



DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RESOURCES

February 7, 2014

John W. Hickenlooper
Governor

Mike King
Executive Director

Dick Wolfe, P.E.
Director/State Engineer

Mr. Jared Dains
Applegate Group, Inc.
1490 W. 121st Avenue, Suite 100
Denver, CO 80234

Re: Lafarge Middle Poudre Combined Substitute Water Supply Plan (WDID 0302533)
Three Bells Pit, DRMS Permit No. M-1979-191 (WDID 0303023)
Section 13, T6N, R68W, 6th P.M.
Kyger Pit, DRMS Permit No. M-1999-088 (WDID 0303025)
Section 13, T6N, R68W, 6th P.M.
Shields Mine, DRMS Permit No. M-2006-064 (WDID 0303027)
Section 33, T7N, R68W, 6th P.M.
Water Division 1, Water District 3, Larimer County

Approval Period: January 1, 2014 through December 31, 2014
Contact Phone Number for Mr. Jared Dains: 303-452-6611

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FEB 10 2014
Division of Reclamation,
Mining & Safety

Dear Mr. Dains:

We have received your letter dated November 21, 2013, requesting renewal of the above referenced substitute water supply plan to cover depletions caused by gravel mining operations at three (3) locations operated by Martin Marietta Materials, Inc. ("MMM" or "Applicant") along the Cache La Poudre River. The Three Bells Pit, Kyger Pit, and Shields Mine were previously operated by Lafarge West, Inc. ("Lafarge") under Lafarge's combined SWSP. MMM has taken over operation of this SWSP. The required fee of \$771 (3 × \$257) has been submitted (receipt no. 3662617). Table A below describes the sites that are included in this combined replacement plan. A map showing the location of the sites is attached as Figure 1.

Table A - Combined Replacement Plan Sites

Site Name	DRMS Permit No.	WDID	Exposed Surface Area (acres)	Well Permit No.	New Permit Required?
Three Bells Pit	M-1979-191	0303023	20.1 Jan – Aug 2014; 2.0 Sept – Dec 2014 ^a	64818-F	No
Kyger Pit	M-1999-088	0303025	0	76210-F	No
Shields Mine	M-2006-064	0303027	21.7	76137-F	No

^a Anticipates DiTullo portion of site will be dewatered by September 2014.

The East Rigden Pit (M-1979-097, WDID 0303021) was previously included in Lafarge's combined SWSP through March 31, 2013. On March 11, 2013, the Division of Reclamation, Mining, and Safety ("DRMS") approved a succession of operators from Lafarge West, Inc. to Cottonwood Land and Farms, LLC, which transitioned operator responsibility including reclamation and long-term augmentation responsibilities for the East Rigden Pit to Cottonwood Land and Farms, LLC.

The Port of Entry Pit (M-1982-182, WDID 0303026) was removed from the combined plan as of January 1, 2012 and is currently covered under an individual SWSP (WDID 0302533); however, replacements for the Port of Entry Pit will continue to come from credits generated through this SWSP.

The credits dedicated to the Port of Entry Pit are listed as depletions against this plan. For additional information regarding operations at the Port of Entry Pit, see its individual SWSP.

Depletions

Three Bells Pit

Consumptive use at the Three Bells Pit will consist of evaporation, water used for dust control, and water lost in the mined product. The Three Bells Pit consists of two primary mining cells, the "Veldman" parcel to the southeast and the "DiTullio" parcel to the northwest. Mining operations are expected to be completed at the Veldman parcel this year and shift to the DiTullio parcel. MMM anticipates that the DiTullio parcel will be dewatered by September 2014 in preparation for mining operations. Continuous dewatering at the Three Bells Pit is anticipated to occur throughout 2014. The Applicant has proposed that during free river conditions the water pumped from the Three Bells Pit for dewatering purposes be delivered to the Kyger Pit for storage and later use. At times when there is a call on the river, the water will be delivered to the stream system. So long as the parcel is continuously dewatered, the water returned to the stream system will be considered to be adequate to offset depletions attributable to the dewatering. The Applicant will take meter readings before and after changing the point of discharge to calculate the volume of water delivered to the Kyger Pit and to the stream system. The Applicant is required to notify the water commissioner and confirm that free river conditions exist prior to each delivery of water into the Kyger Pit. The Applicant has confirmed that meters have been installed on all dewatering systems, and meter readings will be included in the monthly accounting. Within 60 days of the date of this approval, the Applicant must install a staff gage to accurately measure the volume of water in the Kyger Pit at least monthly, or on a more frequent basis if required by the water commissioner. The recorded volume must be included in the monthly accounting for this plan.

The exposed surface area at the site was estimated to be 20.1 acres through August 2014, and to decrease to 2.0 acres from September through December of 2014. Net evaporative depletions were calculated using a gross annual evaporation of 39 inches from the exposed water surface, with a credit of 8.75 inches for effective precipitation.

A total of 645,000 tons of material is anticipated to be mined at the site during this plan period. The material is mined below the water table in a dewatered state and is not washed; therefore the water retained in the mined product is considered to be 2.0% of the mined material by weight.

You have estimated that 21.79 acre-feet of water will be used for dust control purposes during this plan period. Previous SWSPs have indicated that some water use for dust control may occur off-site. Any use of the water for dust control purposes, either at this site or at another location, must be related to gravel mining operations.

Kyger Pit

There will be no aggregate production or other consumption of ground water at the site during this SWSP approval period. The Kyger Pit was lined in mid-2013 and began its liner test on July 3, 2013; however, the test was suspended prior to completion due to flooding that occurred in September 2013. During the September 2013 flood event, surface water flowed into the lined pit. There was no call on the river at the time the water flowed into the gravel pit, therefore this diversion of surface water is not considered to have been out-of-priority. As such, there are no evaporative depletions that need to be replaced associated with the diversion and storage of this surface water. A modified 45-day liner test of the breach location was commenced on December 3, 2013 and completed on January 16, 2014. On January 24, 2014 the compacted clay liner was approved by the State Engineer's Office as meeting the design standard for liners, and the Kyger Pit is now classified as a lined reservoir in accordance with the 1999 SEO Guidelines. Lagged dewatering depletions, as shown in Table B below,

are from past dewatering operations that ceased in mid-2013 but continue to impact the stream system.

