



COLORADO
Division of Water Resources
Department of Natural Resources

March 2, 2020

Mr. David M. Heintz, P.E.
Bishop-Brogden Associates, Inc.
333 West Hampden Ave, Ste 1050
Englewood, CO 80110

Re: Greeley 35th Avenue Pit Substitute Water Supply Plan (WDID 0302546, Plan ID 2945)
Formerly known as Greeley 35th Ave/Iverson Combined Augmentation Plan
Greeley 35th Avenue Pit, DRMS Permit No. M-1977-036 (WDID 0303022)
Sections 34 & 35, T6N, R66W, 6th P.M.
Water Division 1, Water District 3, Weld County

Approval Period: April 1, 2020 through March 31, 2021
Contact information for Mr. Heintz: 303-806-8952; dheintz@bbawater.com

Dear Mr. Heintz:

We have reviewed your letter dated January 31, 2020 requesting approval of a substitute water supply plan ("SWSP") on behalf of Martin Marietta ("Applicant" or "MM") in accordance with section 37-90-137(11), C.R.S., to cover depletions caused by an existing gravel pit operation known as the Greeley 35th Avenue Pit (DRMS Permit No. M-1977-036). The required renewal fee of \$257 has been received (receipt no. 3696754). The Greeley 35th Avenue Pit site was previously included in a combined SWSP with the Iverson Pit; however, since April 2018 the Greeley 35th Avenue Pit has operated under an individual SWSP.

SWSP Operations

The Greeley 35th Avenue Pit is located along the Cache la Poudre River in Sections 34 and 35, Township 6 North, Range 66 West of the 6th P.M., as shown on the attached Figure 1. During this plan period, MM will continue mining operations at the Greeley 35th Avenue Pit. The depletions that are projected to result from the mining operations over the period of this SWSP include evaporation from exposed groundwater, water removed with the mined product, and water used for dust suppression. The proposed replacement sources are a combination of reusable effluent leased from the City of Greeley, water stored in MM's Heaton Reservoir, water stored in MM's 35th Avenue Reservoir, and/or excess historical consumptive use credit attributable to 12 Whitney Ditch shares owned by MM.

Depletions

Depletions at the Greeley 35th Avenue Pit during this plan period will consist of evaporation from exposed groundwater surface area, water lost in mined product, and dust suppression.

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 (“pre-81”) as a result of open mining of sand and gravel, regardless of whether mining continued after December 31, 1980. The total exposed groundwater area at the site is 84.52 acres, of which 49.22 acres are a part of a total of 52 acres of groundwater recognized by this office as having been exposed within the Greeley 35th Avenue Pit reclamation permit boundary prior to January 1, 1981. Therefore, replacement of evaporative depletions is only required for the 35.3 acres exposed after December 31, 1980. The location of the 49.22 acres exposed prior to January 1, 1981 is shown on the attached Figure 1. The credits for the pre-81 area are tied to the location identified on the map and may not be re-allocated to other areas of groundwater exposure within the gravel pit permit boundary.

Net evaporative depletions were calculated using a gross annual evaporation of 3.65 feet (43.8 inches) from the exposed water surface, with a credit of 0.84 feet (10.08 inches) for effective precipitation, based on average annual precipitation of 1.20 feet (14.42 inches) for the Greeley UNC weather station. Based on the above, net evaporative depletions at the Greeley 35th Avenue Pit are projected to total 99.30 acre-feet for the period of April 1, 2020 through March 31, 2021.

The Applicant projects mining a total of 220,000 tons of aggregate from the Greeley 35th Avenue Pit during this plan period. All of the material will be mined below the water table and will be washed on site. The water retained in the mined product is therefore considered to be 4.0% of the mined material by weight, which results in a projected groundwater loss of 6.47 acre-feet.

The applicant projects using a total of 20.33 acre-feet of water from the Greeley 35th Avenue Pit for dust suppression during this plan period.

MM also owns and operates a concrete batching plant on site. Water for concrete batching purposes is pumped from an existing alluvial well, permit no. 47856-F (WDID 0307597), located within the DRMS permit boundary. The Applicant does not anticipate operating the concrete batching plant during this plan period.

The total consumptive use of groundwater at the Greeley 35th Avenue Pit (including evaporative and operational losses) is estimated to be 126.10 acre-feet for this plan period.

Depletions were lagged to the Cache la Poudre River using the IDS Alluvial AWAS analytical stream depletion model, with the following parameters: specific yield (SY) = 0.2, distance from the centroid of the 35th Avenue Pit site to the river = 1,500 feet, aquifer width (W) = 5,000 feet, and transmissivity (T) = 120,000 gallons per day per foot. The total lagged depletions for the Greeley 35th Avenue Pit were determined to be 126.41 acre-feet for this plan period. This amount includes lagged depletions resulting from past consumptive use at the site that are projected to impact the river during this plan period. The attached Table 1 shows the monthly breakdown of evaporative, operational, and lagged depletions for the Greeley 35th Avenue Pit.

Dewatering

Dewatering at the Greeley 35th Avenue Pit is expected to continue for the duration of this plan period. As long as the site is continuously dewatered at approximately the same rate, the water returned to the stream system should be adequate to offset the depletions attributable to dewatering operations. Totalizing flow meters must be installed at each discharge location and meter readings must be reported on the submitted accounting. The meter readings will be used in calculating the post-pumping depletions that must be replaced if dewatering rates are reduced or if dewatering ceases altogether at the site.

Replacements

The operator proposes to provide replacement for this pit using fully consumable water leased from the City of Greeley, water stored in MM's 35th Avenue Reservoir, water stored in Heaton Reservoir, and/or excess consumptive use credits from 12 shares of the Whitney Ditch.

