

FINAL
Analysis of Groundwater Monitoring Data
Submitted by the American Portland Cement
Alliance

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WA 231

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**Analysis of Groundwater Monitoring Data
Submitted by the American Portland Cement Alliance**

I. Introduction

This report contains summaries of the information gathered from the document *Cement Kiln Dust Groundwater Monitoring Summary*, produced by the American Portland Cement Alliance (APCA), dated October 2001.

A. Overview

Eighteen reports were evaluated. Tetra Tech EM Inc. (Tetra Tech) attempted to determine whether claims made within each facility report were justified by the data and methods found within. Tetra Tech also looked for general characteristics of groundwater quality related to potential influences from cement kiln dust (CKD) activities at each facility. This process consisted of detailed review of geographical information (i.e., site maps and descriptions), geological/hydrogeological investigations, historical information, sampling methods, analytical methods and analytical result interpretation.

The cement kiln dust groundwater reports reviewed herein include 18 facilities owned by 10 companies, spanning 10 states. The purpose of this review is to determine, if possible, the relative influence CKD landfill facilities have on groundwater. Tetra Tech reviewed groundwater data and compared them to government MCL and HBN regulatory values. In most cases, the reports submitted by the APCA were not detailed enough to make any meaningful determinations. However, Tetra Tech has provided a descriptive summary of all available data. The following summaries include information pertaining to:

- Groundwater constituents measured
- Instances where groundwater concentrations exceeded MCL and HBN standards
- Background information of individual site (if available)
- Overall quality of available report (content, evidence to justify conclusions, etc.)

In general, a reasonable review/assessment of the influence of CKD facilities cannot be made with respect to these file reports. In order to provide reasonable reviews of groundwater studies at CKD facilities, Tetra Tech recommends that the submitted investigative reports include, at minimum, the following:

- Site map with monitoring well and source area locations should be included with the report
- Groundwater flow direction or groundwater elevations
- Geologic information
- Monitoring well information – i.e., depths screened, specifics of construction
- Brief site history is suggested – historical property use, use of surrounding area, past environmental assessments conducted, regulatory history
- Lab and field QC samples (MS/MSD, duplicate samples, rinsate samples, blank samples) should be collected and results listed
- Analytical methods stated and should be EPA approved methods (SW 846)

- Sample collection methods should be stated
- Filtered or not filtered metals samples collected should be stated
- Detection limits should be considerably less than the MCLs
- There should be a consistent list of base line substances to analyze so there is some consistency between sites. Some sites are not analyzing for substances they perhaps should be.
- If statistical models are being used there should be support of the models and not a conclusion statement alone
- If there were soil samples collected from the sources areas one the property the data should presented to determine and assess the groundwater analyses

Examples of reports that did meet most or all of these criteria include Lebec, California and Midlothian, Texas. The remaining reports appeared to be either partial sections or abstracts with data tables. More information is required to adequately review these documents.

Based on the limited information available, Tetra Tech can report the following observations:

- Several facilities indicated elevated levels of antimony, arsenic, beryllium, cadmium, lead, selenium, thallium and some others
- A significant number of the reports are inconsistent with regard to sampled constituent (i.e., parameter)
- A number of reports do not include parameters of potential interest to the EPA (various metals and inorganics)

B. Summary of Available Data

The following tables show how the available data compare across all facilities. Because adequate information was not made available, there is no comparison between background (or upgradient) constituent concentrations and downgradient samples. Some comparisons are made within individual site reports (next section). These tables also indicate what constituents were sampled at each site (shown by “NA”).

Table 1. MCL Summary. This table reports all exceedances by facility, each constituent that was not sampled, and those that were sampled but were found to be below MCL standards. Note that in some cases analytical detection limits are greater than MCL standards.

Table 2. HBN Summary. This table reports all exceedances by facility, each constituent that was not sampled, and those that were sampled but were found to be below HBN standards. Note that in some cases analytical detection limits are greater than HBN standards.