Shields Mine

Consumptive use of ground water at the Shields Mine is limited to evaporation from 21.7 acres of exposed surface area. Net evaporative depletions were calculated using a gross annual evaporation of 39 inches from the exposed water surface, with a credit of 9.80 inches for effective precipitation. In addition, there continue to be lagged depletions resulting from the cessation of dewatering operations at the site in June 2011.

Total Depletions

The depletions to be replaced under this SWSP are summarized in Table B on the following page. You have assumed an ice covered period to occur during the months of January, February, and December 2014 and have reduced the computation of evaporation accordingly. However, for the purpose of this SWSP, the Applicant shall replace the net evaporation depletions from the exposed ground water surface area that may occur during the assumed ice covered period (January, February, and December) for any time that the pit is not completely covered by ice. Computation of the net evaporation during any time that the pit is not completely covered by ice shall be determined as the pro-rata amount of the monthly gross evaporation rate distribution amount identified in the State Engineer's *General Guidelines for Substitute Supply Plans for Sand and Gravel Pits*, subtracting the pro-rata amount of the effective precipitation for that period.

Table B – Depletion Summary (all amounts in acre-feet)

Site Name	Evaporation Loss	Water Lost in Mined Product	Dust Control	Total	Lagged Depletions	Lagged Dewatering Depletions ^a	Total Lagged Depletions
Three Bells Pit	35.79	9.49 (645,000 tons)	21.79	67.07	64.35	0 ^b	64.35
Kyger Pit	0	0	0	0	7.73	34.74	42.48
Shields Mine	47.64	0	0	47.64	41.32	1.75	43.07
Sub-Total							149.90
Credits Dedicated to Port of Entry Pit (M-1982-182)							69.83
Total							219.73

^a Lagged Dewatering Depletions, as shown in the table, are from past dewatering operations that have ceased but continue to impact the stream system.

^b So long as the pit is continuously dewatered, the water returned to the stream system is considered to be adequate to offset depletions attributable to the dewatering.

A stream depletion model using the Glover method was used to calculate the lagged depletions to the Cache La Poudre River. The alluvial aquifer model uses four aquifer input parameters for each site as follows: 1) X-distance from centroid of exposed ground water to river, 2) W-distance from the aquifer boundary through the well to the river channel, 3) T-transmissivity of the alluvial aquifer (in gallons per foot/day) between the well and the river, and 4) S-specific yield - 0.2 was used for all wells. The parameters used in the model for each site are given in Table C.

Table C – IDS AWAS Lagging Parameters

Site Name	T (gpd/ft)	X (ft)	W (ft)	S
Three Bells Pit	45,000	1,900	4,800	0.2
Kyger Pit	45,000	1,800	5,200	0.2
Shields Mine	55,000	3,700	8,000	0.2

The total lagged mining depletions for the three sites are 149.90 acre-feet, as shown in Table B above. Including the credits that are dedicated to the Port of Entry Pit, the total projected depletions for the 2014 plan period are 219.73 acre-feet. See attached Table 1 for a monthly breakdown of depletions by site.

Replacements

Replacement water for this combined plan will come from the following sources: accretion credits from recharge of 5.0 shares of the Box Elder Ditch Company and releases of water stored in the Kyger Pit.

Lafarge previously owned and dedicated to this plan 5.0 shares in the Box Elder Ditch Company. The 5.0 Box Elder Ditch Company shares have been sold; however, as a term of the sale these 5.0 shares are available for replacement use under this SWSP during the 2014 irrigation year.

The Box Elder Ditch is divided into 64 Box Elder Ditch Company ("BEDC") shares. The 5.0 shares available for use in this plan are from the group of 5.5 shares previously owned by Lafarge that were historically associated with the Three Bells Farm. A total of 6.0 BEDC shares were historically utilized for the irrigation of 344.3 acres at the Three Bells Farm. The historical consumptive use credit of Lafarge's 5.5 BEDC shares associated with the Three Bells property was determined to be 281.4 acre-feet, based on a historical consumptive use analysis that was completed in support of an application for an augmentation plan pending in case no. 2002CW205. The dry-up acreage claimed for Lafarge's 5.5 shares would be 305.6 acres of the 344.3 historically irrigated acres on the Three Bells property.

Table 2 shows the average ditch diversion for the Box Elder Ditch from 1950 to 2007. Table 3 takes the average ditch diversions for the Box Elder Ditch from 1950 to 1984 and analyzes the historic consumptive use and return flows for Lafarge's 5.5 shares. Table 4 breaks this information down further to come up with the historic farm headgate diversions and return flows for the 5.0 BEDC shares to be used in this plan. As shown on Table 4, the average farm headgate diversions associated with the subject 5.0 BEDC shares is 457.0 acre-feet and the associated return flow obligations will total 201.1 acre-feet. This leaves a net consumptive use credit of 255.9 acre-feet, or 51.2 acre-feet per share.

The 5.0 BEDC shares will be diverted into a recharge pit (WDID 0302002) through an existing lateral from the ditch. The recharge pit was constructed on the un-mined portion of the Three Bells Pit site and it was excavated to only the upper portion of the gravel deposit and will not expose additional ground water. The estimated recharge pit size is one (1) acre. For the purposes of this plan, evaporation from open water was assumed for the entire surface area of the recharge pit for the number of days water was diverted into the recharge pit. Based on this approach, the proportion of days with water diverted into the recharge pit to the number of days per month was applied to the monthly gross evaporation rate, resulting in an evaporative consumptive use from the recharge pit of approximately 2.04 acre-feet.

In 2013, the previous plan operator (Lafarge) diverted a total of 576.88 acre-feet into the recharge site associated with these 5.0 shares. MMM is projecting to deliver the average headgate diversion 457.0 acre-feet into recharge for 2014. The monthly timing of 457.0 acre-feet (full farm headgate delivery of the 5.0 shares) was used in the recharge model to determine the recharge accretion credits for 2014. The recharge model uses the following parameters: transmissivity (T) = 45,000 gallons/day/foot, the distance of centroid of the recharge pit to the Cache La Poudre River (X) = 1,600 feet, the distance from the parallel impermeable boundary to the Cache La Poudre River (W) =

5,000 feet, and the specific yield (S) = 0.2. The lagged accretions to the Cache la Poudre River are estimated to total 473.03 acre-feet for this approval period (includes carry over from recharge in previous years), with return flow obligations totaling 207.71 acre-feet for this approval period. Actual recharge credits and return flow obligations will be based on the actual deliveries made for replacement purposes in this SWSP.

