COLORADO
Division of Water Resources
Department of Natural Resources

July 29, 2021

Michelle Cunico Johnson, P.E.
Martin and Wood Water Consultants, Inc
538 Commons Drive
Golden, CO 80401

Re: **Corrected 25th Avenue Substitute Water Supply Plan (WDID 0303330, Plan ID 3667)**
25th Avenue Pit, DRMS Permit No. M-2002-020 (WDID 0303040)
Section 36, T6N, R66W, 6th P.M.
Water Division 1, Water District 3, Weld County

Approval Period: June 1, 2021 through May 31, 2023
Contact information for Ms. Johnson: 303-526-2600; mjohnson@martinandwood.com

Dear Ms. Johnson:

We have reviewed your letter dated March 25, 2021 requesting renewal of the above referenced substitute water supply plan ("SWSP") on behalf of the City of Greeley ("Greeley" or "Applicant"). This SWSP is requested in accordance with section 37-90-137(11), C.R.S., to cover depletions at an existing gravel mining operation known as the 25th Avenue Pit. The required fee of $257.00 for the renewal of this SWSP has been submitted (receipt no. 10011409). The SWSP for this site was initially approved on September 30, 2002 and was most recently renewed on May 23, 2019 for operations through May 31, 2021.

The subject SWSP was originally approved on May 26, 2021. On June 7, 2021, the Applicant submitted a request for a correction to the approved SWSP to correct the description of the procedure used to determine return flow obligations associated with the use of the Applicant's 138 shares in the Boyd and Freeman Ditch Company. **This Corrected SWSP is issued for the purpose of correcting the method for calculation of return flow obligations resulting from the use of the 138 shares in the Boyd and Freeman Ditch as a replacement source in this SWSP and supersedes and replaces the SWSP Approval issued on May 26, 2021 in its entirety.**

SWSP Operation

This SWSP will replace out-of-priority depletions resulting from mining operations at Flatiron Pits 3, 4, 5, and C, as shown in the attached Figure 1. Flatiron Pits 1-5 and C were created by mining operations under Division of Reclamation, Mining, and Safety ("DRMS") permit no. M-1977-081 for the Greeley West Pit (WDID 0303020). DRMS permit no. M-2002-020 (25th Avenue Site) separated out 89.16 acres, containing Flatiron Pits 1 and 2, from permit no. M-1977-081. Flatiron Pits 1 and 2 have been combined into a single lake (aka Poudre Ponds or NW Pond) with a slurry wall liner approved by the State Engineer as meeting the performance standard for liners, allowing the use of the lake as a

reservoir for water storage by the City of Greeley. An amendment to permit no. M-2002-020 which was approved in September 2012 incorporated an additional 197.51 acres of the Greeley West site, including Flatiron Pits 3, 4, 5, and C, into the 25th Avenue Site. Flatiron Pits 3 and 4 have been combined into a single pit, also known as Pit B, and construction of the slurry wall liner for the combined pit began in February 2021 and is expected to be completed by May or June of 2021. The pits are owned by the City of Greeley and managed by the Hall-Irwin Corporation.

The City of Greeley obtained a plan for augmentation decreed in Division 1 Water Court case no. 1999CW231 to cover evaporative losses from the Flatiron Pits. The decree, signed on November 22, 2010, among other uses, covers evaporation for up to 100 acres of exposed water surface at "Flatiron Gravel Pit Nos. 3, 4, and 5 and adjoining pits". During this plan period the maximum exposed surface area for which evaporative depletions must be replaced is 17.5 acres, consisting of 2.5 acres in Flatiron Pits 3 and 4, and 15 acres in Flatiron Pit C. This amount is less than 100 acres and therefore the associated evaporative depletions will be replaced under Greeley's plan for augmentation decreed in case no. 1999CW231 and not under this SWSP.

In addition, there are 17 acres of exposed groundwater in Flatiron Pit 5 that do not require replacement. Pursuant to section 37-90-137(11)(b), C.R.S., and 2009CW49, a gravel pit operator or property owner does not need to replace depletions that occur due to evaporation from groundwater exposed prior to January 1, 1981 as a result of open mining of sand and gravel ("pre-81 areas"), regardless of whether mining continued after December 31, 1980. This office has previously recognized a total of 45.5 acres at the Greeley West Pit as having been exposed prior to January 1, 1981. Per our "General Guidelines for Substitute Water Supply Plans for Sand and Gravel Pits" updated April 1, 2011, pre-81 areas are tied to the physical location at which the groundwater was exposed prior to January 1, 1981 with the exception for areas whose reallocation was approved by the State Engineer prior to January 1, 2011. In a letter dated August 11, 2011, the State Engineer's Office allowed 30 acres of the pre-81 area to be re-allocated and memorialized. Credit for the 15.5 acres of pre-1981 area that was not reallocated and may no longer be claimed. The applicant provided a map on July 28, 2011 showing the specific location of the 30 acres of pre-81 area. The credits for the pre-81 area are tied to the location identified on said map, which includes the 17 acres in Flatiron Pit 5, and may not be re-allocated to other areas of ground water exposure within the gravel pit boundary. Any pre-81 area that is backfilled will lose the pre-81 exemption should it be excavated in the future. Additionally, the backfilling of a pre-81 area does not create a credit to be used elsewhere.

This SWSP will replace depletions directly associated with mining at the pits, including the removal of mined product, dewatering, and post-mining refilling of the pits. During this plan period, operations will consist of limited mining and dewatering of combined Flatiron Pits 3 and 4, including the use of dewatering water for slurry wall construction and dust suppression, and the reclamation and backfilling of Flatiron Pits 5 and C using the non-marketable materials removed during mining of Pits 3 and 4. The proposed replacement source for this SWSP will be water rights owned or controlled by the City of Greeley in the Cache la Poudre River basin and credits from 138 shares in the Boyd and Freeman Ditch Company.

Depletions

While formal mining at combined Flatiron Pits 3 and 4 has ceased, some additional material may continue to be removed during site reclamation. The applicant has estimated that the amount of removed material will not exceed 100,000 tons in the second half of 2021, 100,000 tons in 2022, and

50,000 tons in the first six months of 2023. The material will be mined below the groundwater table in a dewatered state and not washed; therefore the water retained in the mined product is considered to be 2.0% of the mined material by weight. This amounts to a groundwater loss of approximately 1.47 acre-feet in the second half of 2021, 1.47 acre-feet in 2022, and 0.74 acre-feet in the first six months of 2023. It is estimated that a maximum of 13.65 acre-feet of water will be used for dust control purposes and slurry wall construction at the site in the second half of 2021, a maximum of 6.26 acre-feet will be used in 2022, and 3.13 acre-feet will be used during the first six months of 2023. Water used for dust control purposes and slurry wall construction is considered to be 100% consumptive. Based on the above, operation losses will total 15.12 acre-feet during the second half of 2021, 7.73 acre-feet during 2022, and 3.87 acre-feet during the first six months of 2023. The point where depletions impact the river is assumed to be on the Cache la Poudre River perpendicular to combined Flatiron Pits 3 and 4. The downstream calling right is the Ogilvy Ditch (WDID 0300937).

The applicant lagged these depletions consistent with the aquifer parameters given for Flatiron Pits 3-5 in Exhibit 4 to the decree in case no. 1999CW231. Specifically, the IDS Alluvial Water Accounting System (AWAS) program was used to calculate the lagged depletions to the Cache la Poudre River. The following parameters were used in the model:

- X, distance from the well (gravel pit) to the stream = 1,733 feet
- W, width of the alluvial aquifer = 11,503 feet
- T, transmissivity = 164,132 gallons per day per foot
- S, specific yield = 0.20

Lagged operational depletions from past and projected operations at the site are estimated to total 15.6 acre-feet during the second half of 2021, 9.7 acre-feet during 2022, and 4.35 acre-feet during the first six months of 2023 (see Table 1A, Column 9).

