

WME
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✓ JUN 17 2016

DIVISION OF RECLAMATION
MINING AND SAFETY

June 15, 2016

Mr. Michael Cunningham
Division of Reclamation, Mining & Safety
1313 Sherman Street, Room 215
Denver, CO 80203



Re: Permit No. M-1977-141 – Lyons Quarry
✓ Corrective Action Response – Hydrologic Balance

Dear Michael:

Aggregate Industries (AI) submits this letter and the enclosed in response to the corrective action required under the Division's report of its March 2, 2016 inspection regarding hydrologic balance. As noted in the report, there is a small pond on the Lyons Quarry site for which there is no well permit or substitute supply plan for evaporative losses. The previous owner of the Lyons Quarry land, Hall, had worked through water court regarding various water rights owned by Hall. Throughout that process, it was unclear whether or not the source of water in the pond was groundwater, but in any case it was determined by Hall's water engineers that there had historically been two other small ponds in this location, and that the surface exposure of the newer pond associated with the quarry was equal to or less than the pre-81 ponds and that pre-81 credit would be taken. It has come to our attention that Hall's did not complete their water court case and a final determination with regard to the pre-81 credit was therefore not made.

In order to address the corrective action item regarding hydrologic balance, AI has submitted to Division of Water Resources a request for a temporary substitute supply plan for this exposure. A copy of the request is enclosed. Ultimately, AI proposes to backfill the pond as part of its reclamation. AI will continue to maintain the pond in a SWSP until such time as backfilling is completed.

Thank you for your consideration. If you have any questions, please contact me at connie.davis@aggregate-us.com or (970) 396-5252.

Very truly yours,

Connie N. Davis
Land Manager

Enclosure

Aggregate Industries

West Central Region, Inc.

1687 Cole Boulevard, Suite 300
Golden, CO 80401

Telephone: 303-985-1070

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May 25, 2016

Ms. Tracy Kosloff
State Engineer's Office
1313 Sherman Street, Room 818
Denver, CO 80203

RE: Substitute Water Supply Plan Renewal Request for the Lyons Quarry, M-1977-141

Dear Tracy:

On behalf of Aggregate Industries – WCR, Inc. (Aggregate), Applegate Group, Inc. (AG) requests renewal of a substitute water supply plan (SWSP) pursuant to C.R.S. §37-90-137(11) for the Lyons Quarry, Division of Reclamation & Safety (DRMS) Permit No. M-1977-141. The applicant can be reached at:

Aggregate Industries – WCR, Inc.
c/o Connie Davis
P. O. Box 337231
Greeley, CO 80633

The original SWSP for this site was requested March 22, 2002; based on our records it does not appear that the SWSP was ever approved by the DWR. The requested approval period for this SWSP renewal is May 1, 2016 to March 31, 2017. Enclosed is a check payable to the Division of Water Resources (DWR) for the \$300 plan renewal fee. The Lyons Quarry does not currently have a well permit; a new well permit will be sought for the site under a separate letter.

PROJECT DESCRIPTION

The Lyons Quarry is located southwest of the town of Lyons. The north boundary of the site is adjacent to South St. Vrain Creek. The site is located in portions of the north half of Section 25 and extends into a portion of the NE ¼ of Section 26, Township 3 North, Range 71 West, 6th P.M. Figure 1 is a vicinity map of the subject site.

During a recent DRMS inspection of the site, the presence of a small pond was noted. At this time it is unknown whether the pond is storing surface runoff or exposing groundwater. For the purposes this SWSP, the pond is assumed to be filled with groundwater, resulting in evaporative depletions to South St. Vrain Creek that require augmentation.

Replacement sources for this plan will consist of Colorado-Big Thompson water leased from the City of Fort Collins.

DEPLETIONS

Evaporative loss will occur from the pond water surface. The surface area of the pond is approximately 0.3 acres. The NOAA Technical Report NWS 33, Evaporation Atlas for the Contiguous 48 United States (U.S. Department of Commerce) was used to determine gross evaporation. For this location, the annual evaporation is approximately 37.0 inches. Monthly evaporation percentages as suggested by the Office of the State Engineer were used to calculate gross monthly evaporation from the pond.

Average monthly precipitation data was obtained from the Northern Colorado Water Conservancy District (NCWCD) Longmont West station.¹ The average monthly precipitation was adjusted to total 17" per year to reflect average annual precipitation at the Lyons Quarry location per the average precipitation isoline layer on the Colorado Decision Support System (CDSS).² Effective precipitation was calculated as 70% of average precipitation.

