



**COLORADO**

**Division of Reclamation,  
Mining and Safety**

Department of Natural Resources

1313 Sherman Street, Room 215  
Denver, CO 80203

## **MEMORANDUM**

**To:** Tim Cazier, DRMS

**From:** Amy Eschberger, DRMS

**Date:** February 25, 2015

**Re: Portland Limestone Quarry, Permit No. M-1977-344, TR-10  
Proposal to Remove Sodium as a Groundwater Quality Parameter  
Notice of Adequate Responses**

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The Division of Reclamation, Mining and Safety (Division) geochemistry staff has reviewed the Responses and Addendum to Responses to the Technical Revision No. 10 (TR-10) Preliminary Adequacy Review which were received by the Division on November 19, 2014 and February 17, 2015, respectively. These documents were prepared by Arcadis and submitted on behalf of the Operator, Holcim (US) Inc.

After review, the Division believes the responses submitted reasonably explain the following conclusions:

- 1) Increasing concentrations of sodium in groundwater samples collected from groundwater monitoring well MW-7 do not seem to be associated with leachate from the cement kiln dust (CKD) landfill.
- 2) The biosolids that were applied at the facility over 10 years ago should not have a significant impact on the overall chemistry of the highly leachable constituents present in the CKD, including potassium, sodium, and chloride.
- 3) The ratio of K:Na should be a useful indicator of CKD impacts on groundwater.

Therefore, the Division considers the proposal to remove sodium as a groundwater quality parameter to be a reasonable request.

If you have any questions regarding the comments above, please contact me by telephone at (303) 866-3567, extension 8129, or by email at [amy.eschberger@state.co.us](mailto:amy.eschberger@state.co.us).

