COLORADO
Division of Water Resources
Department of Natural Resources

Office of the State Engineer
1313 Sherman St, Room 821
Denver, CO 80203

December 20, 2017

David M. Heintz
Jeff A. Clark
Bishop-Brogden Associates, Inc.
333 West Hampden Avenue, Suite 1050
Englewood, CO 80110

RE: Red Canyon Mine Substitute Water Supply Plan
DRMS File No. M-85-043
Section 36, Township 16S, Range 68W, 6th P.M.
Water Division 2, Water District 12
SWSP ID 5895, WDID ID 1207865

Approval Period: December 20, 2017 through November 30, 2019
Phone number for Mr. Heintz and Mr. Clark: 303-806-8952; dheintz@bbawater.com; jclark@bbawater.com

Dear Mr. Heintz and Mr. Clark;

We have reviewed your February 28, 2017 submission, and the corrected submission dated September 14, 2017, requesting a substitute water supply plan ("SWSP") for a sand and gravel mine pursuant to §37-90-137(11), C.R.S., known as the Red Canyon Mine, operated by Martin Marietta ("MM" or "Applicant"). The mine is permitted with the Division of Reclamation, Mining, and Safety under file no. M-1985-043. The statutory $1,593 fee has been received (Receipt No. 3678586).

PLAN OPERATION

The Red Canyon Mine is an existing gravel/aggregate mine located along Red Creek, a tributary to Beaver Creek, which is tributary to the Arkansas River. MM has historically trucked water to the site for dust suppression at the mine, which is the only water use at the mine site. MM has recently completed test drilling at the site, and plans to convert two of the test wells to production wells to reduce or eliminate the need to haul water. During the term of this SWSP, consumptive use at the mine site will only consist of dust suppression and evaporation of exposed groundwater. The dust suppression will be considered 100% consumptive.

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.

In accordance with approach nos. 1 and 3, DRMS records indicate that a bond has been obtained for $334,000 through DRMS to assure that depletions from groundwater evaporation do not occur in the unforeseen event, or events, which would lead to the abandonment of the Pit.

DEPLETIONS

The depletions that result from the mining operation over the period of this SWSP include evaporation from exposed ground water and dust suppression. Total annual pumping for dust suppression, which may also be supplemented with trucked-in purchased water, is estimated to be up to 20 acre-feet at the mine. MM will meter all water pumped for dust suppression purposes.

The pond exposing groundwater has been estimated to have a maximum surface area of 0.1 acres, which varies throughout the year. For the purposes of this SWSP, the maximum surface area is considered to be stable for the term of the SWSP.

Gross annual evaporation at the gravel pit location is estimated to be 46.0 inches per year and the monthly distribution is as depicted on the attached Table 2. Net evaporation is defined as gross evaporation less the consumptive use of water by vegetation that naturally occurred at the site prior to construction of the pit. The historical consumptive use was assumed to be equal to the effective precipitation, which was estimated as 70% of the 16.39 inches of average annual precipitation based on data from the Cripple Creek 3NNW weather station over the period 2006 - 2017. The net evaporation for the exposed water surface is 34.4 inches per year with a monthly distribution as shown on the attached Table 2. The total annual depletion resulting from the exposure of groundwater is estimated to be 0.29 acre-feet.

The two proposed production wells are adjacent to Red Creek, which has been determined to be ephemeral by field inspection. Red Creek flows into Beaver Creek, which flows into the Arkansas River. There are no intervening water rights on Beaver Creek from the confluence with Red Creek to the confluence with the Arkansas River. Therefore, replacements will be made directly to the Arkansas River on a daily basis, or as directed by the Division Engineer and Water Commissioner. Due to the distance from the mine to the Arkansas River and the ephemeral nature of Red Creek, you have assumed the delayed effects of the depletions from the mine to the Arkansas River will occur similar to a steady-state condition. As a result, you have proposed to replace depletions using the average of the total ground water depletions at the mine from the prior five years of operation. Although this will be the first year of operation of the wells, for the purposes of this SWSP, you have proposed to use 4 acre-feet/year for each of the 5 years used to calculate the average and will update the amounts annually as shown in the example methodology below:

		Year 1	Year 2	Year 3	Year 4	Year 5
Actual pumping (acre-feet)		12.5	13.7	14.2	16.7	20
Estimated pumping (acre-feet)	**Year 1**	4	12.5	13.7	14.2	16.7
	Year 2	4	4	12.5	13.7	14.2
	Year 3	4	4	4	12.5	13.7
	Year 4	4	4	4	4	12.5
	Year 5	4	4	4	4	4
Replacement Average (acre-feet)		**4**	**5.7**	**7.64**	**9.68**	**12.22**

REPLACEMENTS

MM will replace all calculated depletions from the Red Canyon Mine using a lease for augmentation water with either the Arkansas Groundwater Users Association ("AGUA") or the Pueblo Board of Water Works ("PBWW"). MM has finalized a lease with PBWW for the year 2017, and will provide an updated lease when obtained for the following years. Accounting will be provided to the lessor for submission to the Division Office.