Average monthly air temperature data was also obtained from the NCWCD Longmont West station, located at an elevation of 5,062 feet. The average monthly air temperature was adjusted to the 5,590 foot elevation of the Lyons Quarry by applying a 3.6°F reduction for every 1,000 foot gain in elevation. During months when the adjusted average monthly air temperature was less than 32°F, it was assumed that the pond is frozen over and evaporation does not occur.

The net evaporation rate was calculated as gross evaporation minus effective precipitation, and is estimated to total 22.38" per year. As shown in Table 1, for the 0.3 acres of pond surface area, total depletions are estimated to equal 0.52 acre-feet during the requested plan period. Given the close proximity of the pond to South St. Vrain Creek, the narrow nature of the alluvial aquifer in this area, and the likely coarse-grained nature of the aquifer material itself, it was assumed that evaporative loss would impact the stream system more or less instantaneously.

REPLACEMENT SOURCES

Aggregate has secured a lease of 2.0 acre-feet of Colorado-Big Thompson (C-BT) water from the City of Fort Collins, and has received approval from the Northern Colorado Water Conservation District (NCWCD) to use this C-BT water for replacement purposes in this SWSP. A copy of the lease and NCWCD's approval are attached.

The C-BT water will be delivered to St. Vrain Creek via the St. Vrain Supply Canal. Because the C-BT water is being leased from the City of Fort Collins, replacement credit will be determined as 50% of the net delivery. The replacements will enter the stream downstream of

¹ <http://www.northernwater.org/WaterConservation/WeatherandETInfo.aspx>, accessed May 4, 2016.

² <http://cdss.state.co.us>, accessed May 4, 2016.

the point of depletion from the pond, therefore no transit loss needs to be assessed on the replacements.

Deliveries of C-BT water through the St. Vrain Supply Canal can only be made during the irrigation season, generally ending in October. As shown on Table 1, the replacements are sufficient to replace all depletions during the irrigation season and on an annual basis. Replacement water that could deliver to the required reach during the non-irrigation season of November through March could not be secured from the City of Longmont or the Saint Vrain Left Hand Water Conservancy District, and we are not aware of any other possible sources of augmentation water at this location. The volume of depletions during this period (which impact the stream at a rate of 0.3 gpm or less) is small and will not appreciably reduce natural streamflow in St. Vrain Creek. Aggregate proposes to significantly over replace its depletions to the stream during the irrigation season in order to make up for the small unreplaced depletions that will occur during the non-irrigation season.

OPERATION OF PLAN

Depletions to the stream will be assumed to equal the values presented in Table 1. Aggregate will coordinate with the local Water Commissioner and NCWCD on releases of C-BT water to provide replacements during the irrigation season. Water accounting will be prepared and submitted to the Division of Water Resources on a monthly basis. The following person will be responsible for the accounting during the requested approval period:

Jared Dains, P.E., Applegate Group, Inc.
1490 West 121st Avenue, Suite 100
Denver, CO 80234
(303)452-6611
jareddains@applegategroup.com

The Lyons Quarry does not currently have a well permit. A well permit application for the site will be submitted under a separate letter.

CONCLUSION

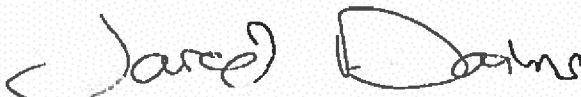
On behalf of Aggregate Industries – WCR, Inc., Applegate Group, Inc. requests renewal of the Lyons Quarry substitute water supply plan pursuant to C.R.S. §37-90-137(11). The requested approval period for this SWSP renewal is May 1, 2016 through March 31, 2017. The specifics of this plan renewal are as follows:

- Total depletions during the requested approval period are estimated to equal 0.52 acre-feet.
- The primary replacement source will be a 2.0 acre-feet lease of C-BT water from the City of Fort Collins.

Ms. Tracy Kosloff
Re: Lyons Quarry SWSP Renewal Request
May 25, 2016
Page 4 of 4

If you have any questions or need additional information about this request, please do not hesitate to contact me at (303) 452-6611 or jareddains@applegategroup.com.

Cordially,
Applegate Group, Inc.

A handwritten signature in black ink, appearing to read "Jared Dains". The signature is fluid and cursive, with the first name "Jared" and last name "Dains" clearly distinguishable.

Jared Dains, P.E.
Water Resources Engineer

JMD/tn
Enclosures

cc: Connie Davis, Aggregate Industries
AG File No. 06-103

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