STATE OF COLORADO

Gagnon - DNR, Nikie <nikie.gagnon@state.co.us>

Marcovich Mining Resource M-2024034 Adequacy Letter #1

1 message

Gagnon - DNR, Nikie <nikie.gagnon@state.co.us> Fri, Sep 6, 2024 at 12:45 PM
To: Greg Geras <GregG@asphaltspecialties.com>, Ben Langenfeld <benl@lewicki.biz>

Hello Greg.
Please see the attached adequacy letter for the Marcovich Mining Resource application, file no. M-2024-034.

Please let me know if you have any questions.

Kind regards,

--
Nikie Gagnon
Environmental Protection Specialist

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

Cell: 720.527.1640
Physical: 1313 Sherman Street, Room 215, Denver, CO 80203
Address for FedEx, UPS, or hand delivery:
DRMS Room 215, 1001 E 62nd Ave, Denver, CO 80216
nikie.gagnon@state.co.us | https://www.drms.colorado.gov

5 attachments

- **CPW Comments- Proposed Marcovich Mine.pdf** 3547K
- **Application Comment Letter - DWR.pdf** 623K
- **Weld County Comment_M-2024-034 Marcovich Mining Resource.pdf** 179K
- **Groundwater Monitoring_Sampling and Analysis Plan Guidance (5).pdf** 292K
- **M2024034 Marcovich Mining Resource Adequacy Ltr #1.pdf** 281K

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

September 6, 2024

Daniel Hunt
Asphalt Specialties Co., Inc.
345 W. 62nd Ave.
Denver, CO 80216

Re: Marcovich Mining Resource, File No. M-2024-034, Preliminary Adequacy Review

Dear Mr. Hunt:

On June 28, 2024, the Division of Reclamation, Mining and Safety (Division/DRMS) received a 112 Construction Materials Reclamation Permit Application package for the Marcovich Mining Resource, File No. M-2024-034. The application was deemed complete on July 15, 2024. A pre-operation inspection of the proposed mine site was conducted on August 28, 2024. Based on the inspection and a review of the permit application package, the following items must be addressed and/or received before the Division can approve the application.

The review consisted of comparing the application content with specific requirements of Rules 1, 3, 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. Any inadequacies are identified under the respective exhibit heading along with the suggested corrective actions.

1. As required by Rule 1.6.2(d) and 1.6.5(2), please submit proof of publication in a newspaper of general circulation in the locality of the proposed mining operation. Proof of publication may consist of either a copy of the last newspaper publication, to include the date published, or a notarized statement from the paper.
2. As required by Rule 1.6.2 (e), please submit Proof of Notice to all Owners of Record of the surface and mineral rights of the affected land and the Owners of Record of all land surface within 200 feet of the boundary of affected land. Proof of Notice may be by submitting return receipts of a Certified mailing or by proof of personal service.
3. The Division received comments from Colorado Parks and Wildlife, Weld County, and the Colorado Division of Water Resources. The comment letters are attached for your review. Please acknowledge and address the comments noted in the letters and make changes to the application/exhibits as necessary.

Application Form

4. Page 4, Question 12: The operator checked Rangeland for the primary future (post mining) land use. The Reclamation Plan (page E-1) states that "Marcovich Mining Resource will

convert the site to a final land use of a water storage pond and rangeland." Table E-1 Reclamation Areas shows 26.7 acres of water storage pond and 12.1 acres of rangeland. Based on this estimate, please correct Page 4 of the application to select Developed Water Resources as the primary post mining land use. Additionally, please acknowledge that the operator will be required to submit an amendment application to change the post-mining land use from Developed Water Resources to Rangeland if the operator chooses to backfill all or a portion of the pit resulting in a change to the primary post mining land use. The Operator may also choose to submit an alternative reclamation plan and map with this application for review to allow for the option to backfill the site for a rangeland post mining land use. If the alternate plan is approved, the Operator would be required to submit a Technical Revision to change the reclamation plan from the primary to the alternate plan.

6.4.1 Exhibit A – Legal Description

- Adequate as submitted.

6.4.2 Exhibit B – Index Map

- Adequate as submitted.

6.4.3 Exhibits C Pre-mining & Mining Plan Map(s) of Affected Lands:

5. The C-1 Access map shows the haul road within the permit area, but it is not included in the affected area boundary. Please revise the map to depict the haul road within the affected area boundary and ensure the affected acres described in the introduction includes the haul road.
6. The C-1 Access map depicts an existing gravel trail north of the Chavers Mining Resource site (mine permit no. M2015030) and south of the proposed easement on Ogilvie Ken Living Trust land (parcel 147118000066). According to Weld County assessor data, this gravel trail is on land owned by the Hunt Brothers Properties (parcel 147118000084. This trail is not within the permitted acres for the Chavers Mining Resource site. The Mine Plan states that the Marcovich Mining Resource will be accessed via two 40-foot easements crossing agricultural land on Ogilvie and Sakata Land from the Chavers site, but the map doesn't depict an easement on the Hunt Brothers parcel. Additionally, the applicant proposes to construct a two-lane graveled road through the easements. Will the gravel trail on Hunt Brothers Properties be substantially upgraded to a two-lane gravel road for the mining operation?

6.4.4 Exhibit D – Mining Plan:

7. The Mining Plan states that stockpiles must be below the elevation of the baseline conditions because the site is nearly entirely within the South Platte floodplain. Therefore, topsoil will be stored in designated stockpiles on the pit floor in the northeast corner of the pit, as shown on the C-3 Mine Plan map. Exhibit G, Item 3, states that in the event of flooding at the site,

equipment from the active mining floor will be removed and the pit will be allowed to fill with water. Per Rule 3.1.9, topsoil stockpiles shall be stored in places and configurations to minimize erosion and located in areas where disturbance by ongoing mining operations will be minimized. Please describe how topsoil stored on the pit floor will be protected from water erosion from storms and flooding, and disturbance from the mining operations.

8. The Mining Plan states that backfill materials may be hauled back to the site from the Chavers Mining Resource. Per Rule 3.1.5(g), an operator may backfill structural fill material generated within the MLRB permitted area into an excavated pit within the permit area as provided for in the MLRB Permit. However, if an operator intends to backfill inert structural fill generated outside of the approved permit area, it the Operator's responsibility to provide the Office notice of any proposed backfill activity not identified in the approved reclamation plan. Please acknowledge that an inert fill application will be required if backfill is imported to the site.
9. During the pre-operation inspection, the Division and Operator observed the active floodplain adjacent to the South Platte River and a Cottonwood canopy area within the 25-year return interval of the floodplain along the entire western edge of the permit area. The Operator indicated these areas will be avoided during mining and reclamation. This zone is shown on the Mining plan as outside the affected area. Please discuss these two buffer zones in Exhibit D and state how the area will be protected from disturbance from mining operations.