Dewatering

Dewatering at Flatiron Pits 3 and 4 began in June 2012 and is anticipated to continue throughout this plan period until slurry wall integrity can be confirmed. Water pumped from Flatiron Pits 3 and 4 is continuously discharged directly to the Cache la Poudre River or used for slurry wall construction and dust suppression. The initial dewatering rate, required to empty the filled pits, was approximately 6,800 gallons per minute ("gpm"). After the initial high dewatering rate, a lower pumping rate of 850 gpm was required to maintain a dewatered state. The initial dewatering was assumed to be made up of both lake water and alluvial aquifer (ground) water. For the purposes of this SWSP it was assumed that the initial dewatering depleted the alluvial aquifer at a rate equal to the maintenance pumping rate. Therefore, only 850 gpm of the initial pumping rate of 6,800 gpm was assumed to be a groundwater depletion. After the initial dewatering, pumping occurred at the maintenance dewatering rate of 850 gpm (1,700 gpm at 50% daily duty cycle) and was assumed to be made up of only alluvial aquifer water. The maintenance dewatering rate decreased beginning in December 2013 to a pumping rate of approximately 180 gpm. The dewatering rate decreased further during the 2019-2021 plan period to an average rate of approximately 87 gpm. For the purposes of this SWSP, you have estimated that there will be a small amount of dewatering after the slurry wall has been constructed to account for the possibility that the liner might not pass its liner test. You have projected that combined Flatirons Pits 3 and 4 will be dewatered at an initial rate of 151 gpm during the first month of this plan period and then decreasing to an average rate of 37 gpm once the slurry wall has been completed. Dewatering depletions were lagged to the river using the AWAS program with the parameters identified above. Lagged depletions associated with the dewatering of

combined Flatiron Pits 3 and 4 are estimated to total 99.18 acre-feet during last six months of 2021, 84.27 acre-feet during 2022, and 36.42 acre-feet during first six months of 2023, which are predominantly offset with a credit of 80 acre-feet during last six months of 2021, 60 acre-feet during 2022, and 30 acre-feet during first six months of 2023 for dewatering water discharged to the river (see Table 1A, Columns 10 and 11). Actual monthly meter readings must be used to determine the actual dewatering rate and the resulting depletions under this SWSP. Dewatering water used for slurry wall construction and dust control purposes must be metered separately from water delivered to the river.

Flatiron Pit 5 was temporarily dewatered from August through October of 2012 at a rate of 850 gpm. After October 2012, Flatiron Pit 5 was allowed to refill and was estimated to have refilled completely within two months. Lagged depletions associated with the dewatering and refilling of Flatiron Pit 5 are estimated to total 0.14 acre-feet in 2021 and 0.13 acre-feet during 2022 and are included in the lagged depletions stated above (see Table 1A, Column 13). After 2022, the remaining depletions from the dewatering and refilling of Flatiron Pit 5 will have been fully replaced.

Replacements

The proposed source of replacement water under this SWSP is water rights owned or controlled by the City of Greeley in the Cache la Poudre river basin. In particular, Greeley will use 138 shares in the Boyd and Freeman Ditch (WDID 0300935) that were previously owned by Flatiron Paving Co. and used in previous gravel pit SWSPs for the Greeley West Pit. Greeley now owns these shares and will dedicate these shares as a replacement source in this SWSP.

Previous SWSPs relied on a historical consumptive use ("HCU") analysis for the 138 Boyd and Freeman Ditch shares submitted by W.W. Wheeler and Associates, Inc. ("Wheeler") on July 13, 1990 for the Greeley West Pit. Since the Wheeler analysis appeared to rely on the average headgate diversions and crop consumptive use for the period of 1950-1980, as opposed to a yearly analysis, and the analysis did not take into consideration the decline in irrigated acreage as a result of conversion to mining operations that began in the mid-1970's, this office requested the Applicant to provide an updated HCU analysis calculated on a yearly basis, including any periods of non-use or periods of undecreed or unauthorized use. An updated HCU analysis was provided with the 2017-2019 SWSP amendment request.

The 138 shares represent 13.9% of the 993 total shares in the Boyd and Freeman Ditch. The decreed point of diversion for the Boyd and Freeman Ditch is on the south side of the Cache la Poudre River in the NE ¼ of the SE ¼ of the SW ¼ of Section 34, Township 6 North, Range 66 West, 6th P.M. The water right associated with the Boyd and Freeman Ditch is identified in Table 1 below.

Table 1 - Boyd and Freeman Ditch water right

Water Right	WDID	Case No.	Decreed Use	Decreed Amount (cfs)	Source	Appropriation Date	Adjudication Date
Boyd and Freeman Ditch	0300935	CA-320	Irrigation	66.05*	Cache la Poudre River	March 15, 1862	April 11, 1882

* A total of 12 cfs were subsequently transferred to the City of Greeley Pipeline in Case No. CA-5326 and CA-5327 dated March 29, 1904, leaving a net direct flow right in the amount of 54.05 cfs at the Boyd and Freeman Ditch.

The period of analysis selected is 1950 through 1977. You indicated that after 1977 the subject 138 shares were used as a replacement water source in prior gravel pit SWSP approvals, including the 25th Avenue Pit for the Applicant. The 138 shares of the Boyd and Freeman Ditch were historically used for irrigation of lands on what is now the 25th Avenue site property. The 25th Avenue Pit operation began in 1977 (originally under Greeley West Pit, DRMS M-1977-081), and the historical irrigation of the property ceased sometime after mining operations began. For this reason you concluded that the chosen study period of 1950-1977 is appropriate for the HCU analysis of the 138 shares of the Boyd and Freeman Ditch and includes wet, dry and average years during the period the shares were used for irrigation. For this period, diversion records for the Boyd and Freeman Ditch were downloaded from the Colorado Decision Support System ("CDSS") using Use 1 (irrigation) and Source 1 (river). Daily diversions for the Boyd and Freeman Ditch were adjusted to include only the diversion up to 54.05 cfs (the maximum decreed diversion rate of the Boyd and Freeman Ditch water rights). Based on the Applicant's information, local weather data from Greeley UNC weather stations (NOAA #3553 and NOAA #3546) were used. According to your February 10, 2017 letter the subject shares were historically utilized to irrigate between 101 acres and 103.8 acres of pasture grass. However, based on deed research, in the April 14, 2017 letter you indicated that seven shares of the Greeley Irrigation Company ("GIC") were also used on this land. Based on the ditch-wide change of the GIC shares decreed in case no. 96CW658 it was determined that approximately 31 acres of the historically irrigated parcel was irrigated with the seven GIC shares. Therefore the irrigated area was modified to remove the portion of the parcel that was historically irrigated by the seven shares of the GIC. Tailwater re-use was not adopted on the farm.

The HCU analysis conducted for the 138 shares of the Boyd and Freeman Ditch relied on the following methods and assumptions:

- Modeling using the State CU and the Modified Blaney-Criddle method with the Technical Release ("TR21") crop coefficients.
- The total structure daily diversion records were limited to the period of April 1 through October 31.
- Soil Conservation Service methodology for calculation of effective precipitation. Soils underlying the historically irrigated property with the 138 shares of the Boyd and Freeman Ditch are predominantly Aquolls and Aquents on 0 to 3 percent slopes. Available water content of the soils as reported by National Resource Conservation Service ("NRCS") Web Soil Survey averages 0.11 inches per inch.
- Assumed ditch loss of 20 percent.
- Temperature and precipitation data were taken from the Greeley and Greeley UNC climate stations (NOAA #3546 and NOAA #3553). The Greeley climate station was moved to the Greeley UNC campus in 1967 and subsequently has poor siting. The station is currently located on the roof of Ross Hall. Data shows a shift upwards in temperature since it has been at the new site. However, there do not appear to be any nearby stations that could be used in place of the Greeley UNC station for the period of 1967-1977; therefore, the use of the Greeley UNC station is acceptable for the purposes of this SWSP.
- The farm was flood irrigated. The Applicant proposed a maximum irrigation efficiency of 55 percent for flood irrigated pasture grass. Given the soils characteristics and the water-short nature of the fields and the aerial photography evidence you concluded that 55 percent irrigation efficiency is a conservative estimate.

