comparison of the proposed post-mining land use to other land uses in the vicinity and to adopted state and local land use plans and programs. In those instances where the post-mining land use is for industrial, residential, or commercial purposes and such use is not reasonably assured, a plan for revegetation shall be submitted. Appropriate evidence supporting such reasonable assurance shall be submitted;

(c) A description of how the Reclamation Plan will be implemented to meet each applicable requirement of Section 3.1;

(d) Where applicable, plans for topsoil segregation, preservation, and replacement; for stabilization, compaction, and grading of spoil; and for revegetation. The revegetation plan shall contain a list of the preferred species of grass, legumes, forbs, shrubs or trees to be planted, the method and rates of seeding and planting, the estimated availability of viable seeds in sufficient quantities of the species proposed to be used, and the proposed time of seeding and planting;

(e) A plan or schedule indicating how and when reclamation will be implemented. Such plan or schedule shall not be tied to any specific date but shall be tied to implementation or completion of different stages of the mining operation as described in Subparagraph 6.4.4(1)(e). The plan or schedule shall include:

(i) An estimate of the periods of time which will be required for the various stages or phases of reclamation;

(ii) A description of the size and location of each area to be reclaimed during each phase; and

(iii) An outline of the sequence in which each stage or phase of reclamation will be carried out. (The schedule need not be separate and distinct from the Reclamation Plan, but may be incorporated therein.)

(f) A description of each of the following:

(i) Final grading - specify maximum anticipated slope gradient or expected ranges thereof;

(ii) Seeding - specify types, mixtures, quantities, and expected time(s) of seeding and planting;

(iii) Fertilization - if applicable, specify types, mixtures, quantities and time of application;

(iv) Revegetation - specify types of trees, shrubs, etc., quantities, size and location; and

(v) Topsoiling - specify anticipated minimum depth or range of depths for those areas where topsoil will be replaced.

10 *What is the basis for the estimated amounts of available sand to be utilized as backfill (to supplement the deficit in available overburden needed to reclaim pit slopes) and where will the sand stockpiles be located?*

11 *Approximately how many C.Y. of sand/overburden is projected to be required to backfill the freshwater and settling ponds in the process area?*

12 *Please provide a site specific weed control plan for the site during mining and reclamation activities. The plan should include at a minimum what species are expected and how they will be controlled/eradicated.*

EXHIBIT F - Reclamation Plan Map (Rule 6.4.6): The map(s) of the proposed affected land, by all phases of the total scope of the mining operation, shall indicate the following:

(a) The expected physical appearance of the area of the affected land, correlated to the proposed mining and reclamation timetables. The map must show proposed topography of the area with contour lines of sufficient detail to portray the direction and rate of slope of all reclaimed lands; and

(b) Portrayal of the proposed final land use for each portion of the affected lands.

13 *How many acres will be reclaimed as rangeland surrounding Pods 1&2, and Pod 3?*

14 *The Reclamation Plan Map shows the Pod 3 slurry wall extending around the NE corner of the processing area (this area is excluded on the Mining Plan Map) please correct for consistency.*

EXHIBIT G - Water Information (Rule 6.4.7):

(1) If the operation is not expected to directly affect surface or groundwater systems, a statement of that expectation shall be submitted.

(2) If the operation is expected to directly affect surface or groundwater systems, you shall:

(a) Locate on the map (in Exhibit C) tributary water courses, wells, springs, stock water ponds, reservoirs, and ditches on the affected land and on adjacent lands where such structures may be affected by the proposed mining operations;

(b) Identify all known aquifers; and

(c) Submit a brief statement or plan showing how water from dewatering operations or from runoff from disturbed areas, piled material and operating surfaces will be managed to protect against pollution of either surface or groundwater (and, where applicable, control pollution in a manner that is consistent with water quality discharge permits), both during and after the operation.

(3) You must provide an estimate of the project water requirements including flow rates and annual volumes for the development, mining and reclamation phases of the project.

(4) You must indicate the projected amount from each of the sources of water to supply the project water requirements for the mining operation and reclamation.

(5) You must affirmatively state that the Operator/Applicant has acquired (or has applied for) a National Pollutant Discharge Elimination System (NPDES) permit from the Water Quality Control Division at the Colorado Department of Health, if necessary.

15 *The well locations identified in Table G-4 are very difficult to find/identify, or are not shown on Figure C-1. Please provide another map to clearly show the wells listed, as well at the XCEL wells in Table G-5, and the 4 piezometers listed in Table G-6.*

16 *DRMS acknowledges the applicants email to SEO providing them the groundwater modeling data, and a request to specifically identify any remaining concerns, as well as the SEO response stating that they had no specific concerns at this time. DRMS will therefore consider SEO issues addressed for the purposes of this review. However, if concerns with groundwater mounding, shadowing, or return flow timing impacts are identified in the future as a result of mining activity, DRMS will require design and implementation of corrective action(s) as needed within 30 days – please acknowledge.*

17 *Although, as a whole, Exhibit G contains much of the required material, the information presented in Exhibit G, Appendix G-2 Groundwater Monitoring Plan is incomplete with respect to the requirements of the DRMS Groundwater Monitoring: Sampling and Analysis Plan Guidance Construction Materials and Hard Rock Site document dated September 2023 (attached to this letter for reference).*

As stated in the introduction to the guidance document; "the remaining sections of this document are organized under the same headings that the Division would expect to see in a typical groundwater sampling and analysis plan." Please resubmit the available information in accordance with the guidance document referenced above, and provide any required information missing at this time (such as well, construction diagrams for existing wells, surveyed well elevations, groundwater elevation measurements

and contour data, etc.) If you feel that a specific requirement listed in the guidance document does not apply to the site, please provide suitable justification for the omission. Additional information, such as baseline water quality data and comparison of this data to the appropriate benchmarks, may also be presented for Division review if available.