Exhibit E – Reclamation Plan (Rule 6.4.5):

10. As noted above in Item #4, the Operator may choose to submit an alternative reclamation plan and map with this application for review to allow for the option to backfill the site for a rangeland post mining land use. If the alternate plan is approved, the Operator would be required to submit a Technical Revision to change the reclamation plan from the primary to the alternate plan. Please submit the alternate reclamation plan in Exhibit E or acknowledge that an amendment application and inert fill application will need to be submitted prior to backfilling the pit.
11. Please update Table E-1 to show the final land use for the haul road that will remain after reclamation.

Exhibit F – Reclamation Plan Map (Rule 6.4.6):

12. Please submit a map depicting the proposed reclamation (topography with contour lines and final land use) of the entire haul road between Marcovich and the Chavers site.

Exhibit G – Water Information (Rule 6.4.7):

13. During the pre-operation inspection, the Operator discussed pumping water from the pit into a pond on in the northwestern portion of the permit area. According to the July 19, 2024 comment letter from Division of Water Resources (DWR), irrigation tailwater may be illegally being collected and used for livestock and the applicant may need to have a long-term SWSP or permanent augmentation plan even after reclamation if the reservoir will collect

stormwater runoff. Per Rule 3.1.6, please explain this comment and state how the operation will be in compliance with the applicable Colorado water laws and regulations governing injury to existing water rights.

14. According to the Review of Aquatic Resources in the project area, provided by GeosUAS (Exhibit J), the pond in the northwest corner of the site is a shallow groundwater pond connected to the South Platte River. Additionally, the pond receives supplemental irrigation water. Figure 3 in the report proposes that the pond is potentially jurisdictional and should be avoided. The Mine Plan proposes to utilize this pond as a settling basin. Per Rule 3.1.6(1)(c) please provide documentation on whether a USACE 404 permit is required and update the Mine Plan to state an alternative to dewatering the pit until the appropriate approval is obtained.
15. Per Rule 3.1.7(b)(i) the Operator shall include a map that accurately locates all proposed groundwater sample points and any locations that are proposed as points of compliance. The C-2 Baseline maps faintly depict the wells within 600 feet of the permit boundary but does not indicate which locations are associated with the monitoring well data for MW-1 and MW-2. Please revise the map to show the monitoring well locations in a more visible color and label the monitoring wells and points of compliance. Additionally, please note, the Division's Groundwater Guidance document states that a minimum of three groundwater data points are needed to establish groundwater flow direction across the site.
16. The Applicant has identified six groundwater wells within 600 feet of the proposed permit area. Page G-5, Section 7 states that groundwater quality data was gathered and the data and discussion can be seen in Appendix G-2. Appendix G-2 does not contain a discussion or a Groundwater Quality Monitoring Plan. Pursuant to Rule 3.1.6(1), please describe the anticipated effects to the wells and specify how the Operator will avoid disturbances to the quantity and quality of groundwater during and after the mining operation.
17. Appendix G-2 Groundwater Quality Monitoring Plan is incomplete with respect to Rule 3.1.7(b) and the DRMS Groundwater Monitoring: Sampling and Analysis Plan Guidance for Construction Materials and Hard Rock Sites. Please review the Guidance document (attached) and submit all the required information listed in Per Rule 3.1.7(b), including well construction diagrams, method of monitoring well completion, method of sampling, frequency of sampling, quality control and assurance methods, and potential sources of groundwater contamination.
18. The application includes only a cover page for Appendix G-3 Groundwater Model. Please submit the appendix for review.

Exhibit H – Wildlife Information (Rule 6.4.8):

19. During the pre-operation inspection, the Division observed prairie dog colonies on site. Please update Exhibit H and the Mining Timetable in Exhibit D to address the comments from CPW, specifically wildlife surveys, timing stipulations for burrowing owls, and avoidance of the riparian zone adjacent to the South Platte to protect wildlife corridors in the Cottonwood canopy area within the floodplain.

Exhibit I – Soils Information (Rule 6.4.9)

- Adequate as submitted.

Exhibit J – Vegetation Information (Rule 6.4.10)

- Adequate as submitted.

Exhibit K – Climate (Rule 6.4.11)

- Adequate as submitted.

Exhibit M – Other Permits and Licenses (Rule 6.4.13)

20. Please update the list of permits to include a USACE 404 permit, if required.

Exhibit N – Source of Legal Right to Enter (Rule 6.4.14)

21. Please submit evidence of a Legal Right to Enter for the parcels owned by Hunt Brothers Properties, Ogilvie Ken Living Trust and Sakata Land Co. associated with the construction and use of the gravel road for hauling material from Marcovich to the Chavers Mining
22. The signed Legal Right to Enter between Asphalt Specialties and Jerry and Adam Marcovich refers to an attachment. Please submit the referenced Quit Claim Deed.

Exhibit O – Owner(s) of Record of Affected Land (Surface Area) and Owners of Substance to be Mined (Rule 6.4.16)

23. Please update Exhibit O to list all landowners of affected land including the haul road that will be constructed between the Markovich and Chavers mine sites.

Exhibit P – Municipalities within Two Miles (Rule 6.4.17)

- Adequate as submitted.

Exhibit Q - Proof of Mailing of Notices to County Commissioners and Soil Conservation District (Rule 6.4.17):

24. Per Rule 1.6.2 the Applicant shall send a notice, on a form approved by the Board, to the local Board of County Commissioners Soil Conservation District. The applicant provided evidence of a certified mailing (receipts) to the Weld County Commissioners and the Platte Valley Conservation District; however, the applicant did not submit evidence that a form approved by the Board (page 9 of the 112c application) was sent to each entity. Please provide a copy of the notices that were sent.

Exhibit R – Proof of Filing with County Clerk and Recorder (Rule 6.4.18):

- Adequate as submitted.

Exhibit S – Permanent Man-Made Structures (Rule 6.4.19):

25. 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 shall 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. The Division acknowledges that the applicant provided an engineering evaluation in Exhibit S, which is an option under Rule 6.4.19 when such a structure agreement cannot be reached. However, please provide evidence that a structure agreement was pursued for with each of structure owners listed in Table S-1 and submit the signed/notarized structure agreements to the Division.

This concludes the Division's preliminary adequacy review of this application. The public comment period for this application closed on September 3, 2024. Please note that the decision date for this application is **October 13, 2024**. 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 you have any questions, please contact me by telephone at 720-527-1640 or by email at.

