Wickham, Jerry, Env. Health

From: Christine Noma [CNoma@wendel.com]
Sent: Monday, August 23, 2010 4:57 PM
To: Wickham, Jerry, Env. Health
Cc: Les Hausrath; Massey, Andrew J., County Counsel; Gallardo, Susan; Patterson, Jennifer
Subject: City of Pleasanton - 76 Service Station #7376 RO # 0361 - Alameda County Comments
Attachments: letter re CAP_review_082310 (4).pdf

Dear Mr. Wickham,

Attached is a letter prepared by AMEC, consultants retained by Alameda County, to review the Conoco Phillips draft Corrective Action Plan. Most of the these comments are directed towards comments you raised in your June 9, 2010 letter to Conoco Phillips. If you have any questions regarding these comments, please feel free to contact me and we could arrange to have AMEC elaborate on their comments by a telephone conference call, if necessary.

Thank you for this opportunity to provide our comments.

Best regards,
Chris

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August 23, 2010
Project 14167

Ms. Christine Noma
Mr. Les Hausrath
Wendel, Rosen, Black & Dean LLP
1111 Broadway, 24th Floor
Oakland, California 94607

Subject: **Comments on Corrective Action Plan**
4191 First Street
Pleasanton, California

Dear Ms. Noma and Mr. Hausrath:

At your request we have reviewed the Corrective Action Plan (CAP) dated July 7, 2010, prepared by Delta Consultants on behalf of ConocoPhillips Company (Conoco) for the property located at 4191 First Street, in Pleasanton, California (the site). This property is located adjacent to the railroad right-of-way, which is currently owned by your client, Alameda County (County). In summary, the approach presented in the CAP (soil vapor extraction and groundwater containment via extraction) may be acceptable remedies for the site, however we have comments related to the content and completeness of the CAP and several specific technical comments which would need to be addressed before the remedy is implemented.

COMMENTS ON CONTENT AND COMPLETENESS

Below we list items that should be included in the CAP but appear to be missing. All of these items were requested by Alameda County Health Care Services Agency (ACHCSA) in its letter dated June 9, 2010, commenting on the May 7, 2010, *Feasibility Study and Additional Soil and Groundwater Investigation Report* (Feasibility Study), which preceded the CAP.

Proposed Cleanup Goals

No general remediation goals or specific cleanup goals are presented in the CAP. In its June 9, 2010, letter ACHCSA requested that the CAP include "Proposed cleanup goals and the basis for cleanup goals." Without cleanup goals it is not possible to determine the extent of soil and groundwater to be remediated. A set of appropriate general remediation goals, from which specific cleanup goals could be derived, might include the following:

i. Protect human health.
ii. Prevent the further deterioration of groundwater from COCs in the vadose zone.
iii. Contain the zone of impacted groundwater at its current extent.
iv. Restore groundwater to its designated beneficial use.

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Specific cleanup goals for soils in the vadose will emerge from a consideration of items i and ii, and specific cleanup goals for groundwater will emerge from consideration of items iii. Section 7.2 of the CAP qualitatively evaluates potential exposure pathways to human receptors and surface water, and determines that human receptors are not currently being impacted by the chemicals of concern (COCs). However, it should be noted that soil vapor sampling has not been conducted at the site to quantitatively evaluate the vapor intrusion pathways.

Evaluation of Alternatives

The CAP evaluates three alternatives but the evaluation does not include a discussion of time to reach cleanup goals. This evaluation was requested by ACHCSA in its June 9 letter.

Post-Remediation Monitoring

The CAP should contain a description of post-remediation monitoring, which is required to confirm the satisfactory progress compared to an agreed schedule and the ultimate success of the selected remedy. A description of post-remediation monitoring was requested by ACHCSA in its June 9, 2010, letter.

Schedule for Implementation of Cleanup

A schedule for preparing engineering drawings and for preparing a Remedial Action Plan (RAP) is discussed in the CAP. It does not seem appropriate to prepare a RAP at this point as a RAP typically contains the same information as a CAP. If anything, it would be more appropriate to submit a remedial design and implementation plan after approval of the CAP. To expedited the schedule, you may want to discuss with ACHCSA the necessity for a formal design document. It may be possible for the ACHCSA to approve implementation after reviewing engineering drawings or a simplified document describing design details. Additionally, the CAP should include an estimated schedule for implementation of the remedy and a schedule for monitoring. This schedule was requested in ACHCSA's June 9, 2010 letter.