- There was no sub-irrigation of crops from groundwater. According to the applicant, the depth to groundwater ranges from 10 to 15 feet below ground surface. Additionally, several well construction logs of wells constructed within the historically irrigated area (permit nos. 12261-F, 248196, and 250048) document a depth to water of 10 feet or deeper below ground surface.
- The modeled crop acreages are shown in Table 2 below:

Table 2 - Summary of Crop Acreages Modeled

Period	Irrigated Area (acres)*
1950-1960	70.59
1961-1971	74.24
1972-1977	73.90

*The irrigated area modeled based on revisions from April 14, 2017 that removed the portion of the parcel that was historically irrigated by 7 shares of the GIC per ditch-wide analysis decreed in case no. 96CW658.

- Return flows assumed to be 75 percent surface water and 25 percent groundwater due to close proximity of the historical irrigated lands to the Cache la Poudre River. Groundwater return flow was analyzed using Integrated Decision Support Alluvial Water Accounting System ("AWAS") software based on the Glover methodology according to the parameters summarized in Table 3 below.

Table 3 - Summary of Glover Parameters

Distance from the Farm to the River (ft)	Distance from Boundary to the River (ft)	Transmissivity (gpd/ft)	Specific Yield
955	11,503*	164,132*	0.2*

*Taken from the aquifer parameters decreed for the Flatiron Pits 3, 4, 5 (located within the historically irrigated lands) in case no. 99CW231.

The HCU results are summarized in Table 4 below.

Table 4 - 138 shares of the Boyd and Freeman Ditch HCU Results (acre-feet)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Farm Headgate Delivery	0	0	0	3.0	18.6	24.9	31.3	28.8	14.5	5.9	0	0	127.1
On-Farm Depletion of Surface Water	0	0	0	1.6	9.9	14.3	17.2	15.8	7.6	3.5	0	0	69.9
Surface Return Flows	0	0	0	1.0	6.3	8.4	10.6	9.7	4.9	2.0	0	0	42.9
Groundwater Return Flows	0	0	0	0.3	2.1	2.8	3.5	3.2	1.6	0.7	0	0	14.3
Lagged Groundwater Return Flows	0.3	0.2	0.2	0.4	1.4	2.1	2.8	2.9	2.0	1.2	0.6	0.3	14.3
Total Return Flows	0.3	0.2	0.2	1.4	7.7	10.5	13.4	12.6	6.9	3.2	0.6	0.3	57.2
Average Net Depletion/Accretion	-0.3	-0.2	-0.2	1.6	10.9	14.4	17.9	16.2	7.6	2.7	-0.6	-0.3	69.9
Return Flow Factors	0.2%	0.2%	0.2%	47%	41%	42%	43%	44%	48%	54%	0.5%	0.2%	NA

Based on the historical study period of 1950 through 1977, Table 4 above provides a monthly summary of the estimated yield associated with the subject 138 shares of the Boyd and Freeman Ditch. The projected annual farm headgate delivery of the subject 138 shares of the Boyd and Freeman Ditch is estimated to be 127.1 acre-feet.

The monthly return flow requirement for the months of November through March will be determined by multiplying the monthly return flow factor by the total delivery during the previous 12 months. Monthly results shall be divided by the number of days in that month to determine the daily return flow obligation. The daily return flow requirement during the months of April through October will be determined by multiplying the daily delivery (after ditch loss) of the 138 Boyd and Freeman Shares by the monthly return flow factor. Under this SWSP, Greeley must limit monthly diversions of the 138 shares to the historical average monthly and annual farm headgate diversions, shown in Table 4 above. Greeley shall only take delivery of the 138 shares of the Boyd and Freeman Ditch from April 1st through October 31st. Any SWSP renewal may require additional terms and conditions to assure that an expansion of use of the Applicant's Boyd and Freeman Ditch shares will not result if the Applicant reaches their volumetric limits and ceases diverting water or decides not to take delivery of their shares.

The headgate of the Boyd and Freeman Ditch is located approximately 3 miles upstream from the 25th Avenue Pit. The water attributable to the 138 shares of the Boyd and Freeman Ditch must continue to be diverted in priority at the river headgate and the historical consumptive use credits must be released back to the Cache la Poudre River through the Boyd and Freeman Ditch Return (WDID 0302914), located near the river headgate. A transit loss as determined by the water commissioner will be assessed. There are no intervening water rights between the headgate of the Boyd and Freeman Ditch and the point of depletions.

The Boyd and Freeman Ditch water is only available for diversion during the irrigation season of April through October; therefore Greeley will utilize other water sources during the non-irrigation season such as reusable effluent discharged from the Greeley Water Pollution Control Facility (aka Greeley Sewer, WDID 0302312). The Greeley Sewer is located downstream of the 25th Avenue Pit but above the Ogilvy Ditch. Greeley may also release legally stored water from Flatiron Pits 1 and 2 (aka Poudre Ponds, WDID 0303791) pursuant to its storage rights decreed in water court case no. 1999CW234, which are decreed for augmentation purposes.

A monthly breakdown of projected depletions and replacements for Flatiron Pits 3 and 4 is shown in the attached Table 1A, while the monthly breakdown of lagged depletions associated with the dewatering and refilling of Flatiron Pit 5 is shown in the attached Table 1B.

Long Term Augmentation

In accordance with the letter dated April 30, 2010 (copy attached) from the Colorado Division of Reclamation, Mining, and Safety ("DRMS"), all sand and gravel mining operators must comply with the requirements of the Colorado Reclamation Act and the Mineral Rules and Regulations for the protection of water resources. The April 30, 2010 letter from DRMS requires that information be provided to DRMS to demonstrate you can replace long term injurious stream depletions that result from mining related exposure of groundwater.

Pits 3 and 4 have been combined into a single pit, and the construction of the slurry wall began in February 2021. Pit 5 and Pit C will both be backfilled. Long-term augmentation will not be required as the final reclamation plan for the site includes lining or backfilling of all groundwater exposures. The owner of the site is the City of Greeley, therefore a bond with DRMS has not been executed as bonds are not required for municipal entities.

Conditions of Approval

I hereby approve the proposed SWSP in accordance with section 37-90-137(11), C.R.S., subject to the following conditions:

1. This SWSP shall be valid for the period of June 1, 2021 through May 31, 2023, unless otherwise revoked or superseded by decree. If all lagged depletions associated with mining use at the pits are not fully replaced or a court decreed plan for augmentation is not obtained for the proposed uses by the SWSP expiration date, a renewal request must be submitted to this office with the required statutory fee (currently $257) no later than April 1, 2023. If a renewal request is received after the expiration date of this plan, it may be considered a request for a new SWSP, in which case a $1,593 filing fee will apply.
2. Well permit no. 78459-F (amended) has been obtained for the current use and exposed pond surface area of the gravel pit in accordance with sections 37-90-137(2) and (11), C.R.S.
3. The total surface area of the groundwater exposed at the 25th Avenue Site after December 31, 1980 must not exceed 100 acres (the amount covered under the plan for augmentation decreed in case no. 1999CW231) during this plan period. Should the total surface area exposed exceed this amount, an amended SWSP must be filed with this office to cover these additional evaporative depletions.
4. The annual amount of water used for operational purposes at the 25th Avenue Site shall not exceed 13.65 acre-feet in the second half of 2021, 6.26 acre-feet in 2022, and 3.13 acre-feet in the first half of 2023, consisting of water removed with the mined product and water used for dust control and slurry wall construction.
5. Total consumption at the 25th Avenue Site must not exceed these aforementioned amounts unless an amendment is made to this plan.
6. All diversions shall be measured in a manner acceptable to the division engineer. All pumping for dust control and slurry wall construction shall be measured in a manner acceptable to the division engineer. The Applicant shall install and maintain such measuring devices as required by the division engineer for operation of this SWSP.
7. The water attributable to the 138 shares of the Boyd and Freeman Ditch Company must continue to be diverted in priority at the ditch and then measured back to the Cache la Poudre River. Adequate measuring devices acceptable to the water commissioner must be installed.
8. Approval of this SWSP is for the purposes as stated herein. This office must first approve any additional uses for the water. Any future additional historical consumptive use credit given (e.g., agricultural water transfer) for this site must consider all previous credits given.
9. All releases of replacement water must be sufficient to cover all out-of-priority depletions in time, place, and amount and must be made under the direction and/or the approval of the water commissioner.
10. The release of replacement water may be aggregated to maximize beneficial use. The water commissioner and/or the division engineer shall determine the rate and timing of an aggregated release.
11. The replacement water, which is the subject of this SWSP, cannot be sold or leased to any other entity, unless prior written approval is granted by the water commissioner and/or the division engineer. As a condition of subsequent renewals of this SWSP, the replacement water