DRMS also notes at this time that the groundwater flow direction provided (without any supporting data) appears suspect, and that the majority of the area to be mined lies outside of the area defined by the 3 existing baseline monitoring points shown. The proposed POC monitoring location(s) will also need to be identified, so special attention should be paid to these items.

EXHIBIT H - Wildlife Information (Rule 6.4.8):

(1) In developing the wildlife information, you may wish to contact the local wildlife conservation officer. You must include in this Exhibit, a description of the game and non-game resources on and in the vicinity of the application area, including:

(a) a description of the significant wildlife resources on the affected land;

(b) seasonal use of the area;

(c) the presence and estimated population of threatened or endangered species from either federal or state lists; and

(d) a description of the general effect during and after the proposed operation on the existing wildlife of the area, including but not limited to temporary and permanent loss of food and habitat, interference with migratory routes, and the general effect on the wildlife from increased human activity, including noise.

- ***Adequate as submitted***

EXHIBIT I - Soils Information (Rule 6.4.9): In consultation with the Soil Conservation Service or other qualified person, you must indicate on a map (in Exhibit C) or by a statement, the general type, thickness and distribution of soil over the affected land. Such description will address suitability of topsoil (or other material) for establishment and maintenance of plant growth. The above information shall satisfy "completeness" requirements for purposes of determination of date of filing.

- ***Adequate as submitted***

EXHIBIT J - Vegetation Information (Rule 6.4.10):

(1) You must include in this Exhibit a narrative of the following items:

(a) descriptions of present vegetation types, which include quantitative estimates of cover and height for the principal species in each life-form represented (i.e., trees, tall shrubs, low shrubs, grasses, forbs);

(b) the relationship of present vegetation types to soil types, or alternatively, the information may be presented on a map; and

(c) estimates of average annual production for hay meadows and croplands, and carrying capacity for range lands on or in the vicinity of the affected land, if the choice of reclamation is for range or agriculture.

(2) You must show the relation of the types of vegetation to existing topography on a map in Exhibit C. In providing such information, you may want to contact the local Soil Conservation District.

18 *The applicant must commit to completing a wetland delineation study for the area shown as "potential hydrophytic vegetation" within the proposed affected area as shown on page 7 of 9 in exhibit J-1 prior to installation of the slurry wall or topsoil/overburden stripping activity in that area.*

EXHIBIT K - Climate (Rule 6.4.11): Provide a description of the significant climatological factors for the locality.

- ***Adequate as submitted***

EXHIBIT L - Reclamation Costs (Rule 6.4.12): All information necessary to calculate the costs of reclamation must be submitted and broken down into the various major phases of reclamation. You must provide sufficient information to calculate the cost of reclamation that would be incurred by the state.

19 *DRMS will evaluate the reclamation bond calculation when the other adequacy issues have been resolved. However, DRMS has noted that no supporting information for the provided slurry wall costs has been provided, and several items are missing from the provided estimate including: backfill of freshwater and settling ponds to approximate original grade; re-sloping of interior pit walls to 3:1 or flatter; installation of flood control inlet/outlet structures; and revegetation of rangeland acres surrounding the final reservoirs and the processing area. A significantly more detailed reclamation estimate broken down by task will need to be provided.*

EXHIBIT M - Other Permits and Licenses (Rule 6.4.13): A statement identifying which of the following permits, licenses and approvals the Operator/Applicant holds or will be seeking in order to conduct the proposed mining and reclamation operations: effluent discharge permits, air quality emissions permits, radioactive source material licenses, the State Historic Preservation Office clearance, disposal of dredge and fill material (404) permits, permit to construct a dam, well permits, highway access permits, U.S. Forest Service permits, Bureau of Land Management permits, county zoning and land use permits, and city zoning and land use permits.

- ***Adequate as submitted***

EXHIBIT N - Source of Legal Right to Enter (Rule 6.4.14): You must provide the source of your legal right to enter and initiate a mining operation on the affected land.

- ***Adequate as submitted***

EXHIBIT O - Owner(s) of Record of Affected Land (Surface Area) and Owners of Substance to be Mined (Rule 6.4.15): Please submit a complete list of all owners or show the owners on your map in Exhibit C.

- ***Adequate as submitted***

EXHIBIT P - Municipalities Within Two Miles (Rule 6.4.16): Please list any municipality(s) within two miles of the proposed mining operation and address of the general office of each municipality.

- ***Adequate as submitted***

EXHIBIT Q - Proof of Mailing of Notices to County Commissioners and Soil Conservation District (Rule 6.4.17): Please submit proof of actual delivery or proof of mailing by Certified Mail, return receipt requested, of Notice of the Application to the local Board of County Commissioners and, if the mining operation is within the boundaries of a Soil Conservation District, to the Board of Supervisors of the Soil Conservation District.

