



# BUADA ASSOCIATES

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June 24, 2013

Matt Scroggins  
CRWQCB  
Fresno Branch Office  
1685 E Street  
Fresno, Ca 93706-2020

RE: Comments on Tentative Order R6-2013-XXXX, NPDES No. CA0078174  
Sanger Sand and Gravel Plant, CalMat Co. (dba Vulcan Materials Company, West Region)  
17041 E. Kings Canyon Rd, Sanger

Dear Mr. Scroggins:

CalMat Co. dba Vulcan Materials Company, West Region (Vulcan) offers the following comments on Tentative Order R6-2013-XXXX, NPDES No. CA0078174:

1. Special Provision VI.2.C.d requires the Discharger to propose and establish an accurate and reliable means for determining discharge flow from Discharge Point 001 by six months from the Adoption of the Order.

Comment 1: As previously discussed with the Regional Board staff on April 30, 2013 establishing a new accurate and reliable means for determining discharge flow from Discharge Point 001 may require extensive engineering to determine a cost-effective and safe method. Vulcan is therefore requesting that the deadline for compliance be extended to twelve months from the Adoption of the Order.

2. Table E-2. Effluent Monitoring, pg E-3: contains an effluent monitoring requirement for "Aluminum, Total Recoverable/Acid Soluble."

Comment 2a: The attached letter from Brown and Caldwell (BC) prepared for Vulcan indicates that the aluminum monitoring requirement is infeasible because but EPA has not published an approved method for acid-soluble aluminum in effluents containing suspended solids. Using approved EPA method 200.7 for aluminum, which is approved for ICP-AES analysis of wastewater in 40 CFR 136.3, will generate misleading data. In summary, BC believes that the acid-soluble aluminum testing requirement should be removed because there is no approved method that would provide meaningful results.

Vulcan is therefore requesting that the requirement for effluent monitoring requirement for "Aluminum, Total Recoverable/Acid Soluble" be removed.

Comment 2b: EPA method 200.7 for aluminum, which is approved for ICP-AES analysis of wastewater in 40 CFR 136.3, samples with turbidity in excess of greater than or equal to 1 NTU require digestion at 85 degrees C (185 degrees F) before analysis. This process is far harsher than natural conditions in the Kings River, into which the Sanger Plant discharges its effluent. Aluminum concentration data generated with hot acid digestion would not be representative and would be misleading.

Matt Scroggins  
June 24, 2013  
Page 2

Therefore if the requirement for effluent monitoring requirement for “Aluminum, Total Recoverable/Acid Soluble” were to remain the method of analysis should be include the following as indicated in EPA Document (1988 EPA 440/5-86-008) referenced in the BC letter.

6. The only treatment required at the time of collection is preservation by acidification to a pH between 1.5 and 2.0, similar to that required for the total recoverable measurement.
7. Durations of 10 minutes to 24 hours between acidification and filtration of most samples of ambient water probably will not affect the result substantially.
10. The acid-soluble measurement does not require a digestion step, as does the total recoverable measurement.
11. After acidification and filtration of the sample to isolate the acid-soluble aluminum, the analysis can be performed using either atomic absorption spectrophotometric [AA] or ICP-atomic spectrophotometric[ICP-AES] analysis...”

If you need any additional information, please contact me by phone (559)269-1376 or by email at [jcbuada@buada.com](mailto:jcbuada@buada.com) or contact Tome Ferrell by phone at 559-434-1202 or by email at [ferrellt@vmcmail.com](mailto:ferrellt@vmcmail.com).

Sincerely,



John C. Buada  
Representative  
Vulcan Materials Company

Cc: Alex Mushegan, CRWQCB  
Tom Ferrell, Vulcan Materials Company  
Frank Costa, Vulcan Materials Company  
Lynn Parker, Vulcan Materials Company

Attachment: Comments on Proposed Acid-Soluble Aluminum Monitoring Requirement for Sanger Sand and Gravel, Brown and Caldwell, June 24, 2013

201 North Civic Drive, Suite 115  
Walnut Creek, California 94596  
Tel: 925.937.9010  
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June 24, 2013



Mr. Tom Ferrell  
Vulcan Materials Company  
11599 Old Friant Road  
Fresno, CA 93730

071112-011

Subject: Comments on Proposed Acid-Soluble Aluminum  
Monitoring Requirement for Sanger Sand and Gravel Plant  
Tentative Order R5-2013-XXX, NPDES No. CA0078174

Dear Mr. Ferrell:

Brown and Caldwell (BC) has reviewed the Preliminary Draft Waste Discharge Requirements (WDR) for the Sanger Sand and Gravel Plant (Sanger Plant) operated by Vulcan Materials Company (Vulcan). As discussed in this letter, we are concerned that the monitoring requirement for aluminum is infeasible and will lead to the generation of misleading data.