Greeley Lease

The primary source of replacement water will be from a permanent lease of 125 acre-feet of fully consumable effluent water from the City of Greeley ("Greeley"). MM's predecessor, Lafarge West, Inc., traded its 550 Boyd and Freeman Ditch shares for 125 acre-feet of augmentation water from Greeley. MM acquired this lease from Lafarge as part of their acquisition of the Greeley 35th Avenue Pit. The lease allows MM to use this water to cover depletions at Greeley 35th Avenue Pit and surrounding land. A copy of the lease with Greeley was previously submitted to this office and is attached to this letter. Fully consumable replacement water provided by Greeley will be returned to the river at one of the following locations:

- a) Greeley Water Pollution Control Facility Outfall (WDID 0302312) located on the Cache La Poudre River;
- b) JBS Swift Industrial WWTP Outfall (WDID 0102342) on Lone Tree Creek;
- c) confluence of the 35th Avenue Drainage Ditch and Cache La Poudre River;
- d) any augmentation station/release structure(s) to be constructed in the vicinity of such confluence and associated with Greeley's operation of reservoirs known as Flatiron Reservoir Nos. 1-5 (a.k.a. Poudre Ponds/Greeley West Pit/Greeley 25th Ave Pit);
- e) an augmentation station/release structure located under the Boyd and Freeman Ditch and approved by the water commissioner and division engineer for such purpose;
- f) release structures from Greeley Canal No. 3 as described in Greeley's decree in case no. 99CW232, or;
- g) any other release and measurement point that Greeley and MM agree upon.

A total of 121.16 acre-feet of water available under the lease is anticipated to be used for replacement purposes under this SWSP. The Applicant is required to coordinate with the water commissioner the delivery location of replacement water to ensure out-of-priority depletions are adequately replaced to prevent injury to other water rights. Conveyance loss for delivery of augmentation water is subject to assessment and modification as determined by the water commissioner or division engineer.

35th Avenue Reservoir

The remaining depletions are proposed to be replaced using water stored in MM's 35th Avenue Reservoir (WDID 0303844) under free river conditions in 2018, 2019, and 2020 with the approval of the water commissioner. The 35th Avenue Reservoir is the lined portion of the Greeley 35th Avenue Pit, generally located in the western portion of the site. Replacement water will be pumped from the reservoir directly to the Cache la Poudre River at a point approximately 1183 feet from the North section line and 1052 feet from the East section line of Section 34, Township 6 N, Range 66 W, Sixth P.M. as shown on the attached Figure 1. All water stored in and released from the 35th Avenue Reservoir must be measured and accounted for in a manner approved by the Water Commissioner. As shown in Column 11 of Table 2, a total of 5.25 acre-feet of water is anticipated to be pumped from the 35th Avenue Reservoir for replacement purposes during the months of September and October

2020.

Heaton Reservoir

The Applicant may also use for replacement purposes water stored in Heaton Reservoir under one of the following: a conditional storage water right decreed in case no. 2001CW193; from two (2) Rural Ditch shares quantified and changed for replacement purposes in the Duckworth Pit SWSP (WDID 0602525); or from one (1) Smith and Emmons Ditch share stored under a future decree or separate SWSP. The Duckworth Pit SWSP allows MM to use the Rural Ditch shares changed therein, and subsequently stored in Heaton Reservoir, as a source of augmentation water in MM's other gravel pit operations in the South Platte River basin pursuant to an approved SWSP for that site. The historic consumptive use of the two Rural Ditch shares was found to be 82.2 acre-feet, with a return flow obligation of 81.1 acre-feet. Since the Smith and Emmons Ditch share has not been quantified and cannot legally be used for replacement purposes at this time, it will not be included as a replacement source in this SWSP, but may be added in a subsequent SWSP at such time as it can legally be used for replacement purposes.

Heaton Reservoir (WDID 0504089) is located in Section 9, T2N, R68W, 6th P.M. Water stored under the right decreed in case no. 2001CW193 is delivered to the reservoir through the Rural Ditch (WDID 0600551). The date of appropriation for the Heaton Reservoir storage right is October 26, 2001 for 680 acre-feet, conditional, subject to the right to fill and refill as described in case no. 2001CW193. The decreed rate of diversion for filling the reservoir is 25.0 cfs. The right is decreed for a variety of uses including augmentation and replacement. Replacement water will be pumped from Heaton Reservoir directly into the St. Vrain River just downstream of the confluence with Boulder Creek, will travel to the confluence with the South Platte River and then along the South Platte River to the confluence with the Cache la Poudre River, approximately 9 miles downstream of the Greeley 35th Avenue pit. The downstream replacement is allowed at times when the call is downstream of Heaton Reservoir and there is no dry up point between the point of depletion on the Cache la Poudre and the confluence with the South Platte River. A transit loss of 22.25% will need to be incorporated into the delivery schedule based on the currently assessed rate of 0.5% per mile for a distance of 44.5 miles. If a different transit loss is determined by the division engineer or water commissioner, the Applicant must modify their accounting and replacements as necessary to be consistent with the determined transit loss. As shown in the attached Table 2, water from this source is not anticipated to be needed for replacement purposes during this plan period.

Whitney Ditch

MM owns 12 shares of Whitney Ditch (WDID 0300930) that can be delivered directly to the river for immediate credit or delivered to a recharge pond (Parsons Mine Recharge Area, WDID 0302067) for lagged recharge accretion credits. The 12 Whitney Ditch shares are primarily used as a replacement source in MM's Parsons Mine SWSP (WDID 0302583, Plan ID 5822). When the historic consumptive use credit from the 12 Whitney Ditch shares exceeds what is needed to replace depletions at the Parsons Mine, MM has requested the ability to utilize the excess credit for replacement of depletions at the Greeley 35th Avenue Pit.