must be appurtenant to this site until a plan for augmentation is obtained. All replacement water must be concurrent with depletions in quantity, timing and location.

12. The Applicant shall provide daily accounting (including, but not limited to diversions, depletions, replacement sources, and river calls) on a monthly basis, or more frequent if required by the water commissioner. The accounting must be emailed to the water commissioner (Mark Simpson at Mark.Simpson@state.co.us) **and** to DNR_Div1Accounting@state.co.us within 30 days of the end of the month for which the accounting applies. Accounting and reporting procedures are subject to approval and modification by the division engineer. Accounting forms need to identify the WDID number for each structure included in this SWSP. **NOTE:** Monthly accounting, even during the winter non-irrigation season, is required.
13. Conveyance loss for delivery of augmentation water is subject to assessment and modification as determined by the division engineer.
14. Applicant shall follow the attached Augmentation Plan Accounting Protocol for the operation of this SWSP.
15. The amount and location of the dry-up of the irrigated acreage associated with the Applicant's 138 shares of the Boyd and Freeman Ditch Company has been documented as being on what is now the 25th Avenue Site mined property, therefore no additional dry-up reporting is required for the purposes of this SWSP.
16. The historical consumptive use attributed to the changed surface water right(s) under this SWSP shall not include groundwater contributions. As a result, the historical consumptive use ("HCU") credit calculated for the subject water right to be changed by this SWSP must be reduced by any ongoing sub-irrigation from groundwater. The SWSP request indicates that groundwater levels below what is now the 25th Avenue Site property are more than 10 feet below the ground surface. Based on this information, the Applicant is not required to provide records of monthly monitoring of depth to groundwater for the 25th Avenue Site property associated with the change of water right in this SWSP. If based on additional information the state engineer determines that the depth to groundwater is shallower than the 10 feet as specified by the Applicant, the state engineer may require the Applicant to provide records of monthly monitoring of depth to groundwater for the 25th Avenue Site property and to reduce the amount of the calculated HCU that may be claimed in this SWSP accordingly.
17. Dewatering at this site will produce delayed depletions to the stream system. The operator shall equip the dewatering operations with a totalizing flow meter and report monthly meter readings which will be used to determine the post-pumping depletions when dewatering ceases. Once dewatering at the site ceases, the delayed depletions must be addressed. At least three years prior to completion of dewatering, a plan must be submitted that specifies how the post pumping dewatering depletions (including refilling of the pit) will be replaced, in time, place and amount.
18. If a lined pond results after reclamation, replacement of lagged depletions shall continue until there is no longer an effect on stream flow.
19. The division engineer, or their designated representative, will administer all such water transported in the South Platte River or its tributaries under this SWSP, including water for replacement of depletions, past intervening headgates to ensure that such water is not intercepted or otherwise diminished in quantity by diversion, use or other interference by intervening water rights and to assure that such water remains available and suitable for

Applicant's uses under this SWSP, except when any intervening headgate is diverting the entire flow of ("sweeping") the river. In the event that delivery past headgates which sweep the river requires the installation of a bypass structure or the use of an existing bypass structure by agreement with a third-party, Applicant is responsible for either installing a new bypass structure with a continuous recording measuring device(s) as approved by the water commissioner or securing an agreement with a third-party to use an existing bypass structure and providing such information and agreement to the division engineer.

20. The Division of Water Resources will not be responsible for any enforcement or administration of third party agreements that are not included in a decree of the water court.
21. The State Engineer may revoke this SWSP or add additional restrictions to its operation if at any time the State Engineer determines that injury to other vested water rights has occurred or will occur as a result of the operation of this SWSP. Should this SWSP expire without renewal or be revoked prior to adjudication of a permanent plan for augmentation, all use of water under this SWSP must cease immediately.
22. In accordance with amendments to section 25-8-202(7), C.R.S. and "Senate Bill 89-181 Rules and Regulations" adopted on February 4, 1992, the State Engineer shall determine whether the substitute supply is of a quality to meet requirements of use to which the senior appropriation receiving the substitute supply has normally been put. As such, water quality data or analyses may be requested at any time to determine if the requirement of use of the senior appropriator is met.
23. The decision of the state engineer shall have no precedential or evidentiary force, shall not create any presumptions, shift the burden of proof, or serve as a defense in any water court case or any other legal action that may be initiated concerning the SWSP. This decision shall not bind the state engineer to act in a similar manner in any other applications involving other SWSPs or in any proposed renewal of this SWSP, and shall not imply concurrence with any findings of fact or conclusions of law contained herein, or with the engineering methodologies used by the Applicant.

If you have any questions concerning this approval, please contact Javier Vargas-Johnson in Denver at (303) 866-3581 or Michael Hein in Greeley at (970) 352-8712.