Sincerely,

Nikie Gagnon

Nikie Gagnon
Environmental Protection Specialist

Enclosures: CPW Comment Letter
Weld County Comment Letter
DWR Comment Letter
DRMS Groundwater Monitoring: Sampling and Analysis Plan Guidance

Cc: Greg Geras, Asphalt Specialties
Ben Langenfeld, Lewicki & Associates
Jared Ebert, DRMS

STATE OF COLORADO

Gagnon - DNR, Nikie <nikie.gagnon@state.co.us>

Re: Notice of Application Consideration for Permit: M2024034

1 message

Dickinson - DNR, Wenli <wenli.dickinson@state.co.us> Fri, Jul 19, 2024 at 8:24 AM
To: nikie.gagnon@state.co.us
Cc: "Division of Reclamation, Mining and Safety" <dnr_drms_permitadmin@state.co.us>, Alec Hernandez - DNR <alec.hernandez@state.co.us>

Hi Nikie,

Attached are DWR's comments on M-2024-034. Note that we have concerns that currently irrigation tailwater is illegally being collected and used for livestock and that the applicant/landowner may need to have a long-term SWSP or permanent augmentation plan even after reclamation if the reservoir will collect stormwater runoff.

Please let me know if you have any questions.

Regards,

Wenli Dickinson, P.E.
Water Resource Engineer

COLORADO
Division of Water Resources
Department of Natural Resources

New Phone # 303.607.8206
1313 Sherman St, Suite 821, Denver, CO 80203
wenli.dickinson@state.co.us | dwr.colorado.gov
DWR Customer Satisfaction Survey

On Mon, Jul 15, 2024 at 12:41 PM Division of Reclamation, Mining and Safety <dnr_drms_permitadmin@state.co.us> wrote:

> Please see attached correspondence from the Division of Reclamation, Mining and Safety.
>
> **DO NOT REPLY** to this email message. This mailbox is not monitored for incoming messages. Please refer to the attached document to locate the email address of the sender.

3 attachments

M-2024-034 Marcovich Mining Resource - DWR Comments.pdf
129K

124421.pdf
200K

Administrative Statement Regarding the Management of Storm Water Detention Facilities and Post-Wildland Fire Facilities in Colorado.pdf
199K

COLORADO
Division of Water Resources
Department of Natural Resources

Response to Reclamation Permit Application Consideration

DATE: July 19, 2024

TO: Nikie Gagnon, Division of Reclamation, Mining & Safety (DRMS), nikie.gagnon@state.co.us

CC: Alec Hernandez, Lead District 2 Water Commissioner, alec.hernandez@state.co.us

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

RE: Marcovich Mining Resource, File No. M-2024-034

Applicant: Asphalt Specialties Co., Inc. c/o Daniel Hunt
345 W. 62nd Ave., Denver, CO 80216
(303) 289-8555

Permitting Contact: Greg Geras, Land Resource Manager
345 W. 62nd Ave., Denver, CO 80216
(303) 289-8555

Location: Part of the S ½ of Section 7, Township 1 North, Range 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 or the State Engineer must provide written notice to all well owners within 600 feet of the permit area, which may request a hearing before the State Engineer.

COMMENTS: The subject application is for an aggregate mining operation on approximately 57.28 acres located in the S ½ of Section 7, Township 1 North, Range 66 West, 6th P.M., Weld County. The property is currently used for agricultural purposes, with an irrigation ditch running east to west over the property and dams/stock ponds filled with return irrigation water from the parcel to the south (presumably the 38-acre parcel no. 147107000016). The application states that such ponds will be removed prior to mining. In the meantime, **the Applicant and the landowner should be aware that surface water cannot legally be stored**

by the dams or livestock ponds except under free river conditions; additionally, out-of-priority diversions or lagged depletions from exposed groundwater must be covered by a substitute water supply plan (SWSP) or a court-approved augmentation plan.

The mining plan calls for an average excavation of 700,000 tons of sand and gravel per year for an estimated 7.3 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. Estimated depth to groundwater is 5 feet below grade. Mining will be accomplished by dry-mining method within a slurry wall to be installed prior to mining. Groundwater will be consumed by dewatering during the initial mining operations, dust control, water removed in the mined product, and evaporation incidental to such uses.

Prior to the use or exposure of any groundwater, the Applicant must first obtain a well permit, subject to 600-foot spacing required by section 37-90-137(2)(b), C.R.S., and an 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).

The area will be reclaimed as a lined storage reservoir and rangeland. The application also states that all water that "enters the site will drain to the water storage pond in the center of the site." If the reservoir does not qualify as a stormwater detention facility as described in DWR's Administrative Statement Regarding the Management of Storm Water Detention Facilities, attached, and such water is not stored under free river conditions, **the water collected in the reclaimed reservoir must be operated under a court-approved augmentation plan.**

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. 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 anticipation of mounding, the Applicant proposes to submit a groundwater model prior to installation of a slurry wall and to install a French drain system if necessary to mitigate mounding.

Lastly, a review of our records shows well permit no. 124421, attached, may be located on the subject property. Use of this well is limited to ordinary household use in up to three single-family dwellings, domestic animal and livestock watering, and the irrigation of not more than one (1) acre of home lawns and gardens. As permitted, the well cannot be used for any commercial or industrial purposes. If the well will be plugged and abandoned, it must be done in accordance with the Well Construction Rules and an abandonment report (GWS-09) must be filed with this office at DWRpermitsonline@state.co.us.

Please contact Wenli Dickinson in Denver at Wenli.Dickinson@state.co.us or (303) 607-8206 or the Lead Water Commissioner, Alec Hernandez, at Alec.Hernandez@state.co.us or at (970) 381-0828 with questions.

WJR-26-77

THIS FORM MUST BE SUBMITTED WITHIN 60 DAYS OF COMPLETION OF THE WORK DESCRIBED HEREON. TYPE OR PRINT IN BLACK INK.

COLORADO DIVISION OF WATER RESOURCES

1313 Sherman Street - Room 818
Denver, Colorado 80203

RECEIVED
JUN 07 1983
WATER RESOURCES
STATE ENGINEER
COLO.

WELL COMPLETION AND PUMP INSTALLATION REPORT

PERMIT NUMBER 12442 21

WELL OWNER JOSEPH LELL

ADDRESS BOX 222 FT LUPTON COLO 80621

DATE COMPLETED APRIL 20 - 1983, 19__

SW ¼ of the SE ¼ of Sec. 7,

T. 1 N, R. 66 W, 6th P.M.

WELL LOG

From	To	Type and Color of Material	Water Loc.
0	3	TOPSOIL	
3	33	GRAVEL	X
33	34	SHALE	

TOTAL DEPTH 34 FT

Use additional pages necessary to complete log.

HOLE DIAMETER

8 in. from 0 to 20 ft.