As more fully described in the Parsons Mine SWSP, MM's 12 shares in the Whitney Ditch Company were quantified and changed for a variety of uses including augmentation/replacement in case no. 2008CW65, which relied on a ditch-wide analysis of the 320 total shares in the Whitney Ditch. The total average annual consumptive use for MM's 12 Whitney Ditch shares was determined to equal 164.25 acre-feet per year and 337.88 acre-feet of total deliveries. A total of 246.03 acre-feet of Whitney Ditch water was projected to be diverted for use under the June 1, 2019-May

31, 2020 Parsons Mine SWSP, resulting in a total of 90.27 acre-feet of consumptive use credit from direct delivery and recharge. Operations for the 2020-2021 plan year are anticipated to be similar. The return flow obligations associated with the use of the Whitney Ditch shares will be calculated and replaced under the Parsons Mine SWSP. The excess credit attributable to the Whitney Ditch shares available for use in this SWSP, after accounting for return flow obligations, will be shown in the Parsons Mine SWSP accounting and will match the amount claimed in the accounting for this SWSP. Prior to the use of this source for replacement purposes under this SWSP, MM will obtain an agreement with the GIC allowing MM to bypass the excess Whitney Ditch credits past the Greeley No. 3 ditch headgate in the event the Greeley No. 3 Ditch is drying up the Cache La Poudre River using the GIC's bypass structure. A transit loss (currently 0.5% per mile) will be assessed for a distance of 7.5 miles between the point of delivery of the Whitney Ditch water and the location of the Greeley 35th Avenue Pit. GIC requires an additional 15% transit loss to be assessed to any water delivered through the GIC bypass structure. As shown in the attached Table 2, water from this source is not anticipated to be needed for replacement purposes during this plan period.

A monthly breakdown of projected depletions and replacements from each source is shown in the attached Table 2.

Long Term Augmentation

In accordance with the letter dated April 30, 2010 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 you provide information to DRMS to demonstrate you can replace long term injurious stream depletions that result from mining related exposure of groundwater.

MM amended the reclamation plan for the Greeley 35th Avenue Pit to change the final land use of approximately 130 acres of the western portion of the site, known as the West Pit or West Cell, to Developed Water Resources. On December 1, 2015, the slurry wall liner was approved by the State Engineer's Office as meeting the performance standard for liners, and the West Cell is now classified as a lined reservoir in accordance with the 1999 SEO Guidelines (Greeley 35th Ave Reservoir, WDID 0303844). MM has obtained a bond for \$7,764,000 through DRMS which includes the cost of installing a slurry wall around the remaining (Non-West Cell) portion of the site to prevent long term exposure of groundwater at the Greeley 35th Avenue Pit.

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 April 1, 2020 through March 31, 2021, unless otherwise revoked or superseded by decree. If 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 statutory fee (currently \$257 per gravel pit) prior to the expiration date and no later than February 1, 2021. 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. 81343-F has been obtained for the current use and exposed pond surface area of the Greeley 35th Avenue 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 Greeley 35th Avenue Pit after December 31, 1980 must not exceed 35.3 acres, which results in an annual net evaporative loss of 99.30 acre-feet.
4. The annual amount of water used from the Greeley 35th Avenue Pit for operational purposes during this plan period shall not exceed 26.80 acre-feet (estimated as 20.33 acre-feet for dust suppression and 6.47 acre-feet lost with 220,000 tons of mined aggregate). The applicant shall not pump water from well permit no. 47856-F for concrete batching operations during this plan period.
5. Total consumption at the Greeley 35th Avenue Pit site during this plan period must not exceed these aforementioned amounts unless an amendment is made to this SWSP.
6. All diversions 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. Approval of this SWSP is for the purposes as stated herein. This office must first approve any additional uses for the water.
8. 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.
9. **Prior to the use of the Greeley effluent water or Heaton Reservoir water, the Applicant is required to notify the water commissioner and obtain the water commissioner's approval at least 48 hours prior to use, or less if allowed by the water commissioner.** The applicant is required to obtain the water commissioner's approval on a daily basis or other interval as required by the water commissioner. These replacement supplies may only be used at times when there is a continuous live stream between a downstream replacement location and the point of depletion and there is no call for water within that reach.
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.
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 commissioners (Mark Simpson at Mark.Simpson@state.co.us and Shera Sumerford at Shera.Sumerford@state.co.us) and 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 well operating under this SWSP. **NOTE:** Monthly accounting, even during the winter non-irrigation season, is required.

The Applicant shall verify that the entity making replacements (City of Greeley) has included the Applicant on their accounting and submitted their accounting to the division office and the water commissioner.

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 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.
16. 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.
17. Dewatering at the Greeley 35th Avenue Pit site will produce delayed depletions to the stream system. As long as the site is continuously dewatered, the water returned to the stream system should be adequate to offset the depletions, thus dewatering is required to continue during the term of this plan. Once dewatering at the sites cease, the delayed depletions must be addressed, including depletions resulting from the gradual refilling of the pit. At least three years prior to completion of dewatering, a plan must be submitted that specifies how the post pumping dewatering depletions will be replaced, in time, place and amount.
18. If dewatering of the Greeley 35th Avenue Pit site is discontinued, the pit would fill, creating additional depletions to the stream system due to increased evaporation. To assure that additional depletions to the river do not occur, a bond for \$7,764,000 through the DRMS for lining or backfilling of the exposed groundwater has been obtained. Therefore, if the dewatering is discontinued the bond can finance the completion of the lining of the Greeley 35th Avenue Pit or the backfilling, thus preventing depletions to the stream system.
19. The approval of this SWSP does not relieve the Applicant and/or landowner of the requirement to obtain a Water Court decree approving a permanent plan for augmentation or mitigation to ensure the permanent replacement of all depletions, including long-term evaporation losses and lagged depletions after gravel mining operations have ceased. If reclamation of the mine site will produce a permanent water surface exposing groundwater to evaporation, an application for a plan for augmentation must be filed with the Division 1 Water Court at least three (3) years prior to the completion of mining to include, but not be limited to, long-term evaporation losses and lagged depletions. If a lined pond results after reclamation, replacement of lagged depletions shall continue until there is no longer an effect on stream flow.