As shown on Table 5, recharge credits from the 5.0 BEDC shares are insufficient to meet replacement obligations (pit depletions plus return flow obligations) for the period of March through June of 2014. During this time period, water diverted under free river conditions during the September 2013 flood event and stored in the Kyger Pit (M-1999-088, WDID 0303025) will be released for use as an additional replacement source. The Kyger Pit is located in Section 13, T6N, R68W, 6th P.M. The Kyger Pit was lined in mid-2013 and began its liner test on August 1, 2013. During the flood event in mid-September of 2013, river water overtopped the pit walls and entered the Kyger Pit. Due to the completion of the liner and the positive initial performance of the liner during the test, you have assumed that all water in the Kyger Pit is surface water diverted under free river conditions and as such may be used for replacement purposes. You have estimated that 20 acre-feet of water will be released from the Kyger Pit during this plan period. The current owner of the Kyger Pit, River Bluffs Ventures, LLC, provided a letter dated January 14, 2014 stating that they have reserved 20 acre-feet of the water stored in the Kyger Pit for use as a replacement source in this plan.

A monthly breakdown of the stream depletions from the mining operations as well as the replacements is shown in the attached Table 5. Should actual recharge deliveries vary from those projected in this SWSP, MMM proposes to acquire supplemental lease water as needed in order to fully replace all depletions during this plan period.

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 ground water. The DRMS letter (attached) identifies four approaches to satisfy this requirement.

According to the SWSP request, the landowner plans to amend the mining permit for the Three Bells Pit to allow lined storage. During the amendment process, the DRMS bond will be increased to provide for the cost of lining the site, in accordance with approach no. 3.

The Kyger Pit is currently bonded for \$717,000 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, in accordance with approach no. 3.

The Shields Mine is currently bonded for \$277,500 to cover the cost of backfilling of the pit to cover the exposed ground water to a depth of two feet above the static ground water level, in accordance with approach no. 1. It is anticipated that the City of Fort Collins will soon take possession of the site and will be responsible for providing long-term augmentation.

A summary of the final reclamation and the compliance approach to the DRMS letter, including the current posted bond amounts, is shown in Table D.

Table D – Final Reclamation Summary

Site Name	Proposed Final Reclamation	Bond Amount	DRMS Approach No.	Comments
Three Bells Pit	To be amended to Lined Reservoir	\$758,400	3	Mining permit to be amended to allow lined storage; bond amount to be increased to provide for cost of lining site during amendment process.
Kyger Pit	Lined Reservoir	\$717,000	3	Bonded for lining. Liner was approved by the SEO on January 24, 2014.
Shields Mine	Groundwater Lake	\$277,500	1	Plan for augmentation must be filed. City of Fort Collins to take possession of site and provide long-term augmentation.

Conditions of Approval

I hereby approve the proposed substitute water supply plan in accordance with Section § 37-90-137(11), C.R.S. subject to the following conditions:


1. This plan shall be valid for the period of January 1, 2014 through December 31, 2014, unless otherwise revoked or modified. If the sites included in this SWSP are not fully lined and approved or a plan for augmentation will not be made absolute by a water court action by the plan's expiration date, a renewal request must be submitted to this office with the statutory fee for each gravel pit (currently \$257 per pit) no later than **November 15, 2014**.
2. Well permits have been obtained for the current use and exposed ground water surface at each site in accordance with § 37-90-137(2) and (11), C.R.S., as shown in Table A.
3. The total area of pond surface exposed for each of the pits shall not exceed those values listed in Table A of this approval. Should the total surface area exposed exceed those amounts, an amendment request shall be promptly filed with this office.
4. The total amount of ground water to be consumed at each of the pits shall not exceed the values listed in Table B of this approval. Total consumption at each pit must not exceed these amounts unless an amendment is made to this plan.
5. Approval of this plan is for the purposes as stated herein. Any additional uses of this water must first be approved by this office. Any future additional historical consumptive use credit given (e.g., agricultural water transfer) for this site must consider all previous credits given.
6. All pumping for dust control shall be measured in a manner acceptable to the division engineer.
7. All releases of replacement water must be sufficient to cover all out of priority depletions and be made under the direction and/or approval of the water commissioner. The replacement may be aggregated to maximize beneficial use. The water commissioner and/or division engineer shall determine the rate and timing of an aggregated release.
8. The Applicant has proposed to use for replacement, if needed, water available from any other source legally available for augmentation and which can be provided in the amount, at the time, and at the location required to replace out of priority depletions from the subject pits. Additional sources of replacement water in this SWSP may only be used if the Applicant complies with the attached Division One Administration Protocol *"Use of Replacement Sources Not Specifically Identified in an SWSP or Augmentation Plan"*.
9. Applicant shall replace the net evaporative depletions from the exposed ground water surface area that may occur during the assumed ice covered period (December through February) for any time that the exposed ground water in the pit is not completely covered by ice.

10. The water attributable to the 5.0 shares of the Box Elder Ditch Company must continue to be diverted in priority at the ditch and then measured into the Three Bells recharge site. Adequate measuring devices acceptable to the water commissioner must be installed.
11. The replacement water, which is the subject of this plan cannot be sold or leased to any other entity. As a condition of subsequent renewals of this substitute water supply plan, the replacement water must be appurtenant to this site until a plan for augmentation or liner approval is obtained for each site. All replacement water must be concurrent with depletions in quantity, timing, and locations.
12. The name, address, and phone number of the contact person who will be responsible for the operation and accounting of this plan must be provided on the accounting forms submitted to the division engineer and the water commissioner.
13. Adequate accounting of depletions and replacements must be provided to the division engineer in Greeley (Div1Accounting@state.co.us) and the water commissioner (Mark Simpson at Mark.Simpson@state.co.us) on a monthly basis. Submitted accounting shall conform to the Administration Protocol "Augmentation Plan Accounting, Division One – South Platte River" (attached).
14. The amount and location of the dry-up of the irrigated acreage associated with the subject 5.0 shares of the Box Elder Ditch Company was previously documented and approved by the division engineer and water commissioner.
15. Dewatering at the Three Bells Pit will produce delayed depletions to the stream system. As long as the pit is continuously dewatered, the water returned to the stream system should be adequate to offset the depletions. However, once dewatering at the site ceases, the delayed depletions must be addressed. Once dewatering at the sites cease, the delayed depletions must be addressed, including depletions resulting from the gradual refilling of the pit. Accordingly, dewatering at the Three Bells Pit is required to continue during the term of this approval. At least three years prior to completion of dewatering, a plan must be submitted that specifies how the post pumping dewatering depletions (including refilling the pit) will be replaced, in time, place and amount. Monthly dewatering volumes, as reported through each meter, must be included with the submitted accounting.
16. The Applicant is required to notify the water commissioner and confirm that free river conditions exist prior to each delivery of dewatering water from the Three Bells Pit into the Kyger Pit.
17. Within 60 days of the date of this approval, the Applicant must install a staff gage to accurately measure the volume of water in the Kyger Pit at least monthly, or on a more frequent basis if required by the water commissioner. The recorded volume must be included in the monthly accounting for this plan.
18. **If reclamation of any 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 to include, but not be limited to, long-term evaporation losses and lagged depletions.** According to the SWSP request, mining and reclamation at the Shields Mine is complete and there remains an unlined pond on site. Please be aware that this office will object to full reclamation release for the Shields Mine unless it is included in a decreed plan for augmentation or has been backfilled. Granting of this plan does not imply approval by this office of any such court application(s).
19. If a lined pond results after reclamation at any site, replacement of lagged depletions shall continue until there is no longer an effect on stream flow.