6 in. from 20 ft. to 34 ft.

___ in. from ___ to ___ ft.

DRILLING METHOD ___

CASING RECORD:

Plain Casing

Size 6 IN & kind STEEL from 0 to 6 ft.

Size 5 IN & kind PLASTIC from 0 to 25 ft.

Size ___ & kind ___ from ___ to ___ ft.

Perforated Casing

Size 5 IN & kind PLASTIC from 25 to 34 ft.

Size ___ & kind ___ from ___ to ___ ft.

Size ___ & kind ___ from ___ to ___ ft.

GROUTING RECORD

Material #2 CEMENT

Intervals DOWN 20 FT

Placement Method POURED

GRAVEL PACK: Size ___

Interval ___

TEST DATA

Date Tested MAY 5 - 1983, 19__

Static Water Level Prior to Test 3 ft.

Type of Test Pump SUB

Length of Test 2 HRS

Sustained Yield (Metered) 15 G.P.M.

Final Pumping Water Level 4 FT.

PUMP INSTALLATION REPORT

Pump Make GOULDS

Type SUB

Powered by ELECTRIC HP ½

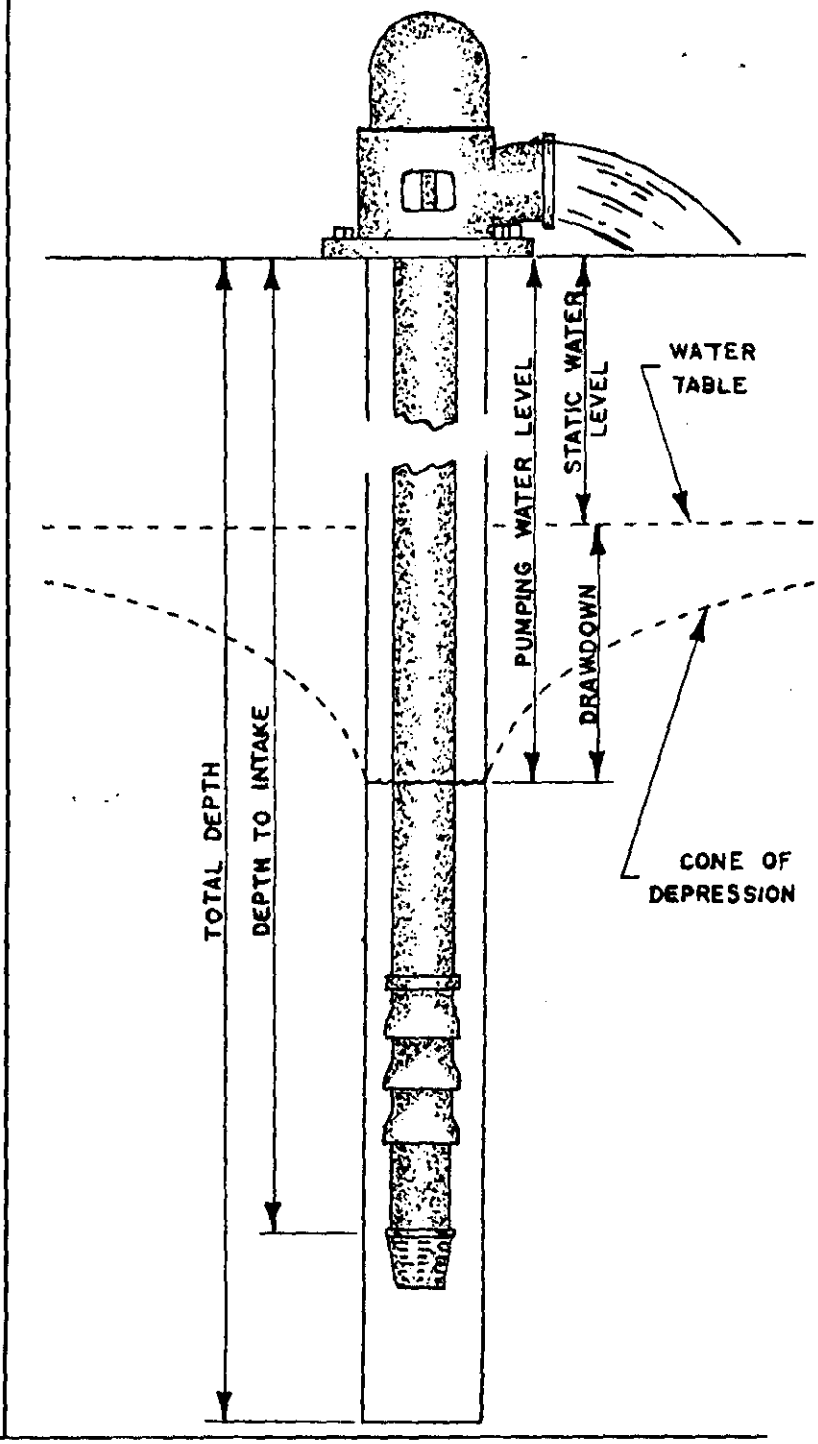
Pump Serial No. 60 EJ

Motor Serial No. _____

Date Installed MAY 25 - 1983

Pump Intake Depth 22 FT

Remarks _____



WELL TEST DATA WITH PERMANENT PUMP

Date Tested MAY 25 1983

Static Water Level Prior to Test 3 FT

Length of Test 2 Hours

Sustained yield (Metered) 15 GPM

Pumping Water Level 4 FT

Remarks _____

CONTRACTORS STATEMENT

The undersigned, being duly sworn upon oath, deposes and says that he is the contractor of the well or pump installation described hereon; that he has read the statement made hereon; knows the content thereof, and that the same is true of his own knowledge.

Signature Ernest Glover License No. _____

State of Colorado, County of Weld SS

Subscribed and sworn to before me this 6th day of May, 1983.

My Commission expires: May 27, 1984.

Notary Public Beverly B Rudy

FORM TO BE MADE OUT IN QUADRUPLICATE: WHITE FORM must be an original copy on both sides and signed. WHITE AND GREEN copies must be filed with the State Engineer. PINK COPY is for the Owner and YELLOW COPY is for the Driller.

WRD-5-75

COLORADO DIVISION OF WATER RESOURCES
300 Columbine Bldg., 1845 Sherman St., Denver, Colorado 80203

RECEIVED
MAR 0 5 1982
WATER RESOURCES
STATE ENGINEER

PERMIT APPLICATION FORM

Application must be complete where applicable. Type or print in BLACK INK. No overstrikes or erasures unless initialed.