20. 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.
21. 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.
22. 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 1-2
City of Greeley Lease
Letter from DRMS dated April 30, 2010
Augmentation Plan Accounting Protocol

Cc: Michael Hein, Lead Assistant Division Engineer, Michael.Hein@state.co.us
810 9th Street, Suite 200, Greeley, CO 80631, (970) 352-8712

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

Shera Sumerford, Water Commissioner, District 5, Shera.Sumerford@state.co.us

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

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

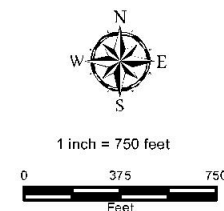


Legend

- 35th Ave Reservoir Completed Liner
- Property Boundary (Approx.)
- Pre-81 Area
- Exposed Surface Area

Aerial Photo Date: 10/14/2017
Data Source: Google Earth, CDSS, USGS, BLM

Figure 1
Martin Marietta
35th Avenue Pit



Overview Map



Table 1
Martin Marietta
Greeley 35th Avenue Pit - WDID #0303022
Total Depletions

	Evaporative Depletions						Production Depletions								
	(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)	(12)	(13)	
						Net Evaporation Volume (ac-ft)	Aggregate Production (tons)		Aggregate Production Consumption (ac-ft)	Dust Suppression/ Reclamation (ac-ft)	Concrete Production Consumption (ac-ft)	Total Production Depletions (ac-ft)	Total Depletions (ac-ft)	Total Lagged Depletions (ac-ft)	
							Crushed (Not Washed)	Washed							
Month	Exposed Area (ac)	Gross Evaporation (ft)	Avg. Total Precipitation (ft)	Effective Precipitation (ft)	Net Evaporation (ft)										
Apr-20	35.30	0.33	0.15	0.11	0.22	7.85	0	20,000	0.59	1.53	0.00	2.12	9.97	7.87	
May-20	35.30	0.44	0.20	0.14	0.30	10.46	0	20,000	0.59	2.15	0.00	2.74	13.19	9.72	
Jun-20	35.30	0.53	0.16	0.11	0.42	14.73	0	30,000	0.88	3.38	0.00	4.26	18.99	12.63	
Jul-20	35.30	0.55	0.13	0.09	0.46	16.16	0	30,000	0.88	3.38	0.00	4.26	20.41	15.14	
Aug-20	35.30	0.49	0.11	0.08	0.41	14.59	0	30,000	0.88	3.38	0.00	4.26	18.85	16.07	
Sep-20	35.30	0.37	0.09	0.06	0.30	10.64	0	25,000	0.74	1.84	0.00	2.58	13.22	14.82	
Oct-20	35.30	0.26	0.09	0.06	0.19	6.88	0	25,000	0.74	1.53	0.00	2.27	9.15	12.58	
Nov-20	35.30	0.15	0.06	0.04	0.10	3.61	0	20,000	0.59	1.07	0.00	1.66	5.27	10.11	
Dec-20	35.30	0.11	0.04	0.03	0.08	2.82	0	20,000	0.59	0.46	0.00	1.05	3.86	8.13	
Jan-21	35.30	0.11	0.04	0.03	0.08	2.90	0	0	0.00	0.46	0.00	0.46	3.36	6.84	
Feb-21	35.30	0.13	0.03	0.02	0.11	3.77	0	0	0.00	0.08	0.00	0.08	3.84	6.15	
Mar-21	35.30	0.20	0.09	0.06	0.14	4.90	0	0	0.00	1.07	0.00	1.07	5.98	6.34	
Total	-	3.65	1.20	0.84	2.81	99.30	0	220,000	6.47	20.33	0.00	26.80	126.10	126.41	

Notes:

(1) Equal to the maximum exposed post-1981 surface area of 35.3 acres.

(2) Total gross evaporation (3.65 feet) is based upon NOAA Technical Report NWS 33 and distributed according to SEO Senate Bill 89-120 criteria:

November: 4.0%	February: 3.5%	May: 12.0%	August: 13.5%
December: 3.0%	March: 5.5%	June: 14.5%	September: 10.0%
January: 3.0%	April: 9.0%	July: 15.0%	October: 7.0%

(3) Equal to the average precipitation at the Greeley UNC, CO (ID#3553) NOAA weather station for the time period 1967-2010.

(4) Equal to (3) x 70%.

(5) Equal to (2) - (4).

(6) Equal to (1) x (5).

(7) Aggregate production from mining is based upon information from Martin Marietta (MM).

(8) Water removed with crushed mined aggregate is equal to 4.8 gallons/ ton (2% of total mined volume) and water removed with washed mined aggregate is equals 9.6 gallons/ton (4% of total mined volume) as defined by Senate Bill 89-120. Therefore, (8) is equal to the projected crushed and washed aggregate production (in tons), multiplied by 4.8 gallons/ton or 9.6 gallons/ton respectively, divided by 325,851 to convert gallons to acre-feet.