- ***Adequate as submitted***

EXHIBIT R - Proof of Filing with County Clerk and Recorder (Rule 6.4.18): You must submit an affidavit or receipt indicating the date on which the application was placed with the local County Clerk and Recorder.

- ***Adequate as submitted***

EXHIBIT S - Permanent Man-Made Structures (Rule 6.4.19): Please note that roadways and above-ground or underground utilities (if present) within 200 feet of the proposed affected area are considered permanent man-made structures. In accordance with Rule 6.4.19, when mining operations will adversely affect the stability of any significant, valuable and permanent man-made structure located within 200 feet of the affected area, the applicant may either:

(a) Provide a notarized agreement between the applicant and the person(s) having an interest in the structure, that the applicant is to provide compensation for any damage to the structure;

or

(b) Where such an agreement cannot be reached, the applicant shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation.

- ***Adequate as submitted***

Additional Information: You will also need to provide the Division with proof of notice publication. Any letters from other commenting agencies/entities received by the Division to-date have been included with this correspondence for you to review.

This concludes the Division's preliminary adequacy review of this application. This letter shall not be construed to mean that there are no other technical deficiencies in your application. Other issues may arise as additional

information is supplied. Please remember that the decision date for this application is December 25, 2023. As previously mentioned, if you are unable to provide satisfactory responses to any inadequacies prior to this date, it will be your responsibility to request an extension of time to allow for continued review of this application. If there are still unresolved issues when the decision date arrives and no extension has been requested, the application will be denied. If you have any questions, please contact me at (303) 229-9414.

Sincerely,

Eric Scott – Environmental Protection Specialist

CC:

Enclosures: SEO comment letter

CPW comment letter

DRMS Groundwater Monitoring: Sampling and Analysis Plan Guidance… September 2023

COLORADO
Division of Water Resources
Department of Natural Resources

Response to Reclamation Permit Application Consideration

DATE: October 3, 2023

TO: Eric C. Scott, P.E., Division of Reclamation, Mining & Safety (DRMS), eric.scott@state.co.us

CC: Division 1 Office, District 2 Water Commissioner

FROM: Wenli Dickinson, P.E., State Engineer's Office (SEO), wenli.dickinson@state.co.us

RE: Ewing Gravel Pit, M-2023-033

Applicant: Chris Oestreich, BURNCO Colorado, LLC, 10100 Dallas St, Henderson, CO 80640
(720) 682-1124

Contact: Ben Langenfeld, Lewicki Associates, 3375 W Powers Cir, Littleton, CO 80123
(720) 842-5321 x1

Location: Part of S ½ of Section 30, Twp. 2 North, Rng. 66 West, 6th P.M., Weld County

CONDITIONS FOR APPROVAL

The proposed operation will consume groundwater by: ☒ evaporation, ☒ dust control, ☒ dewatering, ☒ water removed in the mined product, ☒ washing, ☒ concrete production and ☒ reclamation.

☒ Prior to initiation of these uses of groundwater, the Applicant will need to obtain either a gravel pit or other type of well permit, as applicable.

☒ Prior to obtaining a well permit, an approved substitute water supply plan or decreed plan for augmentation is required.

☒ Prior to approving a well permit, the Applicant must conduct a field inspection of the site and document the locations of all wells within 600 feet of the permit area. The Applicant must then obtain a waiver of objection from all well owners with wells within 600 feet of the permit area or request a hearing before the State Engineer.

COMMENTS: The subject application is for a surface mining and processing operation on approximately 156.7 acres of which 116 acres will be disturbed, generally located in the S ½ of Section 30, Twp. 2 North, Rng. 66 West, 6th P.M. in Weld County. The mining operation consists of mining and processing sand and gravel for the production of construction materials. Processing of extracted materials include crushing,

screening, washing, and the use of concrete and asphalt plants. Reclamation will include backfilling and regrading of the site, topsoiling, and revegetation for use as open space. The area will be reclaimed as a lined groundwater storage reservoir.

The mining plan calls for excavation of approximately 700,000 tons on average of material per year for an estimated 10.5 years. The primary materials to be mined at the site are sand and gravel. Mining will occur in the alluvium of the South Platte River. Mining will be accomplished in 3 phases by dry-mining method within slurry walls to be installed prior to mining. It appears that water will be consumed by evaporation, dust control, dewatering, water removed in the mined product, washing, concrete production, and reclamation.

According to the application, stormwater runoff will be collected in retention ponds and allowed to evaporate or be discharged into the outfall. After reclamation, stormwater runoff will be directed to the water reservoirs after mining. Any stormwater runoff intercepted by this operation that is not diverted or captured in priority must infiltrate into the ground or be released to the stream system within 72 hours. Otherwise, the operator will be required to make replacements for evaporation and any water stored out of priority.

Prior to the use or exposure of any groundwater, the Applicant must first obtain a well permit and a substitute water supply plan ("SWSP") or decreed plan for augmentation to replace depletions caused by groundwater consumption. The site must continue to be operated under a SWSP until such time as the proposed reservoirs are lined (lining approved by this office, backfilling is completed, and replacement of lagged depletions shall continue until there is no longer an effect on stream).