FOR: (X) A PERMIT TO USE GROUND WATER
(X) A PERMIT TO CONSTRUCT A WELL
(X) A PERMIT TO INSTALL A PUMP

( ) REPLACEMENT FOR NO. _____
( ) OTHER _____
WATER COURT CASE NO. _____

(1) APPLICANT - mailing address

NAME JOSEPH. LELL
STREET Box 222
CITY FT LUPTON. COLO. 80621
(State) (Zip)
TELEPHONE NO. 892 0340

(2) LOCATION OF PROPOSED WELL

County WELD
SW ¼ of the SE ¼, Section 7
Twp. 1 N (N,S), Rng. 66 W (E,W), 6th P.M.

(3) WATER USE AND WELL DATA

Proposed maximum pumping rate (gpm) 15
Average annual amount of ground water to be appropriated (acre-feet): 1
Number of acres to be irrigated: — 1
Proposed total depth (feet): 60 FT.
Aquifer ground water is to be obtained from:
PLATTE VAL.
Owner's well designation HOUSEHOLD USE

GROUND WATER TO BE USED FOR:

( ) HOUSEHOLD USE ONLY - no irrigation (0)
(X) DOMESTIC (1)
( ) LIVESTOCK (2)
( ) COMMERCIAL (4)
( ) INDUSTRIAL (5)
( ) IRRIGATION (6)
( ) MUNICIPAL (8)
( ) OTHER (9) _____
DETAIL THE USE ON BACK IN (11)

(4) DRILLER

Name Glover's Drilling
Street 7261 W.C. Rd 31
City Ft Lupton Colo 80621
(State) (Zip)
Telephone No. 857-2041 Lic. No. 503

FOR OFFICE USE ONLY: DO NOT WRITE IN THIS COLUMN

Receipt No. 24112 /
Basin _____ Dist. _____

CONDITIONS OF APPROVAL

This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of the permit does not assure the applicant that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.

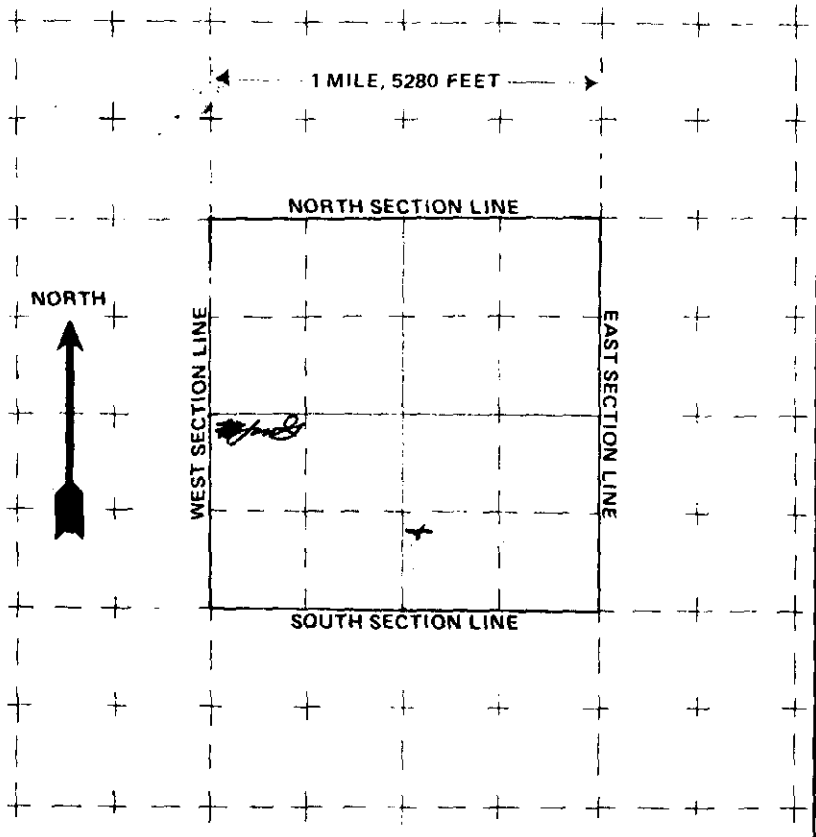
APPROVED PURSUANT TO CRS 1973, 37-92-602 (3)(b)(II) AS THE ONLY WELL ON A TRACT OF 35 ACRES OR MORE DESIGNATED AS 55 ACRES IN PORTION OF S½;SEC 7; T1N; R66W; 6 PM.

THE MUNICIPAL OR COUNTY GOVERNMENT SHALL BE CONSULTED WHEN LOCATING THIS WELL, AND THEIR REGULATIONS SHALL BE COMPLIED WITH.

APPLICATION APPROVED

PERMIT NUMBER 124421
DATE ISSUED MAR 17 1982
EXPIRATION DATE MAR 17 1984
Robert G. Longenbaugh
(STATE ENGINEER)
BY Assistant Lawrence R. Knudson
I.D. 1-02 COUNTY 62

(5) **THE LOCATION OF THE PROPOSED WELL** and the area on which the water will be used must be indicated on the diagram below. Use the CENTER SECTION (1 section, 640 acres) for the well location.



The scale of the diagram is 2 inches = 1 mile
Each small square represents 40 acres.

WATER EQUIVALENTS TABLE (Rounded Figures)
An acre-foot covers 1 acre of land 1 foot deep
1 cubic foot per second (cfs) . . . 449 gallons per minute (gpm)
A family of 5 will require approximately 1 acre-foot of water per year.
1 acre-foot . . . 43,560 cubic feet . . . 325,900 gallons.
1,000 gpm pumped continuously for one day produces 4.42 acre-feet.

(6) **THE WELL MUST BE LOCATED BELOW** by distances from section lines.

1200 ft. from South (north or south) sec. line

2490 ft. from EAST (east or west) sec. line

LOT _____ BLOCK _____ FILING # _____

SUBDIVISION _____

(7) **TRACT ON WHICH WELL WILL BE LOCATED** Owner: Lell

No. of acres 55 . Will this be the only well on this tract? yes

(8) **PROPOSED CASING PROGRAM**

Plain Casing

5 in. from 0 ft. to 40 ft.

___ in. from _____ ft. to _____ ft.

Perforated casing

5 in. from 40 ft. to 60 ft.

_____ in. from _____ ft. to _____ ft.

(9) **FOR REPLACEMENT WELLS** give distance and direction from old well and plans for plugging it:

N/A

(10) **LAND ON WHICH GROUND WATER WILL BE USED:**

Owner(s): Joseph Lehl No. of acres: 55

Legal description: SW ¼, SE ¼, SEC 7, TWN, Rng 66W, 6th PM

(11) **DETAILED DESCRIPTION** of the use of ground water: **Household use and domestic wells must indicate type of disposal system to be used.**

Household use
Septic tank + Leach Field

(12) **OTHER WATER RIGHTS** used on this land, including wells. Give Registration and Water Court Case Numbers.