20. To assure that depletions from ground water evaporation do not occur in the unforeseen event, or events, that would lead to the abandonment of the pits included in this SWSP, bonds have been obtained through the DRMS for lining or backfilling of the pits, as shown in Table D. Additionally, if the dewatering at the Three Bells Pit is discontinued, the bond can finance the completion of the lining of the pit or the backfilling, thus preventing depletions to the stream system.
21. This substitute water supply plan may be revoked or modified at any time should it be determined that injury to other vested water rights has or will occur as a result of this plan. Should this supply plan expire without renewal or be revoked prior to adjudication of a permanent plan for augmentation, all use of ground water must cease immediately.
22. In accordance with amendments to § 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 analysis may be requested at any time to determine if the water quality is appropriate for downstream water users.
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 pending water court case or any other legal action that may be initiated concerning this plan. This decision shall not bind the state engineer to act in a similar manner in any other applications involving other plans, or in any proposed renewal of this plan, 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 Michael Hein, Assistant Division Engineer, in Greeley at (970) 352-8712 or Sarah Brucker in Denver at (303) 866-3581.

Sincerely,

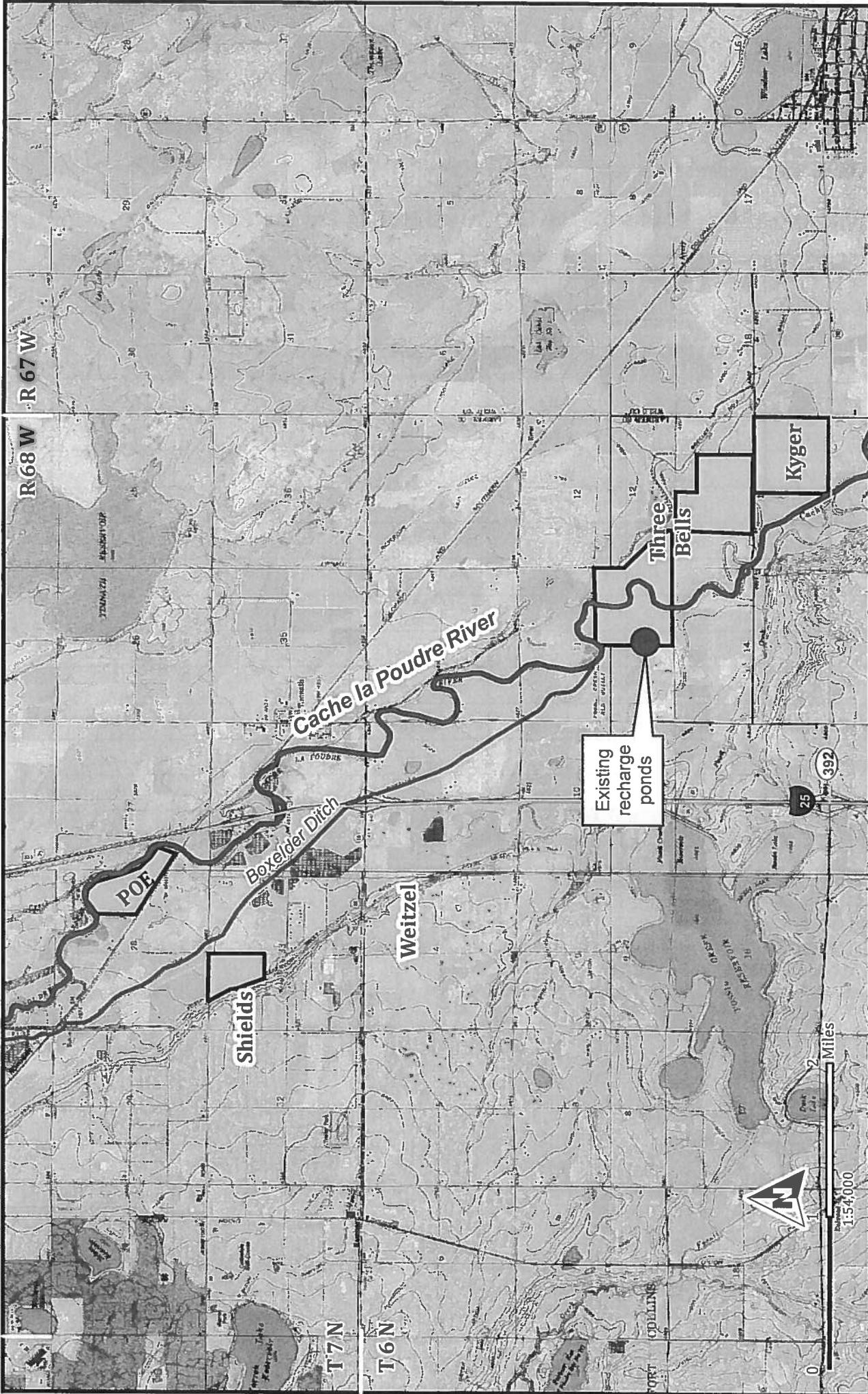

for Jeff Deatherage, P.E.
Chief of Water Supply

Attachments: Figure 1
Tables 1–5
River Bluffs January 14, 2014 letter
Augmentation Protocol *"Augmentation Plan Accounting, Division One – South Platte River"*
Division One Administration Protocol *"Recharge"*
Division One Administration Protocol *"Use of Replacement Sources Not Specifically Identified in an SWSP or Augmentation Plan"*