Sincerely,

for Jeff Deatherage, P.E.
Chief of Water Supply

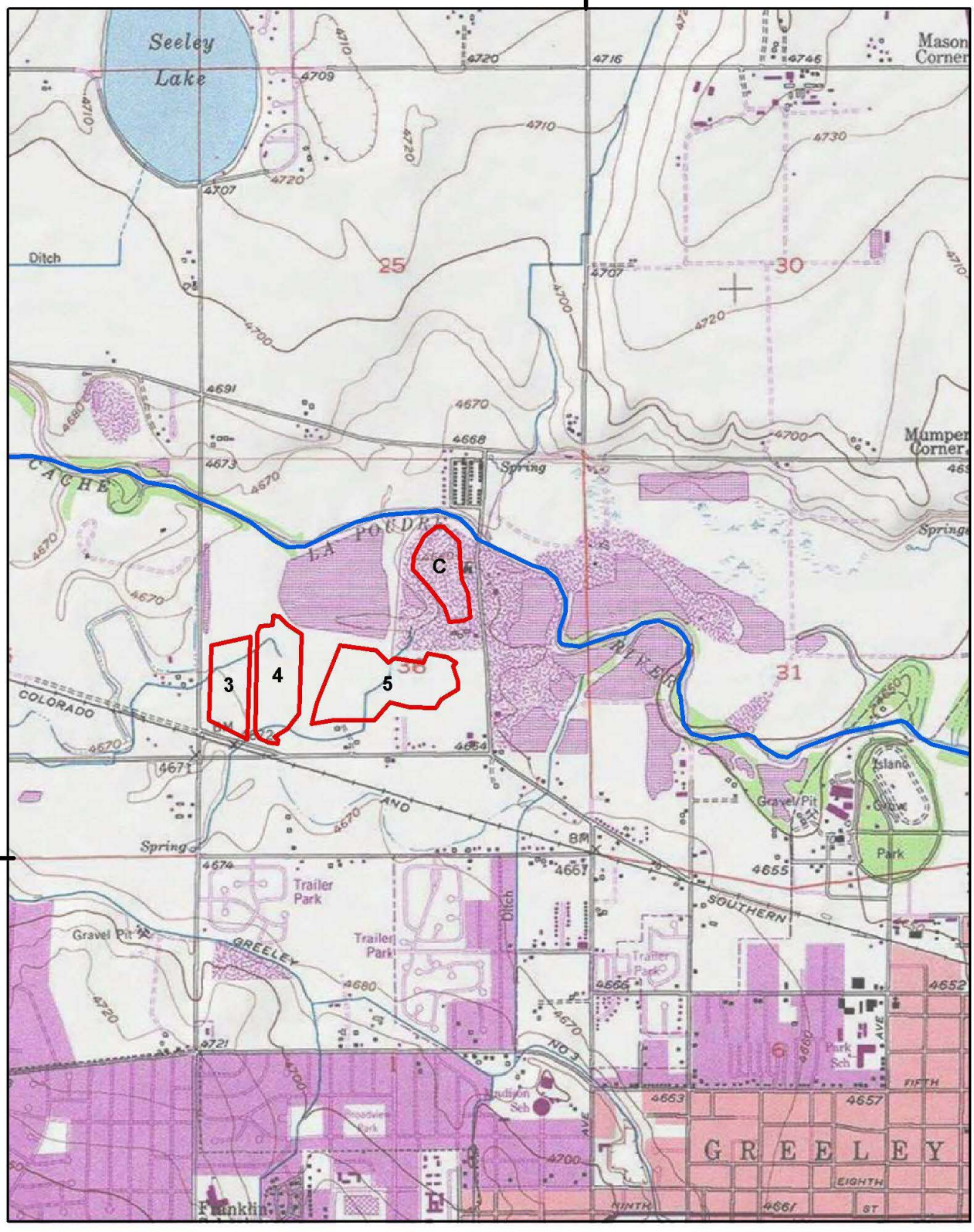
Attachments: Figure 1
Tables 1A and 1B
Letter from DRMS dated April 30, 2010
Augmentation Plan Accounting Protocol

Cc: Michael Hein, Lead Assistant Division Engineer, Michael.Hein@state.co.us
1809 56th Avenue, Greeley CO 80634

Mark Simpson, Water Commissioner, District 3, Mark.Simpson@state.co.us

Louis Flink, Tabulation/Diversion Records Coordinator, Louis.Flink@state.co.us

Peter Hays, Division of Reclamation Mining and Safety, Peter.Hays@state.co.us



Job No.:	607.1
Date:	5/4/12
Drawn:	CRR
Checked:	PLM

City of Greeley
SWSP DRMS #M-02-020

Area Map
Figure 1

MARTIN AND WOOD
WATER CONSULTANTS, INC.
538 Commons Drive
Golden, CO 80401
(303) 526-2600
www.martinandwood.com

Table 1A
Estimated Consumptive Use and Depletions for 2021-2023 SWSP Renewal Application
City of Greeley 25th Avenue Site (DRMS NO. M-2002-020)
Managed By Hall-Irwin Corporation
Water Division 1, Water District 3

YEAR 2021

MAX SURF AREA (AC): 17.5

Operational Depletions Covered under this SWSP														Evaporative Depletions Covered under Case No. 99CW231				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Month	Average Estimated Dewatering Rate for Flatiron Pits 3 & 4 (GPM)	Dewatering Volume Pits 3 & 4 (ACRE-FEET)	Estimated Monthly Aggregate Production (TONS)	Monthly Moisture Loss in Material (ACRE-FEET)	Estimated Monthly Volume of Water Used for Dust Suppression or Slurry Wall Construction (GALLONS)	(ACRE-FEET)	Total Operational Consumptive Use (ACRE-FEET)	Lagged Total Operational Depletions (ACRE-FEET)	Lagged Depletions from Dewatering (ACRE-FEET)	Credits from Dewatering (ACRE-FEET)	Operational Total Net Depletions for Pits 3 & 4 (-) or Surplus (+) (ACRE-FEET)	Total Net Depletions (-) or Surplus (+) for Flatiron Pit 5 from Table 1B (ACRE-FEET)	Total Net Depletions for Flatiron Pits from Tables 1A and 1B (ACRE-FEET)	Unit Gross Evaporation (Case No. 99CW231) FEET	Max Evaporative Losses (ACRE-FEET)	Lagged Evaporative Depletions (ACRE-FEET)	Evaporative Depletions Met by Surplus in Col (12) (ACRE-FEET)	Evaporative Depletions to be Covered under 99CW231 (ACRE-FEET)
JUN	151	20.00	20,000	0.29	1,256,170	3.86	4.15	-3.10	-18.39	20.00	-1.49	-0.02	-1.51	0.54	9.45	-6.95	0.00	-6.95
JUL	146	20.00	20,000	0.29	1,256,170	3.86	4.15	-3.29	-19.14	20.00	-2.43	-0.02	-2.45	0.56	9.80	-8.00	0.00	-8.00
AUG	146	20.00	20,000	0.29	1,256,170	3.86	4.15	-3.34	-19.13	20.00	-2.47	-0.02	-2.49	0.51	8.93	-8.07	0.00	-8.07
SEP	38	5.00	10,000	0.15	170,000	0.52	0.67	-2.28	-14.29	5.00	-11.57	-0.02	-11.59	0.38	6.65	-7.18	0.00	-7.18
OCT	36	5.00	10,000	0.15	170,000	0.52	0.67	-1.43	-10.62	5.00	-7.05	-0.02	-7.07	0.26	4.55	-6.19	0.00	-6.19
NOV	38	5.00	10,000	0.15	170,000	0.52	0.67	-1.13	-9.01	5.00	-5.14	-0.02	-5.16	0.15	2.63	-4.71	0.00	-4.71
DEC	36	5.00	10,000	0.15	170,000	0.52	0.67	-1.03	-8.60	5.00	-4.63	-0.02	-4.65	0.11	1.93	-3.86	0.00	-3.86
TOTAL	-	80.00	100,000	1.47	4,448,510	13.65	15.12	-15.60	-99.18	80.00	-34.78	-0.14	-34.92	2.51	43.93	-44.96	0.00	-44.96