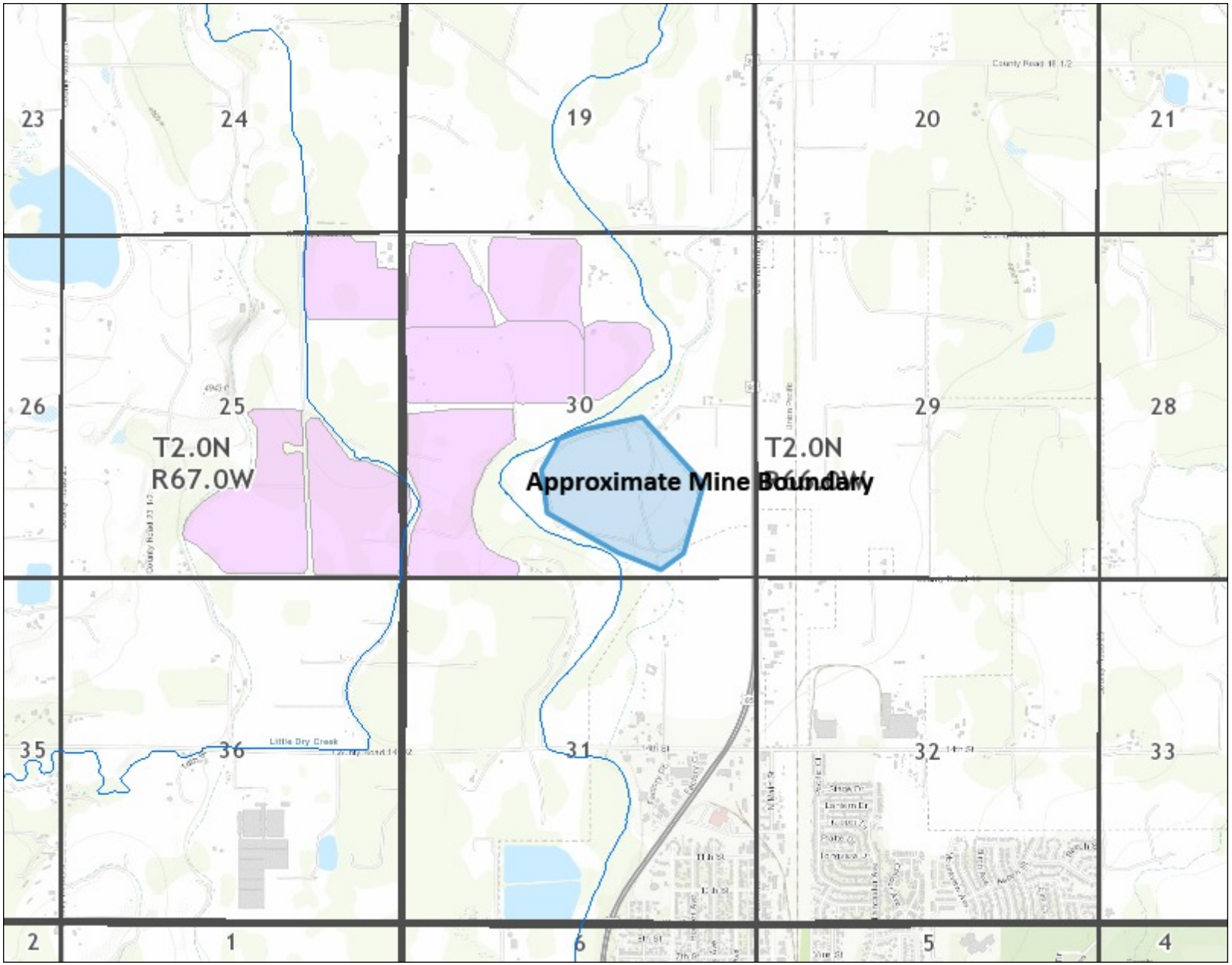
Additionally, according to the application and our records, there are several wells located on the subject property. Such wells must be operated in accordance with their permitted conditions and applicable statutes. Such wells cannot be used for the mining operation unless they are permitted for such use.

Additionally, in certain areas of the South Platte River Basin, SEO staff have observed groundwater problems that appear to be related to the lining of gravel pits located near streams, and in particular, these problems occur when multiple liners are located adjacent to each other. Attached is a map showing the location of this proposed mine and existing lined pits. DRMS should consider the siting and design of lined gravel pits to ensure that they will not individually or cumulatively result in impacts to the timing and quantity of groundwater flow from upgradient locations back to the stream system. In addition to impacts to property, such as flooding upgradient and reduced water levels downgradient of the liner, there are decrees of the court that specify the timing, quantity, and amount of water depleted from the streams by wells and accreted to the stream through recharge operations. The installation of a gravel pit liner should not result in changes to the timing, location, and amount of such groundwater flow. In the design and construction of the liner, the Applicant and DRMS should consider whether drainage structures are needed to allow water to flow back to the stream and to prevent water mounding behind the liner.

The Applicant may contact the SEO at (303) 866-3581 with any questions.