Type or right	Used for (purpose)	Description of land on which used
6 shares Fulton Ditch irrigation	irrigation	Same as item 10

(13) **THE APPLICANT(S) STATE(S) THAT THE INFORMATION SET FORTH HEREON IS TRUE TO THE BEST OF HIS KNOWLEDGE.**

Joseph V Lell

SIGNATURE OF APPLICANT(S)

Use additional sheets of paper if more space is required.

RECEIVED
MAR 0 5 1982
WATER RESOURCES
STATE ENGINEER
COLO.

STATE OF COLORADO

DIVISION OF WATER RESOURCES

STATE OF COLORADO)
) SS AFFIDAVIT
COUNTY OF Denver)

The affiant(s) Joseph Lell whose mailing address is Box 222 (Street), Ft. Lupton (City), CO (State), 80621 (Zip Code), being duly sworn upon oath deposes and says that he (she) (they) is (are) the owner(s) of the following described property situate in the County of Weld State of Colorado: (insert or attach one of the following types of legal description for your specific acreage: metes and bounds; survey plat; or lot No., block No., filing No., and subdivision name.)

SW SE 7 Twp. 1 North Rng. 66 W 6 PM.

Further, the affiant(s) depose(s) and say(s) that he (she) (they) has (have) read the statements made herein; knows the contents hereof; and that the same are true of his (her) (their) own knowledge.

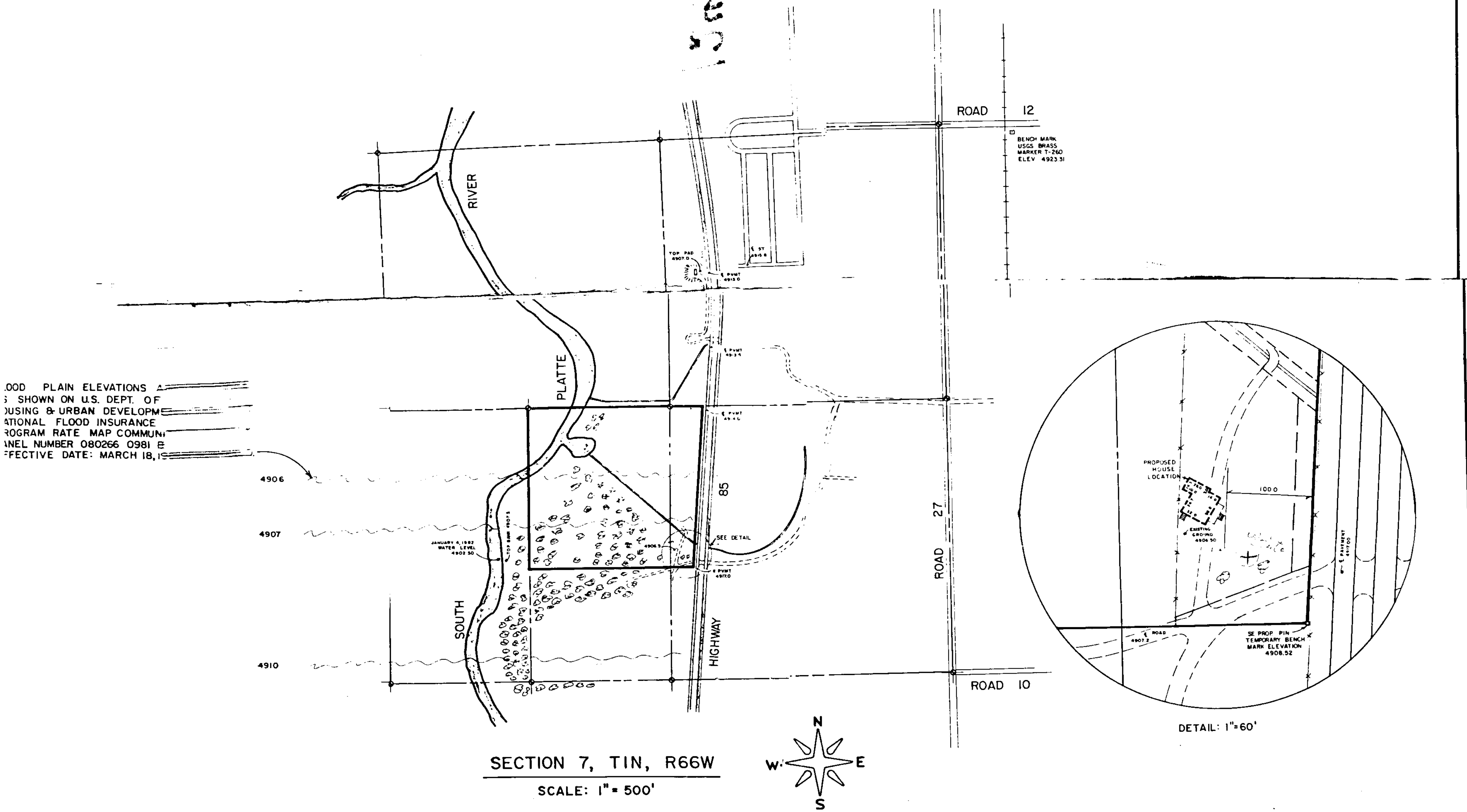
Joseph D Lell

Subscribed and sworn to before me this 5th day of March, 1982.

My Commission expires: My Commission Expires July 31, 1985.

Notary Public

124421
6224112



LOOD PLAIN ELEVATIONS A
S SHOWN ON U.S. DEPT. OF
OUSING & URBAN DEVELOPM
ATIONAL FLOOD INSURANCE
ROGRAM RATE MAP COMMUNI
ANEL NUMBER 080266 0981 E
FFECTIVE DATE: MARCH 18, 19
ROAD 12
BENCH MARK
USGS BRASS
MARKER T-260
ELEV 4923.31
RIVER
PLATTE
SOUTH
HIGHWAY
85
ROAD 27
ROAD 10
4906
4907
4910
SEE DETAIL
JANUARY 6, 1982
WATER LEVEL
4902.50
PROPOSED
HOUSE
LOCATION
EXISTING
GROUND
4906.50
100.0
SE PROP. PIN
TEMPORARY BENCH
MARK ELEVATION
4908.52
DETAIL: 1"=60'
N
W
E
S

SECTION 7, TIN, R66W

SCALE: 1" = 500'

PLOT PLAN W/ ELEVATIONS OF PART
OF THE S 1/2 OF SECTION 7, TIN, R66W,
WELD COUNTY, COLORADO

ALPHA ENGINEERING
P.O. BOX 392 617—5th STREET
FORT LUPTON, COLORADO 80621

COLORADO
Division of Water Resources
Department of Natural Resources

1313 Sherman Street, Room 821
Denver, CO 80203

Administrative Statement Regarding the Management of Storm Water Detention Facilities and Post-Wildland Fire Facilities in Colorado

February 11, 2016

The Division of Water Resources (DWR) has previously administered storm water detention facilities based on DWR's "Administrative Approach for Storm Water Management" dated May 21, 2011. Since the passage of Colorado Senate Bill 15-212, that administrative approach has been superseded. This document describes SB 15-212, codified in section 37-92-602(8), Colorado Revised Statutes (C.R.S.), and how the law directs administrative requirements for storm water management. The document is for informational purposes only; please refer to section 37-92-602(8) for comprehensive language of the law.