YEAR 2022

MAX SURF AREA (AC): 17.5

Operational Depletions Covered under this SWSP														Evaporative Depletions Covered under Case No. 99CW231				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Month	Average Estimated Dewatering Rate for Flatiron Pits 3 & 4 (GPM)	Dewatering Volume Pits 3 & 4 (ACRE-FEET)	Estimated Monthly Aggregate Production (TONS)	Monthly Moisture Loss in Material (ACRE-FEET)	Estimated Monthly Volume of Water Used for Dust Suppression or Slurry Wall Construction (GALLONS)	(ACRE-FEET)	Total Operational Consumptive Use (ACRE-FEET)	Lagged Total Operational Depletions (ACRE-FEET)	Lagged Depletions from Dewatering (ACRE-FEET)	Credits from Dewatering (ACRE-FEET)	Operational Total Net Depletions for Pits 3 & 4 (-) or Surplus (+) (ACRE-FEET)	Total Net Depletions (-) or Surplus (+) for Flatiron Pit 5 from Table 1B (ACRE-FEET)	Total Net Depletions for Flatiron Pits from Tables 1A and 1B (ACRE-FEET)	Unit Gross Evaporation (Case No. 99CW231) FEET	Max Evaporative Losses (ACRE-FEET)	Lagged Evaporative Depletions (ACRE-FEET)	Evaporative Depletions Met by Surplus in Col (12) (ACRE-FEET)	Evaporative Depletions to be Covered under 99CW231 (ACRE-FEET)
JAN	36	5.00	8,333	0.12	170,000	0.52	0.64	-0.94	-8.12	5.00	-4.06	-0.02	-4.08	0.11	1.93	-3.33	0.00	-3.33
FEB	40	5.00	8,333	0.12	170,000	0.52	0.64	-0.82	-7.19	5.00	-3.01	-0.02	-3.03	0.13	2.28	-3.04	0.00	-3.04
MAR	36	5.00	8,333	0.12	170,000	0.52	0.64	-0.88	-7.71	5.00	-3.59	-0.02	-3.61	0.21	3.68	-3.62	0.00	-3.62
APR	38	5.00	8,333	0.12	170,000	0.52	0.64	-0.82	-7.23	5.00	-3.05	-0.01	-3.06	0.34	5.95	-4.49	0.00	-4.49
MAY	36	5.00	8,333	0.12	170,000	0.52	0.64	-0.83	-7.28	5.00	-3.11	-0.01	-3.12	0.45	7.88	-5.92	0.00	-5.92
JUN	38	5.00	8,333	0.12	170,000	0.52	0.64	-0.79	-6.91	5.00	-2.70	-0.01	-2.71	0.54	9.45	-6.96	0.00	-6.96
JUL	36	5.00	8,333	0.12	170,000	0.52	0.64	-0.80	-6.99	5.00	-2.79	-0.01	-2.80	0.56	9.80	-8.01	0.00	-8.01
AUG	36	5.00	8,333	0.12	170,000	0.52	0.64	-0.79	-6.83	5.00	-2.62	-0.01	-2.63	0.51	8.93	-8.09	0.00	-8.09
SEP	38	5.00	8,333	0.12	170,000	0.52	0.64	-0.76	-6.54	5.00	-2.30	-0.01	-2.31	0.38	6.65	-7.19	0.00	-7.19
OCT	36	5.00	8,333	0.12	170,000	0.52	0.64	-0.77	-6.65	5.00	-2.42	-0.01	-2.43	0.26	4.55	-6.20	0.00	-6.20
NOV	38	5.00	8,333	0.12	170,000	0.52	0.64	-0.74	-6.36	5.00	-2.10	0.00	-2.10	0.15	2.63	-4.73	0.00	-4.73
DEC	36	5.00	8,333	0.12	170,000	0.52	0.64	-0.76	-6.46	5.00	-2.22	0.00	-2.22	0.11	1.93	-3.87	0.00	-3.87
TOTAL	-	30.00	100,000	1.47	2,040,000	6.26	7.73	-9.70	-84.27	60.00	-33.97	-0.13	-34.10	3.75	65.63	-65.45	0.00	-65.45

YEAR 2023

MAX SURF AREA (AC): 17.5

Operational Depletions Covered under this SWSP														Evaporative Depletions Covered under Case No. 99CW231				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Month	Average Estimated Dewatering Rate for Flatiron Pits 3 & 4 (GPM)	Dewatering Volume Pits 3 & 4 (ACRE-FEET)	Estimated Monthly Aggregate Production (TONS)	Monthly Moisture Loss in Material (ACRE-FEET)	Estimated Monthly Volume of Water Used for Dust Suppression or Slurry Wall Construction (GALLONS)	(ACRE-FEET)	Total Operational Consumptive Use (ACRE-FEET)	Lagged Total Operational Depletions (ACRE-FEET)	Lagged Depletions from Dewatering (ACRE-FEET)	Credits from Dewatering (ACRE-FEET)	Operational Total Net Depletions for Pits 3 & 4 (-) or Surplus (+) (ACRE-FEET)	Total Net Depletions (-) or Surplus (+) for Flatiron Pit 5 from Table 1B (ACRE-FEET)	Total Net Depletions for Flatiron Pits from Tables 1A and 1B (ACRE-FEET)	Unit Gross Evaporation (Case No. 99CW231) FEET	Max Evaporative Losses (ACRE-FEET)	Lagged Evaporative Depletions (ACRE-FEET)	Evaporative Depletions Met by Surplus in Col (12) (ACRE-FEET)	Evaporative Depletions to be Covered under 99CW231 (ACRE-FEET)
JAN	36	5.00	8,333	0.12	170,000	0.52	0.64	-0.75	-6.34	5.00	-2.09	0.00	-2.09	0.11	1.93	-3.35	0.00	-3.35
FEB	40	5.00	8,333	0.12	170,000	0.52	0.64	-0.69	-5.79	5.00	-1.48	0.00	-1.48	0.13	2.28	-2.96	0.00	-2.96
MAR	36	5.00	8,333	0.12	170,000	0.52	0.64	-0.75	-6.32	5.00	-2.07	0.00	-2.07	0.21	3.68	-3.65	0.00	-3.65
APR	38	5.00	8,333	0.12	170,000	0.52	0.64	-0.72	-6.00	5.00	-1.72	0.00	-1.72	0.34	5.95	-4.51	0.00	-4.51
MAY	36	5.00	8,333	0.12	170,000	0.52	0.64	-0.73	-6.11	5.00	-1.84	0.00	-1.84	0.45	7.88	-5.93	0.00	-5.93
JUN	38	5.00	8,333	0.12	170,000	0.52	0.64	-0.71	-5.86	5.00	-1.57	0.00	-1.57	0.54	9.45	-6.98	0.00	-6.98
TOTAL	-	30.00	50,000	0.74	1,020,000	3.13	3.87	-4.35	-36.42	30.00	-10.77	0.00	-10.77	1.78	31.15	-27.38	0.00	-27.38

(2) ESTIMATED AVERAGE MONTHLY DEWATERING RATE - WELL PERMIT RATES ARE BASED ON INSTANTANEOUS RATES DURING PEAK PUMPING PERIODS FOR 3 PUMPS
(3) = COL (2)/226.29 x # DAYS IN MONTH
(4) ESTIMATED AGGREGATE PRODUCTION BASED ON MAXIMUM OPERATOR ESTIMATE
(5) = (COL (4) X 2000 X .02)/62.4/43,560
(6) ESTIMATED DUST SUPPRESSION USE
(7) = COL (6) X 325.851
(8) = COL (5) + COL (7)
(9) = LAGGED DEPLETIONS FROM COL (8) IN AWAS; X = 1,733 FT, W = 11,503 FEET, T = 164,132 GPD/FT, S = 0.20
(10) = LAGGED DEPLETIONS FROM DEWATERING FROM COL (3) IN AWAS; X = 1,733 FT, W = 11,503 FEET, T = 164,132 GPD/FT, S = 0.20
(11) = CREDITS FROM DEWATERING = COL (3)
(12) = COL (9) + COL (10) + COL(11)
(13) FROM COL (7) TABLE 1B
(14) COL (12) + Col (13)
(15) = FROM DECREE IN CASE NO. 99CW231
(16) = MAX EVAPORATIVE LOSSES = COL (15) X MAX SURFACE AREA
(17) = LAGGED EVAPORATIVE LOSSES FROM COL (15) IN AWAS; X = 1,733 FT, W = 11,503 FEET, T = 164,132 GPD/FT, S = 0.20
(18) = IF COL (14) > 0, THEN MIN (-COL (14), COL (12)), ELSE 0
(19) = COL (17) + COL (18); TO BE REPLACED IN CASE NO. 99CW231

TABLE 1B
Lagged Depletions From Dewatering and Refilling Pond 5
City of Greeley 25th Avenue Site (DRMS NO. M-2002-020)
Managed By Hall-Irwin Corporation
Water Division 1, Water District 3

YEAR 2021

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Month	Dewatering Pond 5	Dewatering Pond 5	Lagged Depletions from Dewatering Pond 5	Credits from Dewatering to the River	Lagged Depletions from Refilling Pond 5	Total Net Depletions (-) or Surplus (+)
	(GPM)	(ACRE-FEET)	(ACRE-FEET)	(ACRE-FEET)	(ACRE-FEET)	(ACRE-FEET)
JUN	0.00	0.00	-0.01	0.00	-0.01	-0.02
JUL	0.00	0.00	-0.01	0.00	-0.01	-0.02
AUG	0.00	0.00	-0.01	0.00	-0.01	-0.02
SEP	0.00	0.00	-0.01	0.00	-0.01	-0.02
OCT	0.00	0.00	-0.01	0.00	-0.01	-0.02
NOV	0.00	0.00	-0.01	0.00	-0.01	-0.02
DEC	0.00	0.00	-0.01	0.00	-0.01	-0.02
TOTAL	-	0.00	-0.07	0.00	-0.07	-0.14