(9) Dust suppression water from the 35th Avenue Site based upon information from MM.

(10) Concrete production at the 35th Avenue batch plant is based upon information from MM.

(11) Equal to (8) + (9) + (10).

(12) Equal to (6) + (11).

(13) Depletions are lagged using the Glover methodology in the IDS AWAS model using the following parameters:

Transmissivity: 120,000 gallons/day/foot

Specific Yield: 0.2

Aquifer Width: 5,000 feet

Distance from center of pits to river: 1,500 feet

Table 2
Martin Marietta
Greeley 35th Avenue Pit - WDID #0303022
Total Lagged Depletions and Replacements

	Depletions			Replacements									
	(1)	(2)	(3)	(4)	Heaton Reservoir			Whitney Ditch			35th Ave Reservoir	(12)	(13)
					(5)	(6)	(7)	(8)	(9)	(10)	(11)		
	Total 35th Avenue Lagged Depletions	Percent of Month Free River (%)	Lagged Depletions Requiring Replacement (ac-ft)	Permanent Greeley Lease (ac-ft)	Water Pumped from Heaton Reservoir (ac-ft)	Transit Loss (ac-ft)	Replacement from Heaton Reservoir (ac-ft)	Excess Whitney Ditch Credits (ac-ft)	Transit Loss (ac-ft)	Replacement from Whitney Ditch Credits (ac-ft)	Water Pumped from 35th Ave Reservoir (ac-ft)	Total Replacements (ac-ft)	Net Effect to the River (ac-ft)
Apr-20	7.87	0%	7.87	7.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.87	0.00
May-20	9.72	0%	9.72	9.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.72	0.00
Jun-20	12.63	0%	12.63	12.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.63	0.00
Jul-20	15.14	0%	15.14	15.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.14	0.00
Aug-20	16.07	0%	16.07	16.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.07	0.00
Sep-20	14.82	0%	14.82	12.71	0.00	0.00	0.00	0.00	0.00	0.00	2.11	14.82	0.00
Oct-20	12.58	0%	12.58	9.44	0.00	0.00	0.00	0.00	0.00	0.00	3.14	12.58	0.00
Nov-20	10.11	0%	10.11	10.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.11	0.00
Dec-20	8.13	0%	8.13	8.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.13	0.00
Jan-21	6.84	0%	6.84	6.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.84	0.00
Feb-21	6.15	0%	6.15	6.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.15	0.00
Mar-21	6.34	0%	6.34	6.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.34	0.00
Annual Total	126.41	-	126.41	121.16	0.00	0.00	0.00	0.00	0.00	0.00	5.25	126.41	0.00

Notes:

(1) From Column 13 of Table 1.

(2) Equal to the percent of the month under Free River conditions. No free river was projected for purposes of this SWSP request.

(3) Equals (1) - ((1)*(2))

(4) Deliveries from the City of Greeley under the permanent lease are equal to 125 ac-ft annually and are requested annually based upon MM's anticipated monthly schedule for the April through March lease schedule. According to the lease, the schedule of delivery is variable so long as the delivery in any given month does not exceed 125% of the delivery schedule presented in Exhibit B of the lease and the total amount in any lease year does not exceed 125 ac-ft.

(5) Total replacement water pumped to the St. Vrain River from Heaton Reservoir to replace depletions at 35th Avenue Pit.

(6) Total transit loss associated with deliveries from (5). Based upon 0.5% transit loss per mile and a total distance to the point of depletion of 44.5 miles.

(7) Equal to (5) - (6).

(8) Excess Whitney Ditch HCU credits delivered to the Cache La Poudre River at MM's Parsons Mine for replacement of depletions at the 35th Avenue Pit.

(9) Total transit loss associated with deliveries from (8). Based upon 0.5% transit loss per mile and a total distance to the point of depletion of 7.5 miles. Whitney Ditch credit deliveries will also be assessed a 15% transit loss at times when the GIC bypass structure is used to deliver the credits past the Greeley No. 3 headgate. Therefore, for purposes of this projection a transit loss of 18.75% has been assumed.

(10) Equal to (8) - (9).

(11) Total replacement water pumped to the Cache La Poudre River from storage in MM's 35th Ave Reservoir.

(12) Equal to (4) + (7) + (10) + (11).

(13) Equal to (3) + (12).

WATER AGREEMENT

THIS WATER AGREEMENT, dated this 23rd day of January, 2008, is entered into by and between the City of Greeley, acting by and through its Water and Sewer Board ("City"), and Lafarge West, Inc., a Delaware corporation ("Lafarge").

RECITALS

- A. Lafarge owns approximately 370 acres located in Sections 34 and 35, Township 6 North, Range 66 West of the 6th P.M., Weld County, Colorado, as more specifically described in the attached Exhibit A (the "35th Avenue Pit Site").
- B. Lafarge conducts sand and gravel mining and related activities on the 35th Avenue Pit Site and on other sites located in the South Platte River basin. Lafarge requires augmentation and replacement water to replace water depletions that occur to the South Platte River and its tributaries as a result of such activities.
- C. Lafarge and the City are both shareholders in the Boyd Irrigation Company, a mutual ditch company that owns water rights decreed to divert water from the Cache la Poudre River into the Boyd and Freeman Ditch, and both parties own land historically irrigated by such water rights.
- D. Lafarge's mining operations have created, and may in the future create, opportunities for lined gravel pit reservoirs that could be useful to the City.
- E. Lafarge is willing to transfer its Boyd Irrigation Company shares to the City in exchange for a permanent lease of augmentation and replacement water from the City, and the City is amenable to such an arrangement, as more particularly described herein. Both parties also wish to study and discuss opportunities for construction of lined gravel pit reservoirs in the vicinity of the 35th Avenue Pit Site, as more particularly described herein.