**The aluminum monitoring requirement is infeasible because there is no established method for determining acid-soluble aluminum in effluents containing suspended solids.**

Table E-2 of the Preliminary Draft WDR contains an effluent monitoring requirement for "Aluminum, Total Recoverable/Acid Soluble." The minimum sampling frequency is once per month. The required analytical test methods are indicated by footnotes 2 and 6:

2. Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or an EPA approved Alternate Testing Procedure; where no methods are specified for a given pollutant that meet a specific reporting limit or method performance standard, an alternate method can be approved by the Executive Officer.

6. Samples can be analyzed by using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

The EPA document cited (EPA, 1988)<sup>1</sup> contains a review of toxicity studies and concludes that "acid-soluble aluminum (operationally defined as the aluminum that passes through a 0.45- $\mu$ m membrane filter after the sample has been acidified to a pH between 1.5 and 2.0 with nitric acid) is probably the best measurement at the present..."

The document does not cite an EPA-approved analytical method for acid-soluble aluminum, nor does 40 CFR 136; however, the EPA document does state the following:

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<sup>1</sup> EPA, 1988. Ambient Water Quality Criteria for Aluminum – 1988. EPA 440/5-86-008.

6. The only treatment required at the time of collection is preservation by acidification to a pH between 1.5 and 2.0, similar to that required for the total recoverable measurement.

7. Durations of 10 minutes to 24 hours between acidification and filtration of most samples of ambient water probably will not affect the result substantially.

10. The acid-soluble measurement does not require a digestion step, as does the total recoverable measurement.

11. After acidification and filtration of the sample to isolate the acid-soluble aluminum, the analysis can be performed using either atomic absorption spectrophotometric [AA] or ICP-atomic spectrophotometric [ICP-AES] analysis...”

Steps for performing this analysis can be inferred from these excerpts, but EPA has not published an approved method for acid-soluble aluminum in effluents containing suspended solids. These steps are similar to EPA Method 200.1, Determination of Acid-Soluble Metals,<sup>2</sup> but aluminum is not included in the scope of that method.

#### **Using approved methods for aluminum will generate misleading data.**

EPA method 200.7, which is approved for ICP-AES analysis of wastewater in 40 CFR 136.3, does not allow for analysis of samples containing solids without nitric acid digestion. The method states that, “Samples may be analyzed directly by pneumatic nebulization without acid digestion if the samples have been properly preserved with acid and have turbidity of <1 NTU at the time of analysis.” It is expected that some if not all samples of the Sanger Plant effluent will contain turbidity in excess of 1 NTU.

If Vulcan were to use the approved method, samples with turbidity  $\geq 1$  NTU would have to be digested with nitric and hydrochloric acids at 85 degrees C (185 degrees F) before analysis by ICP-AES. This process is far harsher than natural conditions in the Kings River, into which the Sanger Plant discharges its effluent. Aluminum concentration data generated with hot acid digestion would not be representative and would be misleading. As stated by EPA, “The digestion procedure will probably dissolve some aluminum that is not toxic and cannot be converted to a toxic form under natural conditions. This could be a major problem in ambient waters that contain suspended clay” (EPA, 1988).

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<sup>2</sup> In EPA, 1991, Methods for the Determination of Metals in Environmental Samples. EPA/600/4-91/010.

Mr. Tom Ferrell  
Vulcan Materials Company  
June 24, 2013  
Page 3

In summary, BC believes that the acid-soluble aluminum testing requirement should be removed because there is no approved method that would provide meaningful results.

Very truly yours,

**Brown and Caldwell**

A handwritten signature in blue ink that reads "Matthew B. Gerhardt". The signature is written in a cursive style.

Matthew B. Gerhardt, Ph.D., PE  
Managing Engineer

MBG:dem