CONDITIONS OF APPROVAL

This SWSP is hereby approved pursuant to §37-90-137(11), C.R.S., and the following conditions:

1. This SWSP shall be valid December 20, 2017 through November 30, 2019, unless otherwise revoked. Should an additional SWSP be requested, such renewal request must be submitted to this office and the Division 2 office (please copy Kathy Trask at Kathy.Trask@state.co.us and Bethany Arnold at Bethany.Arnold@state.co.us) with the statutory fee (currently $257) no later than **October 1, 2019**.

2. Prior to exposing ground water or pumping wells pursuant to this plan, the Applicant shall obtain well permit(s) for the uses described herein in accordance with C.R.S. 37-90-137(2), C.R.S. 37-90-137(11), and this plan. The provisions of C.R.S. 37-90-137(2) and (11) prohibit the issuance of a permit for a well to be located within 600 feet of any existing well, unless the State Engineer finds that circumstances so warrant after a hearing held in accordance with the procedural rules in 2CCR402-5. This hearing may be waived if you are able to obtain statements from the owners of all wells within 600 feet, verifying that they have no objection to your use of the proposed well. Should a well permit be denied for reasons of 600 foot spacing, or any other legitimate reason, approval of this SWSP may be canceled. Once the permit is obtained, the Applicant must provide all follow up documentation and forms necessary to keep the permit

valid.

3. **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.**

   In accordance with approach nos. 1 and 3, DRMS records indicate that a bond has been obtained for $334,000 through DRMS to assure that depletions from groundwater evaporation do not occur in the unforeseen event, or events, which would lead to the abandonment of the Pit. An explanation and/or documentation must be provided with the next SWSP renewal request to identify if there are any changes to the financial warranty.

4. The use of water under this SWSP shall be limited to dust suppression and evaporative depletions. No additional uses of the water are allowed unless an additional SWSP is approved.

5. The groundwater pond must be maintained in a de-watered state to the extent that the exposed water surface area does not exceed a total of 0.1 acres. If the actual water surface exposure exceeds 0.1 acres, the additional evaporative depletion must be accounted for and replaced via a new SWSP obtained by the Applicant.

6. The consumption associated with this mining operation from evaporation and dust suppression is not to exceed a total of 20 acre-feet/year or the amount of leased replacement water, whichever is less. **All diversions for dust suppression must be metered in compliance with the *Amended Rules Governing the Measurement of Tributary Ground Water Diversions Located in the Arkansas River Basin*. Certified totalizing flow meters must be maintained.**

7. Releases of water by AGUA or PBWW pursuant to this plan shall be coordinated with the Division Engineer, Water Commissioner and the Augmentation Coordinator and shall equal or exceed the depletions to be replaced on a monthly basis.

8. Accounting of water in this plan, including excavated area, area of actual ground water exposure, pumping, stream depletions, and replacement water deliveries must be provided to the Water Commissioners (Brian.Sutton@state.co.us and Dan.Henrichs@state.co.us) and Division Engineer (Augmentation.Coordinator@state.co.us) on forms and at times acceptable to them. **Said accounting must be received by the 10th of the month following the month being reported.** The name, mailing address, and phone number of the contact person who is responsible for operation and accounting of this plan must be provided on the accounting forms. Accounting and reporting procedures are subject to approval and modification by the Division Engineer.

9. 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 ground water to evaporation, an application for a plan for augmentation must be filed with the Division 2 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. Granting of this plan does not imply approval by this office of any such court application(s).

10. 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 and the Applicant shall obtain and present to this office an alternate source of replacement water.

11. Dewatering at this site 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 attributable to the dewatering operation. Once dewatering at the site ceases, the delayed depletions must be addressed. Accordingly, dewatering 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 of the pit) will be replaced, in time, place and amount. If dewatering of the site is discontinued, the pit would fill and cause additional depletions to the stream system due to increased evaporation.

12. 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 or not the substitute supply is of a quality to meet requirements of use to senior appropriators. 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.

13. 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 the SWSP. This decision shall not bind the State Engineer to act in a similar manner in any other applications involving other SWSP 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.

Should you have any questions, please contact Melissa van der Poel of this office or Charlie DiDomenico in our Division 2 office in Pueblo at (719) 542-3368.