Pursuant to section 37-92-602(8), storm water detention facilities and post-wildland fire facilities shall be exempt from administration under Colorado's water rights system only if they meet specific criteria. The provisions of SB15-212 apply to surface water throughout the state. SB15-212 *only* clarifies when facilities may be subject to administration by the State Engineer; all facilities may be subject to the jurisdiction of other government agencies and must continue to obtain any permits required by those agencies.

Storm Water Detention Facilities

Pursuant to section 37-92-602(8), a storm water detention and infiltration facility ("Detention Facility") is a facility that:

- Is owned or operated by a government entity or is subject to oversight by a government entity, including those facilities that are privately owned but are required by a government entity for flood control or pollution reduction.
- Operates passively and does not subject storm water to any active treatment process.
- Has the ability to continuously release or infiltrate at least 97 percent of all of the water from a rainfall event that is equal to or less than a five-year storm within 72 hours of the end the rainfall event.
- Has the ability to continuously release or infiltrate at least 99 percent of all of the water from a rainfall event that is greater than a five-year storm within 120 hours of the end the rainfall event.
- Is operated solely for storm water management.

In addition, to qualify for the allowances provided in SB-212, the facility:

- Must not be located in the Fountain Creek watershed, unless the facility is required by or operated pursuant to a Colorado Discharge Permit System Municipal Separate Storm Sewer System Permit issued by the Department of Public Health and Environment pursuant to Article 8 of Title 25, C.R.S.
- Must not use water detained in the facility for any other purpose nor release it for subsequent diversion by the person who owns, operates, or has oversight over the facility. The facility cannot be operated as the basis for a water right, credit, or other water use right.
- Must not expose ground water.
- May include a structure or series of structures of any size.

If the Detention Facility was constructed *on or before* August 5, 2015 and meets all the requirements listed above, it does not cause material injury to vested water rights and will not be subject to administration by the State Engineer.

If the Detention Facility is constructed after August 5, 2015, meets the requirements listed above, and the operation of the detention facility does not cause a reduction to the natural hydrograph as it existed prior to the upstream development, it has a rebuttable presumption of non-injury pursuant to paragraph 37-92-602(8)(c)(II). A holder of a vested water right may bring an action in a court of competent jurisdiction to determine whether the operation of the detention facility is in accordance with paragraph 37-92-602(8)(c)(II)(A) and (B) has caused material injury. If the court determines that the vested water rights holder has been injured, the detention facility will be subject to administration.

In addition, for Detention Facilities constructed after August 5, 2015, the entity that owns, operates, or has oversight for the Detention Facility must, prior to the operation of the facility, provide notice of the proposed facility to the Substitute Water Supply Plan (SWSP) Notification List for the water division in which the facility is located. Notice must include: the location of proposed facility, the approximate surface area at design volume of the facility, and data that demonstrates that the facility has been designed to comply with section 37-92-602(8)(b) paragraphs (B) and (C). The State Engineer has not been given the statutory responsibility to review notices, however, DWR staff may choose to review notices in the course of their normal water administration duties. Not reviewing notices does not preclude the Division Engineer from

taking enforcement action in the event that the above criteria are not met in design and/or operation.

To satisfy the notification requirement, operators are encouraged to use the Colorado Stormwater Detention and Infiltration Facility Notification Portal developed by Urban Drainage and Flood Control District ("UDFCD"), located at: https://maperture.digitaldataservices.com/gvh/?viewer=cswdif.

Types of detention Facilities contemplated under this statute include underground detention vaults, permanent flood detention basins,[1] extended detention basins,[2] and full spectrum detention basins.[3] Storm Water Best Management Practices[4] (BMPs) not contemplated above, including all Construction BMPs and non-retention BMPs, do not require notice pursuant to SB-212 and are allowed at the discretion of the Division Engineer. Green roofs are allowable as long as they intercept only precipitation that falls within the perimeter of the vegetated area. Green roofs should not intercept or consume concentrated flow, and should not store water below the root zone. BMPs that rely on retention, such as retention ponds and constructed wetlands, will be subject to administration by the State Engineer.

Any detention facility that does not meet all of the statutory criteria described above, in design or operation, is subject to administration by the State Engineer.

[1] Flood detention basin: An engineered detention basin designed to capture and slowly release peak flow volumes to mitigate flooding (Urban Drainage and Flood Control, 2010).
[2] Extended detention basin: An engineered detention basin with an outlet structure designed to slowly release urban runoff over an extended time period (Urban Drainage and Flood Control, 2010).
[3] Full spectrum detention basin: An extended detention basin designed to mimic pre-development peak flows by capturing the Excess Urban Runoff Volume and release it over a 72 hour period (Urban Drainage and Flood Control, 2010).
[4] Best management practice: A technique, process, activity, or structure used to reduce pollutant discharges in stormwater (Urban Drainage and Flood Control, 2010).

Post-Wildland Fire Facilities

Pursuant to section 37-92-602(8), a post-wildland fire facility is a facility that:

- Includes a structure or series of structures that are not permanent.
- Is located on, in or adjacent to a nonperennial stream[5].
- Is designed and operated to detain the least amount of water necessary, for the shortest duration of time necessary, to achieve the public safety and welfare objectives for which it is designed.
- Is designed and operated solely to mitigate the impacts of wildland fire events that have previously occurred.

In addition, to qualify for the allowances provided in SB-212, the facility:

- Must be removed or rendered inoperable after the emergency conditions created by the fire no longer exist, such that the location is returned to its natural conditions with no detention of surface water or exposure of ground water.
- Must not use water detained in the facility for any other purpose nor release it for subsequent diversion by the person who owns, operates, or has oversight over the facility. The facility will not be operated as the basis for a water right, credit, or other water use right.

If the post-wildland fire facility meets the requirements listed above, it does not cause material injury to vested water rights. While DWR recognizes that post-wildland fire facilities are essential to the protection of public safety and welfare, property, and the environment, DWR may, from time to time, request that the person who owns, operates, or has oversight of the post-wildland fire facility supply information to DWR to demonstrate they meet the criteria set forth above.