SPECIFIC TECHNICAL COMMENTS

Below we present our specific technical comments on the CAP which should be addressed before the remedy is implemented.

Groundwater Impacts and the Proposed Remediation

The extent of groundwater requiring remediation cannot be defined until specific cleanup goals have been identified for the COCs. Once cleanup goals are defined, plans and sections should be prepared showing the extent of groundwater to be remediated.

Based on a review of past monitoring reports, the direction of groundwater flow appears to be highly variable. The most recent monitoring report dated April 1, 2010, states that the "wells at

the site… are screened at varying elevations…. [and] gradients and flow directions [presented in the report] are not considered representative of actual conditions." The uncertainty with respect to groundwater flow direction is a factor that should be accounted for in evaluating the remedy effectiveness.

Section 8.0 of the May 7, 2010, Feasibility Study concludes that (as indicated by pump tests) groundwater extraction is not feasible at the site, yet it is selected as a remedy in Section 7.5 of the CAP dated June 6, 2010. More justification is required for the selected remedy and hydrogeologic analysis is required to demonstrate the capture of dissolved constituents in each water bearing zone. It is possible that more than one well may be required to provide adequate capture of COCs.

Since pumping groundwater will increase the groundwater gradient, separate-phase hydrocarbons might be mobilized and pumped by the extraction well. The pumping equipment and treatment system should be designed to deal with this possible eventuality.

Separate Phase Hydrocarbon Impacts and Remediation

Separate phase hydrocarbons (SPH) have not been identified in any well since December 11, 2006, when MW-5 had a reported liquid petroleum hydrocarbon thickness of 0.02 feet (approximately ¼-inch).1 These data suggest that SPH is bound up in the soil matrix and is not flowing downwards under gravity towards the water table. The vacuum induced by the proposed soil vapor extraction (SVE) system may however mobilize some of this "residual" SPH towards the SVE wells, and the CAP proposes to extract this SPH from a sump at the bottom of the SVE wells. We concur with this approach.

Vadose Zone Impacts and Remediation

The CAP proposes nine SVE wells on approximately 20 to 30 feet centers. This appears reasonable given the results of the pilot test. However, as indicated above, cleanup goals are necessary to establish the level of vadose zone remediation required to protect groundwater, and monitoring during operation is required.

Section 5.3 of the CAP states that "SVE is not effective in the lean clay to silty-clay interbedded layers at this site." Note that cross-sections presented in the CAP and FS indicate elevated concentrations of the petroleum and petroleum-related constituents in these soil types. The development of remediation goals with respect to soil vapor and groundwater will provide important, long-term metrics to evaluate whether adequate remediation of these lithologic units has occurred.

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1 Delta Consultants, 2010, Quarterly Summary Report – First Quarter 2010, 76 Service Station No. 7376, 4191 First Street, Pleasanton, California, RO# 0361, April 1.

Furthermore, in prior correspondence dated March 21, 2008, July 30, 2008, and March 27, 2009, ACHCSA requested that Conoco address the Bunker C fuel oil issue. SVE will not likely remove residual Bunker C fuel oil by volatilization, however increased air flow should enhance the natural biodegradation processes. Additionally, as indicated above, the induced vacuum may mobilize the flow of residual SPH towards the SVE wells for collection. As with the other COCs, cleanup goals should be developed or a rationale for why the proposed approach sufficiently addresses the Bunker C should be discussed.

Finally, with regard to the residual Bunker C, based upon information provided to the County by a title company, it is our understanding that the Bunker C fuel storage tank, while adjacent to, is and was not located within the County property. Therefore, Figure 2 is confusing because it infers that the parcel on which the Bunker C tank exists or existed, is within the County property. The Site Plan in the CAP should be revised to clearly distinguish that property that is owned by the County, Conoco, and others.

We appreciate the opportunity to assist you with this project; please contact the undersigned with any questions.

Sincerely yours,
AMEC Geomatrix, Inc.

Andrew Cox, PE
Senior Engineer

Susan M. Gallardo, PE
Principal Engineer

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