COLORADO
Division of Water Resources
Department of Natural Resources

Map Viewer



Legend

- Confluence Point
- Source Water Route Framewo
- Township
- Section
- Q40
- Pits - Lined

Location

Notes

4,567 0 2,283 4,567 Feet

1: 27,401

This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

Date Prepared: 9/28/2023 8:46:51 PM

STATE OF COLORADO

Hamous-Miller - DNR, Lexi <lexi.hamous-miller@state.co.us>

DRMS full letter

Hamous-Miller - DNR, Lexi <lexi.hamous-miller@state.co.us> Wed, Sep 27, 2023 at 12:40 PM
Draft To: Eric Scott - DNR <eric.scott@state.co.us>
Cc: Chris Mettenbrink - DNR <chris.mettenbrink@state.co.us>, Boyd Wright - DNR <boyd.wright@state.co.us>

Hello Rob,

Thank you for including CPW in the Ewing Gravel Pit Project review process.

After review, CPW has the following recommendations.

RECOMMENDATIONS:

Construction Timing

- If prairie dogs are present or become present within any of the project boundaries and initial construction occurs from March 15 to October 31, then please complete a Burrowing Owl survey per CPW recommendations.
- CPW recommends conducting raptor surveys prior to construction. If initial construction is slated for the spring and summer, please incorporate active raptor nest buffers and avoidance periods. All migratory birds are protected under the Migratory Bird Treaty Act, and removal or disturbance of any migratory bird nest would require consultation with CPW and US Fish and Wildlife Service (USFWS) prior to disturbance.
- Mule Deer Severe Winter Range, Mule Deer Winter Concentration Areas and Mule Deer Migration Corridor are all mapped HPHs within the project boundaries. Because of this, CPW recommends that construction not occur in winter and spring and that no human activities be authorized from December 1 to April 30 during the construction phase. CPW also recommends avoiding the riparian corridor to the maximum extent possible to keep the migration corridor along the river as open as possible

Fencing
CPW is concerned for the safety of Mule deer and White-tailed deer in the area for the proposed project. CPW recommends that if fencing (project perimeter or internal) is erected, either during or after the project, it should be the type that would allow the free passage of wildlife. Fencing plans should avoid the use of woven wire-type fences that will trap or prevent the movement of wildlife. CPW recommends using three or four-strand smooth-wire fencing with a bottom strand height of 17 inches above ground level and a maximum top strand height of 42 inches above ground level, along with the installation of double stays between posts.
CPW's "Fencing with Wildlife in Mind" brochure.

Noxious Weeds and Native Re-seeding
Also of importance to CPW is the revegetation of disturbed soils and the control of noxious weed species through the development of a noxious weed management plan prior to initiating construction activities. The revegetation of disturbed areas and control of invasive weed species are important components of the project and it is critically important that the site be restored back to the native plant community that currently exists on site. CPW prefers that native vegetation be retained on-site during the operational lifespan of the project, both as potential habitat for wildlife and to ensure successful reclamation of the project area, as noxious weeds
could spread to adjacent habitats outside the project area.

Tree Replacement
It does not appear there is any specific information within the application plans of direct impacts to trees and shrubs from construction activities. If tree and/or shrub removal will occur, CPW recommends trees and shrubs be replaced at a 3:1 ratio. If onsite mitigation of trees and shrubs cannot be achieved onsite, CPW would like to coordinate off-site mitigation for those losses.

Wildlife Escape Ramps
During open pit or open trench mining operations, CPW recommends backfilling escape ramps in areas where steep slopes occur. Escape ramps will allow wildlife to safely exit an open pit or trench if they become entrapped.

Retention ponds

Ponds created by reclamation efforts could potentially have significant value to wildlife. To maximize this benefit, CPW recommends that ponds be designed to include irregular shorelines and one or more islands to provide cover, shelter, and nesting areas for migratory birds. Islands should be at least 15' x 25' in size for every two surface acres of water in the pond. Shoreline and island slopes should be graded to a ratio of 4 horizontal feet to every 1 vertical foot of distance, with some areas having slopes no steeper than 8 horizontal feet to every 1 vertical foot of distance. Such shallow areas will allow for the establishment of a variety of aquatic vegetation and invertebrate prey for waterfowl and shorebirds. Shorelines should be re-vegetated with native aquatic vegetation.

Aquatic Species

There are sensitive aquatic native species (fish and amphibians) located within the South Platte River. CPW recommends no surface occupancy and no ground disturbance (year-round) within 500 feet of the ordinary high water mark of the South Platte River and to implement appropriate stormwater BMPs.

Mule Deer Severe Winter Range HPH

Mule Deer Severe Winter Ranges are defined as that part of the overall winter range where 90% of the individuals are located when the annual snowpack is at its maximum and/or temperatures are at a minimum in the two worst winters out of ten. **Therefore, CPW recommends no initial ground disturbance in these polygons from December 1 to April 30. CPW also recommends avoiding the riparian corridor to the maximum extent possible to keep the migration corridor along the river as open as possible.** Below is a mapped HPH layer for the Severe Winter Range, Winter Concentration and Migration Corridor for Mule Deer. These areas are depicted by the polygons with pink-striped areas.