YEAR 2022

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Month	Dewatering Pond 5	Dewatering Pond 5	Lagged Depletions from Dewatering Pond 5	Credits from Dewatering to the River	Lagged Depletions from Refilling Pond 5	Total Net Depletions (-) or Surplus (+)
	(GPM)	(ACRE-FEET)	(ACRE-FEET)	(ACRE-FEET)	(ACRE-FEET)	(ACRE-FEET)
JAN	0	0	-0.01	0.00	-0.01	-0.02
FEB	0	0	-0.01	0.00	-0.01	-0.02
MAR	0	0	-0.01	0.00	-0.01	-0.02
APR	0	0	0	0.00	-0.01	-0.01
MAY	0	0	0	0.00	-0.01	-0.01
JUN	0	0	0	0.00	-0.01	-0.01
JUL	0	0	0	0.00	-0.01	-0.01
AUG	0	0	0	0.00	-0.01	-0.01
SEP	0	0	0	0.00	-0.01	-0.01
OCT	0	0	0	0.00	-0.01	-0.01
NOV	0	0	0	0.00	0	0.00
DEC	0	0	0	0.00	0	0.00
TOTAL	-	0	-0.03	0.00	-0.10	-0.13

YEAR 2023

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Month	Dewatering Pond 5 (GPM)	Dewatering Pond 5 (ACRE-FEET)	Lagged Depletions from Dewatering Pond 5 (ACRE-FEET)	Credits from Dewatering to the River (ACRE-FEET)	Lagged Depletions from Refilling Pond 5 (ACRE-FEET)	Total Net Depletions (-) or Surplus (+) (ACRE-FEET)
JAN	0	0	0	0.00	0	0.00
FEB	0	0	0	0.00	0	0.00
MAR	0	0	0	0.00	0	0.00
APR	0	0	0	0.00	0	0.00
MAY	0	0	0	0.00	0	0.00
JUN	0	0	0	0.00	0	0.00
TOTAL	-	0	0.00	0.00	0.00	0.00

(2) ESTIMATED DEWATERING RATE
(3) = COL (2)/226.29 x # DAYS IN MONTH
(4) = LAGGED DEPLETIONS FROM COL (3) IN AWAS; X = 1,733 FT, W = 11,503 FEET, T = 164,132 GPD/FT, S = 0.20
(5) = LAGGED CREDITS FROM RECHARGE IN POND C (3) IN AWAS; X = 646 FT, W = 11,503 FEET, T = 164,132 GPD/FT, S = 0.20
(6) = DEPLETIONS FROM REFILLING POND 5 IN AWAS; X = 1,733 FT, W=11,503 FT, W = 11,503 FT, T= 164,132 GPD/FT, S=0.20
(7) = COL (4) + COL (5) + COL (6)

STATE OF COLORADO

DIVISION OF RECLAMATION, MINING AND SAFETY
Department of Natural Resources

1313 Sherman St., Room 215
Denver, Colorado 80203
Phone: (303) 866-3567
FAX: (303) 832-8106

COLORADO DIVISION OF RECLAMATION MINING & SAFETY

April 30, 2010

Lafarge West, Inc.
10170 Church Ranch Way, Ste. 200
Westminister, CO 800210000

RE: Mining Operations with Exposed Ground water

To Whom It May Concern:

The Division of Reclamation Mining and Safety is responsible for ensuring that Sand and Gravel mining operators comply with the requirements of the Colorado Land Reclamation Act for the Extraction of Construction Materials (Act) and the Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials (Rules). Among these requirements are provisions for the protection of water resources. The Act requires that reclamation plans must ensure minimization of disturbances to the prevailing hydrologic balance, including disturbances to the quantity of water in the area affected by mining and in the surrounding areas. § 34-32.5-116(4)(h). Rule 3.1.6(1)(a) requires compliance with Colorado water laws and regulations governing injury to existing water rights both during and after mining. Permits must specify how the permittee will comply with applicable Colorado water laws and regulations governing injury to existing water right rights. Rule 6.3.3(j); Rule 6.4.5(2)(c). After an extensive review, the Division determined that several operators may not have appropriate permit conditions to address certain reclamation liabilities arising from impacts to water resources.

In September 2009 the Division of Water Resources (DWR) updated its Guidelines for Sand and Gravel Pits. These guidelines provide guidance on achieving compliance with state law regarding replacement of depletions from sand and gravel mining, thus the guidelines provide a benchmark for the protection of hydrologic balance required under the Act and Rules. As noted in the Guidelines, sand and gravel operations which expose groundwater without complying with state law create a reclamation liability by impacting available groundwater.

State law requires that any person exposing ground water must obtain a well permit from the SEO pursuant to § 37-90-137(11). Because exposed groundwater results in out-of-priority water depletions, operations which expose ground water must also eventually obtain a water-court approved augmentation plan. Currently, several operators do not have either an augmentation plan or bonding to provide an alternative method to mitigate injurious stream depletions that result from mining-related exposure of ground water. The Division has a statutory duty to ensure that lands affected by mining are reclaimed in a manner that complies with state law and to ensure that operators have sufficient bonding to achieve reclamation. In order to assist operators in achieving compliance with these requirements, the Division proposes that, by April 30, 2011, operators should contact the Division and agree upon a plan for achieving compliance.

The Division has identified four approaches for operators:

1. File a financial warranty that will ensure backfilling of the pit to cover the exposed ground water to a depth of two feet above the static ground water level or,

2. Obtain a court approved augmentation plan prior to exposing ground water or,

3. File a financial warranty to cover the cost of installing a clay liner or slurry wall that meets the Division of Water Resources requirements for preventing ground water exposure or,

4. Obtain approval from the Division of Water Resources that acknowledges compliance with the SEO's requirements pursuant to § 37-90-137(11).

The Division will work with operators on an individual basis as they move to implement one of these plans. It is likely that options 1 and 3 will require the submittal of a technical revision or an amendment to the existing permit depending on the nature of the current mining and reclamation plan and the proposed changes. Increased financial warranties, as a result of these modifications, may be posted in a phased manner not to exceed three years. Amendments or revisions currently under review will be required to be approved by April 30, 2011 and may use the phased financial warranty approach described above. New applications going forward or presently under review by the Division will be required to meet the requirements of one of the options 1-4 at the time of application approval. Failure of affected operators to initiate contact with the Division and gain compliance as described above could result in an enforcement action being issued by the Division.