Cc: Michael Hein, Assistant Division Engineer, Division 1, Div1Accounting@state.co.us
810 9th Street, Suite 200, Greeley, CO 80631

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

Division of Reclamation Mining and Safety



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MIDDLE POUDRE COMBINED SWSP
Box Elder Shares Recharge Map
WATER RESOURCE
STATE ENGINEER
COLO
E10297 AON

Date: 21 Nov 2013

Job #: 13-106

Drawn By: JMD

Figure:

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Table No. 1

Middle Poudre Combined SWSP 2014

**Total Lagged Depletions for the Combined Middle Poudre Plar**

11/21/2013

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Month	Kyger Pit Lagged Depletions (ac-ft) (B)	POE Pit Depletions (ac-ft) (C)	Three Bells Pit Lagged Depletions (ac-ft) (D)	Shields Mine Lagged Depletions (ac-ft) (F)	Total Poudre Lagged Depletions (ac-ft) (G)
Jan-14	5.43	0.83	4.07	3.75	14.07
Feb-14	4.96	0.65	3.52	3.37	12.51
Mar-14	4.55	2.68	3.49	3.06	13.79
Apr-14	4.18	4.63	4.25	2.91	15.97
May-14	3.84	5.91	5.04	2.95	17.74
Jun-14	3.53	8.30	5.78	3.11	20.72
Jul-14	3.25	9.84	6.69	3.41	23.19
Aug-14	2.99	9.64	7.44	3.81	23.87
Sep-14	2.75	10.96	7.40	4.14	25.24
Oct-14	2.53	9.71	6.31	4.28	22.84
Nov-14	2.33	4.86	5.52	4.24	16.95
Dec-14	2.14	1.83	4.83	4.05	12.84
Total	42.48	69.83	64.35	43.07	219.73

NOTES:

(A) East Ridgen Pit lagged depletions

(B) Kyger Pit lagged depletions

(C) Replacement for POE Pit depletions; debited against Lafarge's Middle Poudre SWSP as a depletion

(D) Three Bells Pit lagged depletions

(E) Weitzel Pit grant of accretion credits to Stoner & Company; debited against Lafarge's Middle Poudre

(F) Shields Mine lagged depletions

(G) Total lagged depletions, (A)+(B)+(C)+(D)+(E)+(F)