WHEREFORE, in consideration of the mutual promises contained herein, the City and Lafarge hereby agree as follows:

AGREEMENT

1. Permanent Lease of Augmentation/Replacement Water. Greeley hereby leases to Lafarge 125 acre-feet (AF) of water temporarily or permanently approved for augmentation and replacement purposes ("Augmentation Water") per year under a permanent lease as shown in Exhibit B. Deliveries shall commence during the month in which this agreement becomes effective. Lafarge may request to vary monthly Augmentation Water deliveries for the next April 1 through March 31 period (Lease Year) up to an amount equal to 125 percent of the monthly deliveries shown in Exhibit A by notifying Greeley by January 1 of the preceding Lease Year, provided that no more than 125 AF of water shall be delivered during any Lease Year, and that a minimum of 77 AF of water shall be delivered during any April-October period. Greeley shall release and measure such water at Greeley's reasonable discretion at one of the following locations: a) Greeley Water Pollution Control Facility Outfall located on the Cache la Poudre River; b) JBS Swift industrial wastewater treatment plant outfall on Lone Tree Creek; c) confluence of 35th Avenue Drainage Ditch and Cache la Poudre River, or any augmentation station/release structure(s) to be constructed in the vicinity of such confluence and associated with Greeley's operation of reservoirs known as Flatiron Reservoir Nos. 1-5 (aka Poudre Ponds at Greeley or Greeley West Pit) or, as described below, with lined gravel pit reservoir storage to be constructed on the 35th Avenue Pit Site as Lafarge may expand such site onto adjacent property in the future; d) as described in more detail below, an augmentation station/release structure located under the Boyd and Freeman Ditch and approved by the Division of Water Resources for such purposes (the "Boyd and Freeman Augmentation Station"); e) release structures from Greeley Canal No. 3 as described in Greeley's decree in Case No. 99CW232; or f) any other release and measurement point approved by Lafarge in writing in its reasonable discretion. Unless otherwise agreed, Lafarge shall be responsible for any transmission losses charged by the Division of Water Resources following the release and measurement of such water, and for obtaining any necessary approvals of the use of such water for Lafarge's purposes. Each party shall be solely responsible for maintenance, repair and replacement of all structures owned by them respectively, including without limitation all costs and expenses thereof.

2. Use and Assignment. Augmentation Water leased under this Agreement may only be used for dust suppression, gravel washing, or other water uses associated with sand and gravel mining, or for evaporation loss replacement. This lease may be assigned in whole or in part by Lafarge upon Greeley's written consent, provided that a) Greeley will not unreasonably withhold consent to any assignment for water uses associated with sand and gravel mining; b) Greeley will not unreasonably withhold consent to an assignment solely for evaporation loss replacement following completion of mining reclamation upon the assignee's agreement to pay a one-time storage and pumping fee of \$3600 per AF, adjusted by the Denver area Consumer Price Index from the effective date hereof to the date of assignment; and c) Greeley may withhold consent to any assignment to another governmental entity in its sole discretion.

3. Transfer and Leaseback of Boyd and Freeman Ditch Water Rights. As full consideration and rent for the permanent lease of the Augmentation Water described in Section 1 (subject to an assignee's possible obligation to pay the storage and pumping fee upon assignment described in Section 2), Lafarge agrees to transfer, convey and assign by bargain and sale deed, stock assignment and irrevocable stock power to Greeley all of its right, title and interest in water rights decreed to the Boyd and Freeman Ditch and associated with its 550 shares of stock in the Boyd Irrigation Company (the "Boyd and Freeman Ditch Water Rights") within 15 days of the effective date of this Agreement. Lafarge shall also execute covenants prohibiting irrigation of its 35th Avenue Pit Site with any water available under shares of stock in the Boyd Irrigation Company except as may temporarily be required to allow Lafarge to meet its reclamation obligations under the mining permit for the 35th Avenue Pit Site. In partial satisfaction of Greeley's Augmentation Water lease obligation in Section 1 hereof, Greeley may elect to make Augmentation Water available to Lafarge under the Boyd and Freeman Ditch Water Rights for use in Lafarge's Substitute Water Supply Plan to replace evaporative water losses or other water depletions occurring at Lafarge's 35th Avenue Gravel Pit Site, or other sand and gravel mining sites located between the headgates of Greeley Canal No. 3 and the Ogilvy Ditch (the "Adjacent Sites") during the April-October period. Lafarge agrees to use best efforts to continue to obtain any necessary approvals related to the use of water available under the Boyd and Freeman Ditch Water Rights in any renewals of such Substitute Water Supply Plan; provided, however, that nothing herein shall affect Greeley's obligation to deliver Augmentation Water from other sources in the event that a Substitute Water Supply Plan using the Boyd and Freeman Ditch Water Rights is not approved by the State Engineer's Office. Unless otherwise required by law, absent Greeley's written approval, Lafarge agrees not to seek court adjudication of any plan for augmentation involving Augmentation Water to be released from Greeley during the April-October period until the later of a) ten full Lease Years after the effective date of this agreement, or b) completion of all required mine reclamation activities on the 35th Avenue Pit Site and the Adjacent Sites. Lafarge shall give Greeley prompt written notice of any such legal requirement for Lafarge to seek such court adjudication prior to the times specified above, and shall not file an application seeking such court adjudication for a minimum of 90 days following the sending of such notice unless such ninety (90) day period is waived by Greeley in its sole discretion. Upon receipt of such notice, Greeley and Lafarge shall confer with respect to what specific Greeley water supplies, consistent with Greeley's other obligations under this Agreement including without obligation its obligation to provide Augmentation Water, Greeley shall allow to be included as supplies from which Greeley will make water available to Lafarge in such application. If, prior to the time specified in subsections a) and b) of this Section, the State Engineer's Office denies a Substitute Water Supply Plan submitted by Lafarge that relies in whole or in part upon the Boyd and Freeman Ditch Water Rights, Greeley may request that Lafarge file and prosecute an administrative or judicial appeal of such denial; proceedings at the initial level of any such appeal shall be at Lafarge's expense, while proceedings at any further level of appeal, if any, shall be at Greeley's expense.