Please let us know if the operator or DRMS has any questions by emailing me at Lexi.Hamous-Miller@state.co.us calling me at 303-916-2987

-Sincerely,

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COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

Groundwater Monitoring: Sampling and Analysis Plan Guidance Construction Materials and Hard Rock Sites

September 2023

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Introduction

This document is intended to provide guidance to permittees of Construction Materials or Hard Rock mines, on the typical requirement of a groundwater sampling and analysis plan, where the proposed operation has the potential to adversely impact the prevailing hydrologic balance of the affected land and of the surrounding area, with respect to the quantity and quality of water in groundwater systems. It is intended to supplement the Groundwater Monitoring and Protection Technical Bulletin of November 19, 2019, and is an attempt to provide more detailed and specific guidance to permittees in an area where the Division has found approaches to compliance have varied widely.

Sites where mining will not expose groundwater, e.g., dry sites or sites where mining will not be near the water table, are not required to submit a groundwater sampling and analysis plan.

A Sampling and Analysis Plan should be tailored to the specific site to which it applies, but this guidance document does not take site-specific factors into account.

The remaining sections of this document are organized under the same headings that the Division would expect to see in a typical groundwater sampling and analysis plan.

Hyperlinks are included in the document text for convenience, and a full list of references is given at the end.

1 Background Information

1.1. Site Description

The Site Description should include the following:

- Name of the site or sampling area. Also include the name or abbreviation (e.g., "the Site"), if any, that will be used throughout the plan.

- A general description of the region in which the site or sampling area is located. Include the street address, city, state, and postal code, if appropriate.

- A detailed description of the physical geography of the site or sampling area. Include a description of the topography, land use/surface cover, any relevant physical features, past and present activities, existing structures. Give the area in acres.

- A description of the geology of the area, including lithology and stratigraphy. Give the composition, thickness and extent of each formation. Identify any faults or other major structural features in the area. Diagrams are often a helpful addition to a geologic description.

- A description of the hydrogeology of the area. Identify each aquifer underlying the site. Characterize each aquifer (hydraulic conductivity, isotropy, confined/unconfined, recharge zones, groundwater flow direction) and describe how the characterization was made. Identify aquitards/confining layers.

- At least two maps:
  - A vicinity map that shows the permit area within its geographic region.

  - A Monitoring Well Location map that shows the sampling sites or sampling areas within the local area. Scale criteria need not be followed for this map. The map should include a layer of projected potentiometric contour lines for each identified aquifer, or a groundwater directional flow arrow (if appropriate). All permitted wells within the map extent should be shown – this information is available from the Division of Water Resources (DWR). All sampling locations (historic, active and planned) should be shown. All springs and seeps should be shown. The outcrop of any geologic formations should be shown. Other physical features and man-made structures may be included for clarity.

  All maps should include a title, legend, North arrow, scale bar, date, and section lines/marks. All maps must be prepared and signed by a registered land surveyor, professional, engineer, or other qualified person.

1.2. Baseline Groundwater Characterization

A Sampling and Analysis Plan will be informed by a baseline characterization of groundwater at the site, but may also need to include a plan to collect the data that will allow the initial characterization to be made. Applicants are encouraged to utilize information available from the public domain literature

and private sector data in developing their baseline groundwater characterization. These data sources will not require a Notice of Intent (Rule 5) to perform exploration operations. Private sector sources will likely include environmental site assessments performed as part of land acquisition.

Baseline sampling should be sufficient to allow the Division to assess the impacts of the future mining operation on the prevailing hydrologic balance. Sampling locations should be established upgradient and downgradient of the proposed operation, the number of sampling locations is not specified since it depends greatly on the site, (a minimum of three data points are needed to establish groundwater flow direction). Unless otherwise approved by the Division, all groundwater monitoring wells should be within the permit area. The screened intervals of groundwater monitoring wells should be sufficient to monitor each identified aquifer. Samples should be taken with sufficient frequency to capture site-specific temporal variability. The duration of the sampling period should be sufficient to identify seasonal trends. The minimum sample location, frequency and duration requirements for baseline groundwater characterization are summarized below:

- Upgradient and downgradient sampling locations in each identified aquifer
- Samples taken quarterly
- Five consecutive quarters of data

A table should be included with a row for each sampling location. Each point should have a unique identifier. The table should include the location (Lat/Long), land surface elevation, top of casing elevation, total depth, screened interval, and completion date. The latitude/longitude could be shown in decimal degrees showing five places to the right of decimal, e.g., 39.73934, -104.98486.

Upon request the Division is available for consultation during development of a Sampling and Analysis Plan.

1.2.1. Monitoring Well Installation

All monitoring wells should be:

- Permitted with the State Engineer's Office (SEO) Division of Water Resources (DWR); and
- Constructed (and later abandoned) according to the required SEO standards (see 2 CCR 402-2 Rules and Regulations for Water Well Construction, Pump Installation, Cistern Installation, and Monitoring and Observation Hole/Well Construction)

The well construction standards are designed to protect aquifer integrity and to ensure that constructed wells serve their purpose; in this case to provide representative, defensible data. Failure to follow the applicable permitting and well construction rules could result in unacceptable data; and failure to adequately protect groundwater resources could result in subsequent enforcement action as deemed appropriate by DRMS or the SEO.

All wells should be installed by a licensed contractor, as required by SEO. Site specific well placement and construction details should be recorded and approved by a qualified professional,

before being submitted to DRMS.