Table No. 2

Middle Poudre Combined SWSP 2014

Box Elder Ditch Diversions

11/21/2013
10-106

All diversions in acre-feet													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1950	0.0	0.0	0.0	0.0	902.5	1751.4	2092.6	1000.7	654.6	0.0	0.0	0.0	6401.8
1951	0.0	0.0	0.0	0.0	1144.5	1759.4	2221.5	626.8	1053.2	0.0	0.0	0.0	6805.4
1952	0.0	0.0	0.0	0.0	729.9	2423.8	1519.4	2110.4	1465.8	136.9	0.0	0.0	8386.2
1953	0.0	0.0	0.0	0.0	1569.0	2376.2	2388.1	1809.0	769.6	0.0	0.0	0.0	8911.9
1954	0.0	0.0	0.0	95.2	2570.6	2114.4	2217.6	825.1	597.0	382.8	0.0	0.0	8802.8
1955	0.0	0.0	0.0	140.8	2029.1	944.2	2171.9	1281.3	599.0	0.0	0.0	0.0	7166.4
1956	0.0	0.0	0.0	0.0	743.8	1779.2	2402.0	1071.1	376.9	1033.4	0.0	0.0	7406.4
1957	0.0	0.0	0.0	0.0	0.0	1073.1	2332.6	1709.8	831.1	0.0	0.0	0.0	5946.5
1958	0.0	0.0	0.0	0.0	0.0	1152.4	2031.1	1723.7	809.3	45.6	0.0	0.0	5762.1
1959	0.0	0.0	0.0	0.0	390.8	2332.6	2294.9	2054.9	489.9	0.0	0.0	0.0	7563.1
1960	0.0	0.0	0.0	226.1	1051.3	1697.9	2283.0	1559.0	664.5	73.4	0.0	0.0	7555.2
1961	0.0	0.0	0.0	0.0	172.6	805.3	1884.3	1440.0	489.9	0.0	0.0	0.0	4792.2
1962	0.0	0.0	0.0	333.2	1691.9	1235.7	2005.3	1814.9	662.5	0.0	0.0	0.0	7743.6
1963	0.0	0.0	0.0	317.4	2469.5	979.9	2271.1	610.9	557.4	0.0	0.0	0.0	7206.1
1964	0.0	0.0	0.0	0.0	1953.8	1180.2	2689.6	1168.3	634.7	714.1	0.0	0.0	8340.6
1965	0.0	0.0	0.0	0.0	1451.9	244.0	1356.7	1610.6	632.7	0.0	0.0	0.0	5295.9
1966	0.0	0.0	0.0	162.7	1570.9	1112.7	2292.9	569.3	240.0	196.4	0.0	0.0	6144.9
1967	0.0	0.0	0.0	0.0	491.9	71.4	1031.4	1658.2	559.4	406.6	0.0	0.0	4218.9
1968	0.0	0.0	0.0	0.0	1063.2	1211.9	2457.6	1327.0	888.6	452.2	17.9	0.0	7418.3
1969	0.0	0.0	0.0	7.9	787.5	688.3	2249.3	1426.1	339.2	0.0	0.0	0.0	5498.3
1970	0.0	0.0	0.0	0.0	686.3	646.6	1662.2	1741.5	370.9	0.0	0.0	0.0	5107.5
1971	0.0	0.0	0.0	0.0	164.6	1989.5	2175.9	1549.1	372.9	0.0	0.0	0.0	6252.0
1972	0.0	0.0	0.0	75.4	1338.9	1049.3	2128.3	1275.4	158.7	210.3	0.0	0.0	6236.1
1973	0.0	0.0	0.0	0.0	271.7	1759.4	2132.3	1761.4	783.5	65.5	0.0	0.0	6773.7
1974	0.0	0.0	0.0	0.0	1747.5	1380.5	2269.1	1721.7	660.5	121.0	0.0	0.0	7900.3
1975	0.0	0.0	0.0	0.0	910.4	741.8	2503.2	1666.1	569.3	214.2	0.0	0.0	6605.1
1976	0.0	0.0	0.0	0.0	737.9	2060.9	2703.5	2126.3	716.0	33.7	0.0	0.0	8378.3
1977	0.0	0.0	0.0	0.0	1535.2	2532.9	1188.3	1192.1	752.3	412.6	0.0	0.0	7613.5
1978	0.0	0.0	0.0	77.6	256.3	1163.7	2488.5	2174.9	839.0	0.0	0.0	0.0	7000.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	2222.9	1116.9	54.0	0.0	0.0	0.0	3393.8
1980	0.0	0.0	0.0	0.0	0.0	1444.8	1692.9	1481.7	536.1	0.0	0.0	0.0	5155.5
1981	0.0	0.0	0.0	11.9	654.0	1402.3	2276.1	1042.9	214.0	0.0	0.0	0.0	5601.2
1982	0.0	0.0	0.0	115.6	622.8	279.5	1802.8	1566.8	220.0	0.0	0.0	0.0	4627.5
1983	0.0	0.0	0.0	0.0	0.0	0.0	1798.6	1960.9	182.3	0.0	0.0	0.0	3941.8
1984	0.0	0.0	0.0	0.0	180.9	1549.9	1953.6	1874.2	772.4	74.8	0.0	0.0	6405.7
1985	0.0	0.0	0.0	0.0	806.5	1794.3	1907.1	1776.6	313.1	0.0	0.0	0.0	6597.6
1986	0.0	0.0	0.0	0.0	933.8	1490.0	2171.4	1232.0	617.9	120.5	0.0	0.0	6565.6
1987	0.0	0.0	0.0	73.6	465.9	1142.3	2009.1	1349.0	274.0	68.6	0.0	0.0	5382.4
1988	0.0	0.0	0.0	0.0	479.8	1533.6	1902.6	1369.6	525.5	74.8	0.0	0.0	5885.9
1989	0.0	0.0	0.0	75.5	783.5	666.3	1930.9	998.7	315.2	0.0	0.0	0.0	4770.0
1990	0.0	0.0	0.0	0.0	268.0	1100.1	1262.1	926.8	389.8	0.0	0.0	0.0	3946.7
1991	0.0	0.0	0.0	0.0	321.9	1007.0	1860.7	1267.1	348.7	0.0	0.0	0.0	4805.4
1992	0.0	0.0	0.0	0.0	837.2	1021.9	936.4	1264.6	363.4	372.5	0.0	0.0	4796.0
1993	0.0	0.0	0.0	0.0	729.9	988.8	1628.1	1766.3	191.0	47.9	0.0	0.0	5352.0
1994	0.0	0.0	0.0	330.3	546.3	1316.3	1694.3	1119.3	661.1	0.0	0.0	0.0	5667.5
1995	0.0	0.0	0.0	281.5	117.0	368.5	1217.3	2240.4	956.6	191.6	0.0	0.0	5372.9
1996	0.0	0.0	0.0	237.0	1436.1	896.9	2091.8	1240.5	843.8	478.0	0.0	0.0	7224.1
1996	0.0	0.0	0.0	174.9	1334.1	665.1	1994.4	320.9	457.6	389.3	0.0	0.0	5336.3
1998	0.0	0.0	0.0	0.0	858.5	1119.5	2088.2	1800.0	886.2	0.0	0.0	0.0	6752.4
1999	0.0	0.0	0.0	92.4	0.0	186.5	2036.3	1755.0	977.9	88.4	0.0	0.0	5136.4
2000	0.0	0.0	0.0	483.8	1022.7	1728.2	1933.1	1251.6	1171.1	306.7	0.0	0.0	7897.1
2001	0.0	0.0	0.0	159.1	447.3	1311.7	1815.7	1727.4	797.4	542.9	0.0	0.0	6801.5
2002	0.0	0.0	0.0	181.3	1398.8	1207.2	1369.0	414.9	552.3	608.5	292.0	0.0	6024.0
2003	0.0	0.0	0.0	188.8	484.1	894.2	1949.6	1595.1	742.4	734.1	295.5	0.0	6883.9
2004	0.0	0.0	0.0	698.2	790.4	844.6	1834.1	1489.4	708.1	468.3	97.6	0.0	6930.8
2005	0.0	0.0	0.0	166.1	960.9	584.7	2299.3	1455.1	647.4	391.1	241.8	0.0	6746.4
2006	0.0	0.0	0.0	420.5	1066.3	1948.8	1767.7	848.2	819.6	474.3	136.8	0.0	7482.2
2007	0.0	0.0	0.0	77.0	1212.5	1429.5	2118.4	1571.9	875.5	357.7	0.0	0.0	7642.5
Avg.	0.0	0.0	0.0	89.7	848.1	1210.0	1982.9	1421.5	602.6	177.4	18.6	0.0	6351.0
Avg for 5 Shares	0.0	0.0	0.0	7.0	66.3	94.5	154.9	111.1	47.1	13.9	1.5	0.0	496.2
Max .	0.0	0.0	0.0	698.2	2570.6	2532.9	2703.5	2240.4	1465.8	1033.4	295.5	0.0	8911.9
Max for 5 Shares	0.0	0.0	0.0	54.5	200.8	197.9	211.2	175.0	114.5	80.7	23.1	0.0	696.2

Table No. 3
Martin Marietta Materials, Inc.
Middle Poudre Combined SWSP

Prepared By: Applegate Group, Inc.
Date Revised: 11/21/2013
AG Job#: 10-106

Historic Consumptive Use and Return Flows for 5.5 Box Elder Ditch Share used at Three Bells Property

Month	Average Headgate Diversion (ac-ft) (A)	Prorata Diversion For 6.0 Shares (ac-ft) (B)	Diversion Available at Farm Headgate (ac-ft) (C)	Water Available for Crop Consumption (ac-ft) (D)	Potential Irrigation Requirement (ac-ft) (E)	Calculated CU Credit (ac-ft) (F)	Total Return Flows (ac-ft) (G)	Surface Return Flows (ac-ft) (H)	Subsurface Return Flows (ac-ft) (I)	Lagged Subsurface Return Flows (ac-ft) (J)	Historic/Accretions & Depletions 6.0 Shares (ac-ft) (K)	Historic/Accretions & Depletions 5.5 Share (ac-ft) (L)
Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.53	-9.53	-8.74
Feb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.29	-8.29	-7.60
Mar	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.33	-7.33	-6.72
Apr	44.30	4.15	3.74	2.24	5.00	2.24	1.50	0.30	1.20	6.70	-3.26	-2.99
May	907.30	85.06	76.55	45.93	34.00	34.00	42.55	8.51	34.04	10.72	57.32	52.54
Jun	1283.80	120.36	108.32	64.99	123.00	64.99	43.33	8.67	34.66	18.58	81.07	74.31
Jul	2091.20	196.05	176.45	105.87	140.00	105.87	70.58	14.12	56.46	25.12	137.21	125.77
Aug	1470.60	137.87	124.08	74.45	66.00	66.00	58.08	11.62	46.47	31.24	81.23	74.46
Sep	571.40	53.57	48.21	28.93	30.00	28.93	19.28	3.86	15.43	28.50	15.86	14.53
Oct	130.70	12.25	11.03	6.62	5.00	5.00	6.03	1.21	4.82	20.88	-10.86	-9.96
Nov	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	14.95	-14.95	-13.71
Dec	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.42	-11.42	-10.47
Total	6499.3	609.3	548.4	329.0	404.0	307.0	241.3	48.3	193.1	193.1	307.0	281.4