4. Boyd and Freeman Augmentation Station. Greeley agrees to use best efforts to design, obtain Division of Water Resources approval for, and construct the Boyd and Freeman Augmentation Station at its expense for use to deliver Augmentation Water commencing in April 2009. The Boyd and Freeman Augmentation Station shall be owned by Greeley, is preliminarily proposed to be located on Greeley property north of the Rover Run dog park, and shall be designed and constructed to deliver water at a flow rate equal to or greater than Lafarge's pro rata share of the total rate of flow currently decreed to the Boyd and Freeman Ditch and available under the Boyd and Freeman Ditch Water Rights. Lafarge agrees to cooperate with Greeley in obtaining approvals for the Boyd and Freeman Augmentation Station.

5. Negotiations for Gravel Pit Storage Facilities. The parties agree to pay one-half each of the costs of a study to be performed by Lyman-Henn or another mutually acceptable consultant to evaluate the feasibility and cost of constructing and operating lined water storage facilities and associated structures from gravel pits located or to be located on Lafarge's 35th Avenue Pit site, or on other nearby sites in which Lafarge has obtained or may in the future obtain a gravel mining lease, including without limitation Greeley's F Street Reservoir site. The precise scope of work of the study shall be agreed upon by the parties in advance. The parties estimate that such study will take approximately four months to complete. Following the completion of such study, the parties will discuss the study and a possible second transaction involving Greeley's acquisition of such facilities or the right to construct and operate them in exchange for Greeley's long-term lease of additional Augmentation Water to Lafarge or other consideration. Greeley shall have the exclusive right to negotiate with Lafarge concerning such acquisition for 12 months following the parties' receipt of such study.

6. Lafarge Junior Water Storage Rights. Lafarge agrees to use best efforts (as further limited herein) to obtain a decree in the application for junior conditional water storage rights for 35th Avenue Reservoir currently pending in Case No. 98CW476, Water Division No. 1, with decreed uses that include a) the replacement of evaporative losses from all sand and gravel mining sites currently owned by Lafarge, from other sand and gravel mining sites located or to be located between the headgates of Greeley Canal No. 3 and the Ogilvy Canal in which Lafarge may have or assume any responsibility for replacement of such losses, or from the F Street Reservoir, 8th Street Reservoir, and Flatiron/Greeley West Pit sites, and b) the replacement of return flow obligations decreed or to be decreed as conditions of the approval of any change of water right that makes such right legally available for the replacement of any such losses, including changed water rights originally decreed to Greeley Canal No. 3 and associated with shares of stock in the Greeley Irrigation Company. Greeley agrees not to oppose the entry of a decree in such application that contains these terms, and to discuss with Lafarge possible strategies to obtain such a decree. If Lafarge obtains such a decree and the parties successfully negotiate a subsequent transaction involving Greeley's acquisition of the right to water storage facilities described in the preceding paragraph, Lafarge and Greeley agrees to negotiate in good faith, as part of such transaction, Greeley's acquisition of a pro rata interest in the decreed junior conditional rights upon payment by Greeley of such

consideration as may be mutually agreed upon between the parties. This paragraph does not obligate Lafarge to expend, or obligate Greeley to reimburse, funds for the costs and attorney fees associated with holding a trial in such application.

7. Entire Agreement. This Agreement constitutes a complete understanding of the parties and merges and supersedes any and all other discussions, proposals, agreements, and undertakings, either oral or written, between the parties with respect to the subject matter hereof.

8. Amendment. This Agreement shall not be changed, modified, terminated, or amended except by a writing signed by each party to this Agreement.

9. Paragraph Headings. Paragraph headings contained in this Agreement are inserted for convenience of reference only, and shall not in any way define or affect the meaning, construction or scope of any of the provisions hereof.

10. Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties, their permitted successors and permitted assigns.

11. Default and Remedies. In the event of a default of any party's obligations hereunder, the party asserting a default shall give the other party written notice thereof and specify the default or defaults relied on. If the defaulting party fails to cure such default within 45 days after receipt of such notice, the non-breaching party shall have the right to specific performance or damages, or both.

12. Notices. Notices or other communications provided for herein or given in connection herewith shall be deemed given, made, delivered or served if made in writing and delivered personally or sent by registered or certified United States mail, return receipt requested and postage prepaid, to:

If to City:

City of Greeley Water and Sewer Department
Attn: Water Resource Manager
1100 10th Street
Greeley, Colorado 80631

If to Lafarge:

Lafarge West, Inc.
Director of Environment
10170 Church Ranch Way, Suite 200
Westminster, CO 80021

13. Approval by Greeley City Council. This Agreement shall not take effect unless and until it is approved by resolution of the Greeley City Council.

14. Survival. Any obligation in this Agreement which, by its terms, is intended to be performed after termination or transfer of the Boyd and Freeman Ditch Water Rights shall survive the same.