If a post-wildland fire facility does not meet all the criteria set forth above, it will be subject to administration by the State Engineer.

[5] DWR may use the National Hydrography Dataset or other reasonable measure to determine the classification of a stream

Resources and References

Colorado Stormwater Detention and Infiltration Facility Notification Portal: https://maperture.digitaldataservices.com/gvh/?viewer=cswdif

Colorado Senate Bill15-212: http://www.leg.state.co.us/CLICS/CLICS2015A/csl.nsf/fsbillcont3/13B28CF09699E67087257DE8006690D8?Open&file=212_enr.pdf

United States Geological Survey National Hydrography Dataset: http://nhd.usgs.gov/

Urban Drainage and Flood Control District 37-92-602(8) explanation memo and FAQ's: http://udfcd.org/crs-37-93-6028-explanation-memo-and-faqs/

Urban Drainage and Flood Control District. (2010). *Urban Storm Drainage Criteria Manual: Volume 3, Best Management Practices*, updated November 2015. Located at: http://udfcd.org/volume-three

COLORADO
Parks and Wildlife
Department of Natural Resources
Northeast Regional Office
6060 Broadway
Denver, CO 80216
P 303.291.7227

July 30, 2024

Nikie Gagnon
Environmental Protection Specialist
Colorado Division of Reclamation, Mining & Safety
1313 Sherman Street, Room 215,
Denver, CO 80203
303-866-3567 x 8126
nikie.gagnon@state.co.us

RE: CPW's Comments on the Marcovich Mining Resource, File No. M-2024-034

Dear Nikie,

Thank you for the opportunity for Colorado Parks and Wildlife (CPW) to comment on the proposed Marcovich Mining project. It is our understanding that the project includes sand and gravel extraction on 44.3 acres to be used for construction materials. Access to the mine will be through a new road constructed between the current site and Chavers Mining Resource (M-2015-030). No blasting will occur at the Marcovich Mining Resource. If refuse, acid, or toxic materials are unexpectedly encountered, these materials will be removed from the site and disposed of appropriately. The entire operation is planned to take place over 7 years, at which point it will be reclaimed and revegetated.

The mission of CPW is to perpetuate the wildlife resources of the state, to provide a quality state parks system, and to provide enjoyable and sustainable outdoor recreation opportunities that educate and inspire current and future generations to serve as active stewards of Colorado's natural resources. CPW has a statutory responsibility to manage all wildlife species in Colorado, and to promote a variety of recreational opportunities throughout Colorado. One way we achieve this goal is by responding to referral comment requests, as is the case for this project.

After review of this project and location, 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 HPHs

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.

If the timing or scope of this project changes and/or if you have any questions, please contact Lexi Hamous at 303-916-2987 or lexi.hamous-miller@state.co.us.

Sincerely,

Chris Mettenbrink
Area 2 Assistant Area Wildlife Manager

Cc: Mark Leslie, Jason Duetsch, Erin Priest, Lexi Hamous, and file.

STATE OF COLORADO

Gagnon - DNR, Nikie <nikie.gagnon@state.co.us>

M-2024-034 Marcovich Mining Resource

1 message

Diana Aungst <daungst@weld.gov> Fri, Aug 16, 2024 at 12:11 PM
To: "nikie.gagnon@state.co.us" <nikie.gagnon@state.co.us>
Cc: Maxwell Nader <mnader@weld.gov>

Hi Nikie:

During the review of the proposal for the Marcovich Mining Resource, M-2024-034, the County has determined that at a minimum, a Use by Special Review (USR) is required for this 112c as well as a floodplain permit. Other permits will be required during or after the USR review.

Feel free to contact me with any questions.

Regards,

Diana Aungst

AICP, CFM

Principal Planner

Weld County Department of Planning Services
1402 N. 17th Avenue, PO Box 758, Greeley, Colorado 80632
D: 970-400-3524

O: 970-400-6100

Fax: 970-304-6498

daungst@weld.gov

www.weld.gov

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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

July 2024

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Appendix B: Full parameter list Hard Rock (with table value standards) from Regulation 41, Tables 1-4 12

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.

As described in the Technical Bulletin, the Division of Reclamation, Mining and Safety (DRMS/Division) has statutory mandates to monitor groundwater and protect the hydrologic balance during and after mining operations under the Colorado Mined Land Reclamation Act (C.R.S. Title 34, Article 32), and the Colorado Land Reclamation Act for the Extraction of Construction Materials (C.R.S. Title 34, Article 32.5). The Division is requiring groundwater monitoring throughout the life of mine to demonstrate compliance with these statutes for mines that have, or potentially will affect the hydrological balance.

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 must be sufficient to allow the Division to assess the impacts of the future mining operation on the prevailing hydrologic balance. Sampling locations shall 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 that maybe impacted by the mining operation. 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 for analytical analysis.
- Water level data for all wells should be collected at least monthly.
- Five consecutive quarters of data, plus additional quarters up to two years may be required and utilized if site activity is delayed.

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.

It should be noted that once site groundwater characterization commences, it will be required that groundwater monitoring will continue for the life of the mine. Any modifications to the approved water monitoring plan must be made through the technical revision process with appropriate justification provided by the operator. Analytical sampling frequency will not be reduced to less than a minimum of twice yearly (high flow and low flow data with a collection interval of 5-7 months). Analytical and water level monitoring will not be suspended due to delay in site activity, or placing the site into temporary cessation unless approved by the Division.

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.

The Division should be notified within 30 days if any groundwater monitoring wells are damaged or destroyed during the life of the permit. Damaged or destroyed wells should be appropriately repaired or replaced as soon as reasonably possible to preserve data comparability, and the Division notified when this is complete. The notification shall include details of any repairs or new well construction summary. If an existing monitoring well requires removal or relocation for any reason, the justification and proposed new well location should be provided to DRMS as a technical revision for approval prior to the removal of the existing well.

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). Selected parameters from these tables have been compiled in Appendix A for Construction Materials sites and Appendix B for Hard Rock sites. unless modifications are approved by the Division. It will be up to the Operator/Permittee to submit a Technical Revision with proper justification to reduce the analyte list.

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 and any exceedance of a standard shall be clearly identified.

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) consecutive quarters, or more, of baseline monitoring. This analyte list will also apply to the subsequent groundwater monitoring for the life of the mine. 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) consecutive quarters, or more, of baseline monitoring. This analyte list will also apply to the subsequent groundwater monitoring for the life of the mine. It will be up to the Operator/Permittee to submit a Technical Revision with proper justification to reduce the analyte list.