- (A) Average Headgate Diversions for Box Elder Ditch (1950 to 1984)
 (B) Prorata Diversion for 6.0 Box Elder Shares (64 total shares in ditch)
 (C) Available at Farm Headgate = (B) Prorata Diversions for 6.0 shares * 90% (10% Ditch Losses)
 (D) Water Available for Crop Consumption = (C) Farm Headgate Delivery * 60% Field Efficiency
 (E) Potential irrigation requirement and crop demand from CSU SP CU Model Modified Blaney-Criddle Model Run (Appendix F)
 (F) Calculated CU credit for 6.0 Box Elder Ditch shares, whichever is less, (D) or (E)
 (G) Return Flows at Farm, (C)-(F)
 (H) Surface return flows, (G) Total return flows * 0.2
 (I) Subsurface return flows, (G) Total return flows * 0.8
 (J) Lagged subsurface return flows at river, from lagging model where X = 1,500 ft, W = 4,800 ft, T = 50,000 gpd/ft, and S = 0.2
 (K) Historic accretions and depletions for 6.0 Box Elder Shares used at Three Bells Property
 (L) Historic accretions and depletions for 5.5 Box Elder Share owned by Lafarge from Three Bells

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Table No. 4
Martin Marietta Materials, Inc.
Middle Poudre Combined SWSP

Prepared By: Applegate Group, Inc.
Date Revised: 11/21/2013
AG Job #: 10-106

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Historic Farm Headgate Diversions and Return Flows for 5.0 Box Elder Ditch Shares

Month	5.0 Shares from Three Bells Farm					
	Farm Headgate Diversions	Surface Return Flows	Lagged Subsurface Return Flows	Total Return Flows	Net Depletions	RF Obligation Percentages
	(ac-ft) (A)	(ac-ft) (B)	(ac-ft) (C)	(ac-ft) (D)	(ac-ft) (E)	(ac-ft) (F)
Jan	0.00	0.00	7.94	7.94	-7.94	1.7%
Feb	0.00	0.00	6.91	6.91	-6.91	1.5%
Mar	0.00	0.00	6.11	6.11	-6.11	1.3%
Apr	3.11	0.25	5.58	5.83	-2.72	1.3%
May	63.79	7.09	8.94	16.03	47.77	25.1%
Jun	90.27	7.22	15.49	22.71	67.56	25.2%
Jul	147.04	11.76	20.93	32.70	114.34	22.2%
Aug	103.40	9.68	26.03	35.71	67.69	34.5%
Sep	40.18	3.21	23.75	26.96	13.21	67.1%
Oct	9.19	1.00	17.24	18.24	-9.05	4.0%
Nov	0.00	0.00	12.46	12.46	-12.46	2.7%
Dec	0.00	0.00	9.52	9.52	-9.52	2.1%
Total	457.0	40.2	160.9	201.1	255.9	-

(A) From Table No. 3 Column (C), pro-rated to 5.0 share

(B) From Table No. 3 Column (H), pro-rated to 5.0 share

(C) From Table No. 3 Column (J), pro-rated to 5.0 share

(D) = (B) + (C)

(E) = (A) - (D)

(F) For May through September, equal to the monthly return flows divided by the monthly farm headgate diversions.

For October through April, equal to the monthly return flows divided by the total annual farmheadgate diversions

Table No. 5

Middle Poudre Combined SWSP 2014



11/21/2013
10-106

2014 Water Balance

Month	2013 FHD =					ac-ft	
	Total Combined Lagged Depletions (ac-ft) (A)	Farm Headgate Delivery for Recharge of 5 shares (ac-ft) (B)	Evap at Recharge Pit for Box Elder shares (ac-ft) (C)	Net Recharge (ac-ft) (D)	Lagged Recharge Credit of Box Elder Shares (ac-ft) (E)	Return Flow Factor (ac-ft) (F)	Return Flow Obligation (ac-ft) (G)
Jan-14	14.07	0.00		0.00	26.70	1.7%	9.81
Feb-14	12.51	0.00		0.00	23.40	1.5%	8.65
Mar-14	13.79	0.00		0.00	20.94	1.3%	7.50
Apr-14	15.97	3.11	0.21	2.91	19.22	1.3%	7.50
May-14	17.74	63.79	0.25	63.54	24.20	25.1%	16.01
Jun-14	20.72	90.27	0.36	89.91	39.61	25.2%	22.75
Jul-14	23.19	147.04	0.41	146.63	57.62	22.2%	32.64
Aug-14	23.87	103.40	0.37	103.03	73.02	34.5%	35.67
Sep-14	25.24	40.18	0.27	39.91	67.86	67.1%	26.96
Oct-14	22.84	9.19	0.17	9.02	52.11	4.0%	18.28
Nov-14	16.95	0.00		0.00	38.43	2.7%	12.34
Dec-14	12.84	0.00		0.00	29.90	2.1%	9.60
Total	219.73	456.98	2.04	454.94	473.03		207.71
							45.59
							20.0
							65.59

NOTES:

(A) Total lagged depletions from Table No. 1 Column (G)

(B) Projected and actual diversions into recharge in 2012 for 5 Box Elder Ditch Company shares

(C) Estimated evaporation losses from the recharge site assuming 1.0 acre pond at gross evaporation rate

(D) = (B) - (C)

(E) Lagged recharge from recharge model

(F) Return flow factors from Table No. 4 Column (F)

(G) May through September: Columns (B) * (F). October through April: Column (F) * Total farm headgate delivery from previous irrigation season

(H) Columns (E) - (A) - (G) (positive values indicate a net accretion)

(I) Release of free river water stored in the Kyger Pit

(J) = (H) + (I)

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January 14, 2014

Mr. James Sharn
Martin Marietta Materials, Inc.
10170 Church Ranch Way, Suite 201
Westminster, CO 80021

RE: Reservation of Stored Water in the Kyger Pit for the Middle Poudre SWSP

Dear James:

River Bluffs Ventures, LLC (hereinafter River Bluffs) owns the Kyger Pit, which is currently storing water introduced to the pit during a period of free river. To our knowledge, this water is available for augmentation use. River Bluffs has reserved 20 acre-feet of the water currently stored in Kyger for use as replacement source in Martin Marietta Materials, Inc.'s (hereinafter MMM) Middle Poudre Substitute Water Supply Plan. MMM shall be responsible for physically making the release to the river at the times needed. This water is currently scheduled to be released during the period March 2014 through June 2014.

