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Alameda County
Environmental Health

January 21, 2009
RRM Project # KCE514

Mr. Steven Plunkett
Alameda County Environmental Health Services
Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Re: **Response to Technical Comments**
900 Central Avenue
Alameda, CA

Dear Mr. Plunkett:

This letter, prepared by RRM, Inc. (RRM), presents a response to technical comments made by Alameda County Environmental Health (ACEH) staff in their December 8, 2008 letter. Each of the ACEH staff technical comments are addressed below, followed by recommendations for additional work at the site.

TECHNICAL COMMENTS

Soil and Groundwater Investigation and Monitoring Well Installation. ACEH staff note that the vertical extent of contamination in the area of Boring P-3 in between the former tanks and former dispensers is undefined. Additionally, they note that groundwater samples have not been analyzed for either EDB or EDC.

In our November 2007 report, RRM recommended additional work including the installation of a sparge well to be located between wells RW-1 and MW-1. This proposed sparge well location is within 5 feet of Boring P-3 and will be designed to inject compressed air just below the bottom of the contaminated interval which is expected to lie at about 20 feet from grade. Accordingly, in drilling the boring for SP-1, RRM intends to collect discreet soil samples at 5-foot intervals to establish vertical delineation in the saturated zone. Specifically, pending approval by ACEH staff, RRM will collect samples at 5, 10, 15, 20, and 25 feet below grade. If the sample collected from 25 feet contains hydrocarbon odors, RRM will extend the depth of the boring until the soil cleans up. RRM will analyze all groundwater samples collected as part of the first quarter 2009 groundwater monitoring event for EDB and EDC. If either analyte is detected, the analysis will be added to the quarterly monitoring and reporting program.

Soil Vapor Assessment. ACEH staff note a potential risk associated with vapor intrusion at the site. They have requested that eight soil vapors probes be installed at prescribed locations to assess this risk.

In the October 23, 2007 *Subsurface Investigation Results* report, RRM concluded that there is a need for active remediation at the site on the basis of both water quality concerns and human health risk concerns and offered the following opinions: Dissolved TPHg and benzene concentrations at wells RW-1 and MW-1 indicate the presence of residual contamination in the vicinity of the former USTs that may continue to affect groundwater quality. In addition, the TPHg and benzene concentrations at these wells consistently exceed the groundwater environmental screening level (ESL)¹ for vapor emissions to indoor air at residential and commercial properties; and there is a need for active remediation of saturated soils/groundwater in the immediate area of the USTs. The heavily impacted area is approximately 50 feet long by 20 feet wide, extends from approximately 8 feet from grade to 18 feet from grade, and encompasses about 370 bank cubic yards of saturated soils overlain by about 300 yards of clean overburden.

Given the above, RRM views performing a soil gas survey at this time an unnecessary step. The existing site data are sufficient to determine that vapor emission to indoor air is a risk at the site. As an alternative to the soil gas survey, RRM can establish current concentrations of vapor phase constituents in the vadose zone by collecting baseline soil gas samples from RW-1 and MW-1 as part of the proposed dual extraction pilot testing.

Corrective Action Plan. ACEH staff state that RRM has selected sparging combined with soil vapor extraction as the remedial option for the site and request that a Corrective Action Plan (CAP) be prepared prior to performing any pilot testing at the site. The CAP should evaluate three remedial alternatives for the site.

RRM at this point has not chosen or proposed any remedial option for the site in any of our reports. In our October 23, 2007 report, we recommended conducting sufficient feasibility studies to evaluate several options including remedial excavation, air-sparging, and dual-phase extraction. Our specific recommendations were to install an air sparge well between RW-1 and MW-1; to conduct a one-day dual extraction pilot test; and to map out underground utilities that could interfere with or complicate the various remedial approaches. RRM had proposed to use the results of the feasibility studies in preparing a CAP.

RRM maintains that our past recommendations to conduct feasibility studies prior to the preparation of a CAP is appropriate. RRM feels that the data gained from the proposed feasibility studies will aid in better defining site conditions such as soil permeability and soil gas composition. The pilot testing will also establish the design criteria needed to cost out the various options including: groundwater extraction flow and carbon loading rates; vapor extraction vacuum requirements, flow rates, and loadings; and air sparge pressure requirements and flow rates. The proposed studies will also identify the type and location of underground utilities that might need to be replaced for the remedial excavation option or might otherwise interfere with various remedial options. By defining these site specific parameters prior to preparing the CAP, RRM will be better able to properly evaluate various remedial options. Saturated soil analytical data collected during the proposed sparge well installation will address the vertical delineation data gap. RRM feels this is necessary to best evaluate options for remediating the site in the most timely and cost-effective

¹ *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater* (November 2007) San Francisco Bay Regional Water Quality Control Board, California EPA, May 2008 update.

manner. Additionally, California Code of Regulations Title 23, Div 3, Chap. 16, Art. 11, Sec 2725 identifies the results of feasibility testing as one of the three main elements to be included in a CAP.

RECOMMENDATIONS

Based on a review of the site data and ACEH staff technical comments, RRM recommends the following:

- Analyze all groundwater samples for EDB and EDC during the first quarter 2009 groundwater monitoring event; and
- Prepare a work plan to: (1) install an air sparge well, and in the process assess the vertical extent of contamination in the vicinity of Boring P-3; (2) perform a one day dual phase extraction pilot test at RW-1 and MW-1 both with and without air-sparging to establish baseline vapor-phase contaminant levels in the vadose zone; and (3) map out underground utilities to determine the extent they will interfere with or complicate remedial approaches.

RRM recommends conducting the dual extraction and air sparging pilot test during low water table conditions typically encountered during the second and third quarters and specifically not during high water table conditions.

Upon completion of the work proposed above, RRM recommends preparing a CAP incorporating the elements listed in ACEH staff technical comment No. 3 and in accordance with State Water Resources Control Board requirements as set forth in CCR, Title 23, Div 3, Chap. 16, Art. 11, Sec 2725. RRM is prepared to initiate the proposed work upon approval from ACEH staff and the responsible parties for this site.

If you have any questions regarding this letter, please call RRM, Inc. at (831) 475-8141.

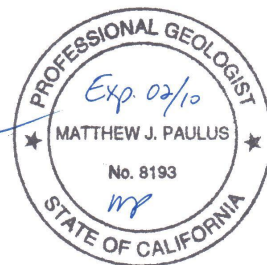
Sincerely,
RRM, Inc.



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cc: Brian Kelleher, Court Consultant/Project Coordinator, Kelleher & Associates Environmental Mgmt LLC
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