1.2.2. Baseline Groundwater Quantity

Baseline water level data should be recorded in a table, and a narrative description of how the data was collected should be provided. A graph of the water level against time at each monitoring point should also be included. In most cases a static water level can be measured using a depth gauge from the top of the casing, however if the aquifer is under confined conditions, and the pressure is such that the well is flowing, an alternative method will be necessary (for example: https://www.usgs.gov/media/videos/measuring-water-levels-a-flowing-well).

The potentiometric head at the well can be readily derived from the depth to water measurement and the casing elevation. Head measurements from three or more points may be interpolated to give a groundwater flow direction and an approximation of the potentiometric surface in the aquifer. In many cases it will be necessary to collect more data points to adequately characterize the pre-mining conditions.

Often a numerical model (for example: Modflow) will be an appropriate tool to characterize the hydrogeology of the site. In other cases, the Division acknowledges, routine one-dimensional groundwater equations may be appropriate to evaluate potential offsite hydrologic impacts. If a numerical model is used, it should be thoroughly documented, with all assumptions explicitly stated. The documentation should include:

- An explanation of the conceptual model, with assumptions explicitly stated
- A detailed description of the model grid, with figures
- A list of parameter values for boundary conditions and initial conditions
- Details of the model calibration

1.2.3. Baseline Groundwater Quality

A table should be provided with a complete list of water quality parameters to be measured. This will comprise both field parameters and laboratory analytes. The full parameter list should be based on Tables 1-4 from Regulation 41: The Basic Standards for Groundwater (Reg. 41). Parameters from these tables have been compiled in Appendix A for Construction Materials sites and Appendix B for Hard Rock sites.

The Division will entertain variances from the Reg. 41 list on a case-by-case basis, but any proposed variance must be justified.

Baseline groundwater quality data should be recorded in a table, with the sampling date. Minimum, maximum and average values for each parameter should be given.

2 Predicted Impacts to Hydrologic Balance

Following the characterization of baseline conditions a prediction should be made as to the possible impacts of the proposed mining operation on groundwater quantity and quality.

The prediction of likely impacts to groundwater quantity should include a prediction of the maximum spatial extent of drawdown caused by dewatering, or of mounding caused by impermeable cell liners/slurry walls, and the time-scale over which it will be observed. The extent and time to recovery to a steady-state following reclamation should also be predicted.

The prediction of impacts to groundwater quality should include a discussion of water quality parameters that may be elevated as a result of the proposed operation, and the likely spatial and temporal extent of the impact. It is noted here that HB 19-1113, which applies to Hard Rock Sites only and was signed into law on April 4, 2019, requires most reclamation plans to demonstrate, by substantial evidence, a reasonably foreseeable end date for any water quality treatment necessary to ensure compliance with applicable water quality standards.

If a numerical model is used to inform any of the hydrologic predictions the model should be thoroughly documented, as discussed in Section 1.2.2.

3 Groundwater Monitoring Plan

A monitoring plan sufficient to verify the predictions of hydrologic impacts should be proposed. The locations of sampling points, and the frequency at which they will be sampled should be specified. A complete list of groundwater quality parameters to be sampled for should be given. A description of sampling methods should be included in sufficient detail to ensure that the procedure can be replicated throughout the life of the permit (Sampling Methods are discussed in more detail below).

A commitment should be made as to how the monitoring data will be reported to the Division. Typically monitoring data will be compiled into a report, to be submitted by a specified date, e.g. annually or quarterly.

The groundwater monitoring report will include:

- Tabulated data for all parameters
- Graphs/plots for selected parameters
- A narrative analysis of the data, with trends and anomalies identified
- A comparison of the observed data to the predictions **and** to the groundwater quality standards (see below)

The requirements of the groundwater monitoring plan may continue to apply until final bond release and termination of jurisdiction. Changes to the groundwater monitoring plan will require a Technical Revision to the permit.

3.1. Groundwater Points of Compliance

It is likely that one or more Groundwater Points of Compliance (POC) will be established, these are locations at which compliance with the applicable standard will be assessed. Detailed guidance on POCs has been given in the Groundwater Monitoring and Protection Technical Bulletin of November 19, 2019, and will not be repeated here. POCs should be identified in the groundwater monitoring plan.

3.2. Groundwater Quality Standards

As is discussed in detail in the Groundwater Monitoring and Protection Technical Bulletin of November 19, 2019, the Division does not have the authority to set groundwater quality standards, but it does have both the authority and the obligation to apply the standards set by the Water Quality Control Commission, (in practice, this often involves the determination of how the Interim Narrative Standard from Reg. 41 should be applied at a site). For the sake of clarity, the numerical values for groundwater quality parameters that represent the applicable standard should be agreed and recorded in a table at the same time the POCs are established.

4 Sampling Methods

The goal of sampling is to make accurate, repeatable field measurements and to collect representative groundwater samples for laboratory analysis. There is no single correct method to conduct groundwater sampling, however there many incorrect methods. Follow accepted best industry practices to ensure that a representative sample is collected and analyzed. Applicable references include those from the US Environmental Protection Agency, and the US Geological Survey.

It is likely that the contracted analytical laboratory will supply detailed instructions for sample collection and handling.