Sincerely,

Jeff Deatherage, P.E.
Chief of Water Supply

Attachment(s): Table 2

cc: Div2 SWSP staff
Dan Henrichs, Water Commissioner District 12
Brian Sutton, West Regional Team Leader

JD/mvdp: RedCanyonMineSWSP 2017-19

Table 2
Martin Marietta
Red Canyon Mine
2017-2019 SWSP Projected Water Balance

Month	Depletions							Replacements				Balance Credit (+) Deficit (-)
	5-Year Average Well Pumping Monthly Distribution (ac-ft)	Gross Evaporation (ft)	Average Annual Precipitation (ft)	Effective Precipitation (ft)	Net Evaporation (ft)	Net Evaporation Volume (ac-ft)	Total Depletion (ac-ft)	Replacement Supply (ac-ft)	Total Transit Loss % of Release	Total Transit Loss (ac-ft)	Total Replacement Available at Point of Depletion (ac-ft)	(ac-ft)
-	[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]
Sep-17	0.33	0.38	0.16	0.11	0.27	0.03	0.36	0.40	11.00%	0.04	0.36	0.00
Oct-17	0.34	0.27	0.06	0.04	0.22	0.02	0.36	0.41	11.00%	0.04	0.36	0.00
Nov-17	0.33	0.15	0.03	0.02	0.13	0.01	0.34	0.38	11.00%	0.04	0.34	0.00
Dec-17	0.34	0.11	0.05	0.03	0.08	0.01	0.35	0.39	11.00%	0.04	0.35	0.00
Jan-18	0.34	0.11	0.04	0.03	0.09	0.01	0.35	0.39	11.00%	0.04	0.35	0.00
Feb-18	0.31	0.13	0.05	0.04	0.10	0.01	0.32	0.36	11.00%	0.04	0.32	0.00
Mar-18	0.34	0.21	0.06	0.04	0.17	0.02	0.36	0.40	11.00%	0.04	0.36	0.00
Apr-18	0.33	0.34	0.08	0.06	0.29	0.03	0.36	0.40	11.00%	0.04	0.36	0.00
May-18	0.34	0.46	0.14	0.10	0.36	0.04	0.38	0.42	11.00%	0.05	0.38	0.00
Jun-18	0.33	0.56	0.13	0.09	0.47	0.05	0.38	0.42	11.00%	0.05	0.38	0.00
Jul-18	0.34	0.57	0.27	0.19	0.38	0.04	0.38	0.42	11.00%	0.05	0.38	0.00
Aug-18	0.34	0.52	0.30	0.21	0.31	0.03	0.37	0.42	11.00%	0.05	0.37	0.00
Sep-18		0.38	0.16	0.11	0.27	0.03	0.03		11.00%			
Oct-18		0.27	0.06	0.04	0.22	0.02	0.02		11.00%			
Nov-18		0.15	0.03	0.02	0.13	0.01	0.01		11.00%			
Dec-18		0.11	0.05	0.03	0.08	0.01	0.01		11.00%			
Jan-19		0.11	0.04	0.03	0.09	0.01	0.01		11.00%			
Feb-19		0.13	0.05	0.04	0.10	0.01	0.01		11.00%			
Mar-19		0.21	0.06	0.04	0.17	0.02	0.02		11.00%			
Apr-19		0.34	0.08	0.06	0.29	0.03	0.03		11.00%			
May-19		0.46	0.14	0.10	0.36	0.04	0.04		11.00%			
Jun-19		0.56	0.13	0.09	0.47	0.05	0.05		11.00%			
Jul-19		0.57	0.27	0.19	0.38	0.04	0.04		11.00%			
Aug-19		0.52	0.30	0.21	0.31	0.03	0.03		11.00%			
2017-2018 Total	4.00	3.83	1.37	0.96	2.87	0.29	4.29	4.82	-	0.53	4.29	0.00
2018-2019 Total		3.83	1.37	0.96	2.87	0.29			-			

Notes:
[1] Well pumping depletions for water use at the Red Canyon Mine are based upon the average annual well pumping over the pervious 5 years, calculated in Column [4] of Table 1. The total annual values is evenly
[2] Total gross evaporation (3.83 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: 13.50%
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] Based upon the average precipitation at the Cripple Creek 3NNW (USC00051977) NOAA weather station for the time period 2006-2017.
[4] Assumed 70% effective precipitation. Equal to [3] x 70%.
[5] Equal to [2] - [4].
[6] Equal to exposed groundwater area of 0.1 acres multiplied by [5].
[7] Total water provided for replacement by either PBWW or AGUA.
[8] Equal to the maximum potential transit loss from the point at which the replacement is made to the point of depletion on the Arkansas River. Assumed 22 miles with a transit loss rate of 0.5% per mile. If there is no call between the point of depletion and Pueblo Reservoir, PBWW is able to make replacements directly from Pueblo Reservoir no transit loss will be assessed.
[9] Equal to [2] x [3].
[10] Equals [2] - [4].
[11] Equal to [5] - [1].
* The values shown are an projected estimate of replacement credits available. Actual monthly values will be used in accounting submitted under the SWSP.
**Shaded cell values will be based upon actual well pumping which occurs during the 2017-2018 SWSP period.