Cordially,

Don D. Tucker, MGR
River Bluffs Ventures LLC

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:

"PlanWDID_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)

ADMINISTRATION PROTOCOL

Recharge

Division One – South Platte River

The purpose of a "recharge structure" as referenced in this document is to introduce water to the river alluvium that will result in accretions to a live stream. For the purposes of this document, a recharge structure does not include a well that is used to artificially recharge a Denver Basin bedrock aquifer. With that qualification, a recharge structure is defined as:

- A section of ditch, the losses from which can be reasonably modeled as a single source of water.
 - A pond or group of ponds that receive water from the same delivery location and can be reasonably modeled as a single source of water.
1. A written notification for each recharge structure must be provided to the water commissioner and division engineer. **The Division of Water Resources will not acknowledge any recharge activity conducted without the knowledge of the water commissioner.** The notification must include:
 - a. a map showing the location of the structure and the court case number of the plan for augmentation authorized to use the structure;
 - b. a map showing the location of the diversion point and the court case number for the decree authorizing the diversion, if any;
 - c. a map showing the location of and all information for the metering location;
 - d. the maximum water surface area of the structure;
 - e. for ditch structures, if the ditch is divided into more than one recharge reach, an explanation of how the volume diverted will be allocated to the various sections.
 2. Upon receiving written notification or decree by the water court, the division engineer will assign the structure a WDID number. The WDID number is the identification number that will be used for the administration of the structure and must be included in all correspondence and accounting reports. **(For structures that were included in a decreed plan for augmentation but were not physically constructed at the time of the decree, a written notification of the intent to construct the structure must be provided.)**
 3. Any structure that intercepts groundwater must be permitted as a well and included in a plan for augmentation or substitute water supply plan approved by the state engineer. The division engineer strongly recommends avoiding recharge structures that intercept groundwater, in order to simplify the accounting process.
 4. The flow into **EVERY** recharge structure **MUST** be metered and equipped with a continuous flow recorder unless the water commissioner in conjunction with the division engineer determines adequate records may be kept without such equipment. If the recharge structure is designed to discharge water via a surface outlet, such discharge must also be metered and equipped with a continuous flow recorder. The water commissioner **MUST** approve the use of the recharge structure **BEFORE** any credit will be given for water placed into recharge.

5. All recharge ponds must have a staff gauge installed such that the gauge registers the lowest water level in the pond. The staff gauge must be readable from a readily accessible location adjacent to the pond.
6. All recharge areas must be maintained in such a way as to minimize consumptive use of the water by vegetation. **No recharge area may be used for the planting of crops during the same irrigation year that it is used as a recharge site without prior approval from the water commissioner or division engineer.**
7. The amount of water recharged to the alluvial aquifer is determined by measuring the amount of water delivered to the recharge structure and subtracting:
 - a. the amount of water discharged from the recharge structure,
 - b. the amount of water lost to evaporation (see item 8, below),
 - c. the amount of water lost to consumptive use due to vegetation located within the recharge structure, and
 - d. the amount of water retained in the recharge structure that has not yet percolated into the ground.
8. Net evaporative losses from the recharge structure must be subtracted from the volume of water delivered to the pond. Evaporative losses must be taken every day the pond has a visible water level. If the pond does not have a stage-surface area curve approved by the water commissioner, the maximum surface area of the pond must be used to determine the evaporative losses. Monthly loss factors prorated for the number of days the pond had a visible water level may be used as may real time evaporation data from NOAA or a local weather station. If the pond is not inspected on a routine basis through the month, no prorating of monthly factors will be allowed.
9. The amount of accretions from the recharge structure will be credited only in accordance with a decreed plan of augmentation or substitute water supply plan approved by the State Engineer.
10. All water delivered for recharge must be fully consumable:
 - a. changed reservoir rights or the CU portion of changed senior ditch rights;
 - b. transbasin water that has been imported into the South Platte River basin;
 - c. nontributary water;
 - d. excess (unused) accretions from the previous recharge of fully consumable water;
 - e. water diverted in priority after "notice" of intent to fully consume the water;
 - f. water diverted under free river.
11. Water may be delivered to recharge only if the net impact of the associated plan for augmentation is not negative. Water must first be delivered or exchanged to offset negative impacts of the plan for augmentation before it may be diverted for recharge.
12. Accounting must be performed on a daily basis with reports submitted at least monthly and within 30 days of the end of the month for which the accounting is being made. The volume of water diverted into recharge must be provided to the water commissioner weekly when requested by the water commissioner.

ADMINISTRATION PROTOCOL
*Use Of Replacement Sources Not Specifically Identified
In An SWSP Or Augmentation Plan*
Division One – South Platte River

This protocol addresses the minimum standards required for use of a source of replacement water not specifically described in an SWSP or augmentation plan.

- Request to the Division Engineer and Water Commissioner must be in writing and must include:
 - the augmentation plan or SWSP provision in the purchasers plan that allows an unnamed source to be added to the plan for credit
 - the decree provision or SWSP provision in the sellers plan that allows water to be sold for use in the purchasers plan
 - the annual and monthly amount of water available from the water right to be used for replacement
 - the location at which the water will be delivered to the stream
 - a lease agreement between the seller and purchaser of the replacement water
- Applicant shall have written approval from the Division Engineer or Water Commissioner before an unnamed source is added to an augmentation plan or SWSP.
- Applicant must comply with the Augmentation Plan Accounting Protocol and, if appropriate, the Delivery of Water Protocol.

This protocol is subordinate to any decreed language addressing specific situations.