Best practices for sampling:

- Details of sampling events should be recorded – documentation is critical for Quality Assurance
- All samples should be collected on the same day, if possible
- Sampling should occur in a progression from upgradient to downgradient wells
- Depth to water should be measured first
- Field instruments should be calibrated according to manufacturer's specifications prior to use
- Field parameters (temperature, pH, conductivity, dissolved oxygen) should be measured and recorded before and after each purge of the well
- A well should be purged at least three times before samples are collected for lab analysis; if field parameters vary by >10% between consecutive purges, purging should continue up to six times

- Samples should be collected in the appropriate container and handled in a manner appropriate for the analysis
- Manufacturer's instructions for the correct use and disposal of equipment should be followed
- Ship samples well before the holding time is up; ideally, within 24 hours of sample collection
- Do not leave sampling devices in monitoring wells for reuse

References

DRMS Groundwater Monitoring and Protection Technical Bulletin: November 19, 2019
https://drive.google.com/file/d/121Uc_KmuAx7xhc8heQcROPnK_u-kcG-J/view?pli=1

Well Construction Rules
https://dwr.colorado.gov/services/well-construction-inspection

Modflow Documentation
https://www.usgs.gov/mission-areas/water-resources/science/modflow-and-related-programs

Water Quality Control Commission regulations
https://cdphe.colorado.gov/water-quality-control-commission-regulations

EPA Groundwater Sampling Methodology
https://www.epa.gov/sites/default/files/2015-06/documents/Groundwater-Sampling.pdf

USGS National Field Manual for the Collection of Water-Quality Data
https://www.usgs.gov/mission-areas/water-resources/science/national-field-manual-collection-water-quality-data-nfm#overview

HB 19-1113: Protect Water Quality Adverse Mining Impacts
https://leg.colorado.gov/bills/hb19-1113

Appendix A: Full parameter list for Construction Material Sites (with Table Value Standards) from Regulation 41, Tables 1-4

Analyte	Table Value Standard (mg/L, unless other units given)	Reg. 41 Table Reference (1-4)
pH Field (pH unit)	6.50 - 8.50	2 and 3
TDS	400 mg/L, or 1.25X background	4
Chloride - Dissolved	250	2
Fluoride - Dissolved	2	3
Nitrate (NO3)	10	1
Nitrite (NO2)	1.0	1
Nitrite + Nitrate as Nitrogen	10	1
Sulfate - Dissolved	250	2
Aluminum - Dissolved	5	3
Antimony - Dissolved	0.006	1
Arsenic - Dissolved	0.01	1
Barium - Dissolved	2	1
Beryllium - Dissolved	0.004	1
Boron - Dissolved	0.75	3
Cadmium - Dissolved	0.005	1
Chromium - Dissolved	0.1	1 and 3
Cobalt - Dissolved	0.05	3
Copper - Dissolved	0.2	3
Iron - Dissolved	0.3	2
Lead - Dissolved	0.05	1
Lithium - Dissolved	2.5	3
Manganese - Dissolved	0.05	2
Mercury - Dissolved	0.002	1
Molybdenum - Dissolved	0.21	1
Nickel - Dissolved	0.1	1
Selenium - Dissolved	0.02	3
Silver - Dissolved	0.05	1
Thallium - Dissolved	0.002	1
Uranium - Dissolved	0.0168 to 0.03	1
Vanadium - Dissolved	0.1	3
Zinc - Dissolved	2	3

- These analytes, at a minimum, will be tested for during the five (5) quarters of baseline monitoring. It will be up to the Operator/Permittee to submit a Technical Revision with proper justification to reduce the analyte list.

Appendix B: Full parameter list for Hard Rock Sites (with Table Value Standards) from Regulation 41, Tables 1-4

Analyte	Table Value Standard (mg/L, unless other units given)	Reg. 41 Table Reference (1-4)
pH Field (pH unit)	6.50 - 8.50	2 and 3
TDS	400 mg/L, or 1.25X background	4
Chloride - Dissolved	250	2
Fluoride - Dissolved	2	3
Nitrate (NO3)	10	1
Nitrite (NO2)	1.0	1
Nitrite + Nitrate as Nitrogen	10	1
Sulfate - Dissolved	250	2
Aluminum - Dissolved	5	3
Antimony - Dissolved	0.006	1
Arsenic - Dissolved	0.01	1
Barium - Dissolved	2	1
Beryllium - Dissolved	0.004	1
Boron - Dissolved	0.75	3
Cadmium - Dissolved	0.005	1
Chromium - Dissolved	0.1	1 and 3
Cobalt - Dissolved	0.05	3
Copper - Dissolved	0.2	3
Iron - Dissolved	0.3	2
Lead - Dissolved	0.05	1
Lithium - Dissolved	2.5	3
Manganese - Dissolved	0.05	2
Mercury - Dissolved	0.002	1
Molybdenum - Dissolved	0.21	1
Nickel - Dissolved	0.1	1
Selenium - Dissolved	0.02	3
Silver - Dissolved	0.05	1
Thallium - Dissolved	0.002	1
Uranium - Dissolved	0.0168 to 0.03	1
Vanadium - Dissolved	0.1	3
Zinc - Dissolved	2	3
Cyanide - Free	0.2	1
Beta and Photon emitters	4 mrem/yr	1
Gross Alpha	15 pCi/L	1

- These analytes, at a minimum, will be tested for during the five (5) quarters of baseline monitoring. It will be up to the Operator/Permittee to submit a Technical Revision with proper justification to reduce the analyte list.