If you have any questions, please contact Tony Waldron at 303-866-3567, extension 8150.

cc:

M2006064	Shields at Fossil Creek Mine	M1983031	Stromquist Pit
M1994002	Andrews S & G #5 (Burlington Pit)	M1974072	Chantala Pit
M2006018	North Bank Resources	M1985218	Rich Pit
M2006073	Sundance Sand and Gravel Resource	M1985206	Boone-Martin Pit
M2009082	Parsons Mine	M1995022	Andrews #2
M1977081	Greeley West Pit	M1990144	Boone-Fillmore Pit
M2003091	Duckworth Pit	M1997087	Hartman Pit
M2000113	Mamm Creek Sand & Gravel	M2001094	Shaw Pit
M2001090	River Valley Resource	M2002009	Beeman Pit #1
M2000016	Riverbend Operation	M1981307	Fountain Pit
M1979134	Powers Pit	M1977439	Home Office Mine
M1977036	Greeley 35th Ave Pit	M1979191	Three Bells Pit
M2000034	Reichert Pit	M1982182	Port of Entry Pit
M2001051	North Taft Hill Expansion Site	M2002081	Overland Ponds
M1974015	Lyons Pit	M1981088	McCoy Pit
M1974004	Specification Aggregates Quarry	M1982034	Miller Pit
M1987176	Hamm Pit	M1996082	Blair Mesa Pit
M1988042	Cottonwood Pit	M1980136	Chambers Pit
M1990112	State Pit	M1977098	Sievers Pit
M1979002	North Delta Pit	M1983013	Latham - Burkett Pit
M1979159	Brose Pit	M1979097	East Rigden Pit
M1998014	Gypsum Ranch Pit	M1991035	Bluestone Pit
M1999088	Kyger Pit	M1986159	Courtner Pit
M1998075	Andrews #3 (Mock Pit)		

M1974070	Nelson Pit
M2000002	Tanabe Pit
M1994045	Bluestone Pit
M1986079	M & G Pit

ADMINISTRATION PROTOCOL
Augmentation Plan Accounting
Division One – South Platte River

This protocol establishes the accounting and reporting process required to enable the division engineer's office to confirm that depletions from all out-of-priority diversions are being replaced so as to prevent injury to vested water rights. The accounting must comport with established "cradle to grave" accounting standards, which allow an audit of the information to track exactly how the data is manipulated as it is translated from raw input data to the resultant impact on the river. While this protocol is subordinate to any decreed language addressing specific accounting requirements, it generally addresses the minimum requirements of such accounting.

The accounting must use the standard convention where a depletion is "negative" and an accretion or other replacement source is "positive". The sum of the impacts will then result in either a "negative" or "positive" impact on the stream.

Wells in plans that have a negative stream impact must provide additional replacement water, curtail pumping or both until the impact is no longer negative. Plans with a negative stream impact that fail to curtail pumping will be ordered to stop pumping until such time as the projected impact of the wells is no longer negative.

1. Accounting must be submitted electronically to the water commissioner (call 970-352-8712 to obtain email address) and division engineer at Div1Accounting@state.co.us within 30 days of the end of the month for which the accounting is being submitted.
2. The accounting must provide the **contact information** including name and address for:
    a. the owner(s) of each well
    b. the person responsible for submitting the accounting
    c. the plan administrator and/or the plan attorney.
3. All **input data** must be in one location, such as an "Input" worksheet, etc. The accounting must show all pumping. Input data includes the information listed below.
    a. The required input data for each **well** is:
        i. the monthly meter reading for wells that use a **presumptive depletion factor** (PDF) to determine the associated consumptive use (CU); or
        ii. the monthly CU in acre-feet (AF) for wells that have a decree or approved SWSP that allows the wells to use a **water balance methodology** to determine the CU of the well. The analysis used to determine the CU must be included with the accounting.
        iii. Wells that are decreed as an **alternate point of diversion** (APOD) to a surface water right must report pumping on a daily basis if any of the diversion during the month is claimed as being "in priority". (See *Administration Protocol – APOD Wells* for more details.)

iv. The well meter serial readings for each meter shall be included if there is more than one meter on a well.

b. Each **recharge site** must comply with the *Administration Protocol - Recharge* and must report the:

i. daily volume in AF diverted into the site;

ii. monthly volume in AF released from the site;

iii. monthly net evaporative loss in AF;

iv. volume of water in AF remaining at the end of the month.

c. The accounting must identify each source of **fully consumable replacement water** actually delivered to the location impacted by the depletions. To demonstrate the water was actually delivered to the required location will require the following information:

i. the originating source of the water, date released and volume of water released;

ii. transportation losses to point of diversion or use, if any, using stream loss factors approved by the water commissioner;

iii. the volume of water actually delivered on a daily basis past any surface water diversion that was sweeping the river as corroborated by the water commissioner.

(See *Administration Protocol – Delivery of Water* for more details on delivering water.)

d. For each source of **replacement water that has been "changed"** for use as a source of augmentation, such as changed reservoir shares, ditch bypass credits or credits from dry-up, etc., the following input information must be reported:

i. the basis and volume of the return flow obligation;

ii. the location the changed water was historically used; this will be the location used to determine the timing of the return flow impact on the river.

4. The accounting must include a monthly **projection** of the plan's operation at least through March 31 of the next calendar year.

5. The accounting must include all input and output files associated with **modeling the delayed impact** of diversions. The output from the modeling must report to a summary table that shows, by month, the ongoing depletions associated with pumping, return flow obligations, etc. and accretions from recharge operations.

6. A **net impact** summary must show the out-of-priority depletions, accretions from each recharge site, volume of replacement water actually delivered to the location of the depletions and the resultant net impact on **a daily basis**. If necessary, the net impact must be done by river reach.

   While **modeling** may use a **monthly step function** to determine the depletions from pumping and accretions from recharge, the monthly result must then be **divided by the number of days in the month** in order to **simulate a daily impact**, as water rights are administered on a daily and not monthly basis.

Replacement water must be provided such that the **daily net impact** (using the simulated daily numbers from the modeling) **is not negative**. If a well is out-of-priority for 15 days during a month, replacement must be made only for the 15 days the well is out-of-priority. The replacement must be made, however, on a daily basis as opposed to, for instance, making an aggregated release equal to the volume of the out-of-priority depletions. Likewise, the simulated daily accretion will only count toward replacing the depletion on the days the well is out-of-priority. The accretions that report to the river when the well is in priority cannot be used to replace the out-of-priority depletions.

The **accretions that impact the river when the well is in priority** are not considered "excess" unless the cumulative net impact of the well is not negative for the entire irrigation year to date. (The irrigation year for this purpose is April 1 thru the following March 31.) Until such time as the cumulative net impact is not negative, the accretions must simply be released to the river and cannot be leased to other plans or recaptured. Plans that show a positive cumulative net impact are still required to make replacements on a daily basis; the cumulative analysis only effects whether or not accretions reporting to the river when the well is in priority are considered "excess" and are, therefore, able to be recaptured.

7. The basis for determining that the depletions are **out-of-priority** must be clearly established and all steps in the calculation included in the accounting. The analysis may be done, unless otherwise limited by decree, for each well or groups of wells, provided the most junior water right associated with the group of wells is used as the reference water right for the group's out-of-priority status.

8. Accounting must include **actual information** for the irrigation year through the month for which the accounting is being submitted **AND projections** of the plan operation through March 31 of the next calendar year.

9. The following **naming convention** must be used for all files submitted pursuant to item 1:

   "Plan**WDID**_YYMMDD"

   where: PlanWDID is the WDID assigned by the division engineer's office
   YYMMDD corresponds to the date the accounting is submitted.

   As an example, the assigned WDID for the former GASP plan was 0103333. If accounting using Excel® was submitted for that plan on May 15, 2004, the file name would be:

   "0103333_040515.xls"

   The name of the file must be in the subject line of the email.

10. All accounting must be reported using the **WDID** for the structure, at a minimum. Other information such as well name, permit number, etc. may also be included as desired. <u>All wells must be decreed by the water court, permitted by the state engineer or included in a decreed plan for augmentation</u>. Unregistered and undecreed wells cannot, in the opinion of the division engineer, be effectively administered because of the need to know the location, allowable diversion rate and use of the well - information that is only available from the decree or permitting process.

11. If a well is covered in multiple SWSP's or augmentation plans, the monthly meter readings must be the same in the accounting for each plan covering the subject well. The accounting for every plan covering the well shall state the proportionate pumping amount covered by each plan to assure all out-of-priority depletions are replaced.

12. The following additional accounting is required for sources of replacement water used for more than one plan. The water right owner of the replacement water is responsible for accounting for the total replacement amount and how much each plan is using of that total amount. The accounting for portions of the replacement water by other users must match the accounting of the water right owner. The amount of replacement water used by the water right owner and other users together shall not exceed the total replacement amount available.

    (See *Administration Protocol – Use Of Unnamed Sources For Replacement* for additional requirements concerning required notice and approval of sources of replacement not specifically described in a SWSP or augmentation plan*)*