15. Other Necessary Acts. Each party shall execute and deliver to the other all such other further instruments and documents as may be reasonably necessary to carry out this Agreement and to provide and secure to the other party the full and complete enjoyment of its rights and privileges hereunder.

The parties have executed this Agreement effective as of the date first set out above.

LAFARGE WEST, INC.

Name: Mark Anderson

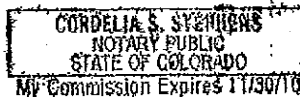
Title: Vice-President & General
Manager, Aggregate

STATE OF COLORADO }
COUNTY OF Denver } ss.

Subscribed under oath before me on 01/23/2009 by Mark Anderson as the Vice-President & General Manager, Aggregate, of Lafarge West, Inc., a Delaware corporation.

My commission expires: 11/30/2010

Cordelia S. Stephens
Notary Public



CITY OF GREELEY, ACTING BY AND THROUGH ITS
WATER AND SEWER BOARD

ATTESTED AND
APPROVED AS TO SUBSTANCE:

By: [Signature]
City Manager and
Secretary to Board

APPROVED:

By: [Signature]
Chair, Water and Sewer Board

APPROVED AS TO LEGAL FORM:

By: [Signature]
City Attorney

APPROVED AS TO LEGAL FORM:

By: [Signature]
Counsel to Board

APPROVED AS TO AVAILABILITY OF FUNDS:

By: [Signature]
Director of Finance

APPROVED BY GREELEY CITY COUNCIL:

CITY OF GREELEY, A COLORADO MUNICIPAL CORPORATION



EXHIBIT A

35th Avenue Reservoir will be located on a tract of land in Sections 34 & 35, Township 6 North, Range 66 West of the 6th P.M., Weld County, Colorado, being more particularly described as follows:

Commencing at the northeast corner (NE Cor.) of northeast quarter (NE $\frac{1}{4}$) of said Section 35 and considering the east line of said northeast quarter (NE $\frac{1}{4}$) to bear S 00° 00' 00" with all bearings herein relative thereto:

Thence S 00° 00' 00" E, 513.13 feet to the southeast corner (SE Cor.) of a parcel of land described in Book 847, Reception #1769344 of Weld County records;

Thence along a south line of said parcel, N 69° 24' 50" W, 53.41 feet to a point on the west right-of-way line of Weld County Road 35 as recorded in Book 852 Reception #1773926 also being the true point of beginning;

Thence along said west right-of-way line, S 00° 00' 00" W, 2387.68 feet;

Thence N 87° 57' 44" E, 20.02 feet to a point on the west right-of-way of Weld County Road 35;

Thence along said west right-of-way, S 00° 00' 04" W, 804.64 feet to a point on the north right-of-way line of the Colorado and Southern Railway;

Thence along said north right-of-way line, N 73° 53' 43" W, 7019.20 feet to a point on the west line of the southeast quarter of the northeast quarter (SE $\frac{1}{4}$ NE $\frac{1}{4}$) of said Section 34;

Thence along said west line of the southeast quarter of the northeast quarter (SE $\frac{1}{4}$ NE $\frac{1}{4}$) of Section 34, N 00° 22' 53" W 293.28 feet to the northwest corner of said southeast quarter of the northeast quarter (SE $\frac{1}{4}$ NE $\frac{1}{4}$) of said Section 34;

Thence N 89° 41' 53" E, 1323.38 feet to the northeast corner of said southeast quarter of the northeast quarter (SE $\frac{1}{4}$ NE $\frac{1}{4}$) of Section 34;

Thence along the west line of the northwest quarter (NW $\frac{1}{4}$) of said Section 35, N 00° 20' 14" W, 1113.20 feet to a point on the south line of a parcel of land described in Book 891, Reception #1813358 of the Weld County records;

Thence along the boundary of said parcel by the following nine (9) courses:

1- S 86° 15' 20" E, 156.61 feet

2- S 70° 50' 33" E, 76.10 feet

3- S 60° 53' 33" E, 159.61 feet

4- S 60° 53' 33" E, 35.17 feet

- 5- S 69° 59' 33" E, 87.55 feet
- 6- N 69° 02' 07" E, 368.11 feet
- 7- N 88° 47' 27" E, 39.57 feet
- 8- N 74° 33' 27" E, 169.68 feet
- 9- N 02° 14' 57" E, 232.07 feet to a point on the north line of said Section 35;

Thence along said north line of Section 35, N 89° 25' 27" E, 2458.79 feet to the northwest corner (NW Cor.) of a parcel of land described in Book 847, Reception #1769344 of the Weld County records;

Thence along the boundary of said parcel by the following three (3) courses;

- 1- S 73° 37' 07" E, 431.59 feet
- 2- S 86° 27' 15" E, 672.24 feet
- 3- S 69° 24' 50" E, 885.39 feet to the true point of beginning; and

That portion of the northeast quarter (NE¼) of the northeast quarter (NE¼) of Section 34 located south and east of the center line of the Cache La Poudre River, all in Township 6 North, Range 66 West of the 6th P.M.

EXHIBIT B
AUGMENTATION/REPLACEMENT WATER DELIVERIES
TO LAFARGE WEST, INC.

Month	Delivery Amount (ac-ft)
November	9.59
December	9.59
January	9.59
February	9.59
March	9.59
April	7.66
May	9.99
June	13.22
July	14.67
August	13.80
September	10.17
October	7.55
Total	125.01

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

Bill Ritter, Jr.
GovernorJames B. Martin
Executive DirectorLoretta E. Piñeda
Director

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](tel:970-352-8712)) 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. All wells must be decreed by the water court, permitted by the state engineer or included in a decreed plan for augmentation. Unregistered and undeclared 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)