Detterman, Mark, Env. Health

From: Roe, Dilan, Env. Health
Sent: Tuesday, October 11, 2016 5:10 PM
To: Carl J. Michelsen
Cc: 'Cunningham, Denise'; Tom Graf; Scott Morrison; Detterman, Mark, Env. Health
Subject: RE: Response to Conference Call Comments

Hi Carl:

Mark is out of the office this week taking care of family business. I have briefly reviewed the responses provided in the email below.

Please revise the Human Health Risk Assessment to incorporate your responses to Comment 2 and Comment 3. Please include a letter from the Regional Water Board supporting the use of loamy sand and the Board's determination that benzene concentrations above the published Environmental Screening Level values is appropriate and protective of human health and risk from vapor intrusion to indoor air at the site. With respect to vinyl chloride, we have seen sites where vinyl chloride has been detected when other PCE degradation products have not been detected and thus since this is a residential development it is appropriate to have data that supports that vinyl chloride does not present a risk.

Please revise the Basis for Site Remedy to incorporate the trench dam details discussed below (plans and specifications). Additionally, as discussed in our last meeting please incorporate the details into the approved building permit/construction drawings for the site and submit a copy of the revised plans approved by the city to ACDEH.

Thanks,

Dilan

From: Carl J. Michelsen [mailto:CMichelsen@pesenv.com]
Sent: Monday, October 10, 2016 2:09 PM
To: Roe, Dilan, Env. Health <Dilan.Roe@acgov.org>; Detterman, Mark, Env. Health <Mark.Detterman@acgov.org>
Cc: 'Cunningham, Denise' <DCunningham@shhomes.com>; Tom Graf <tom@grafcon.us>; Scott Morrison <SMorrison@pesenv.com>
Subject: Response to Conference Call Comments

Dilan and Mark – In our conference call on September 21st, you raised a number of issues that required resolution before granting approval of construction of the townhomes on the State Street side of the project. The following provides responses to each of your comments/concerns. We'll be following up separately with another email that provides responses to the other issues that you raised.

Comment 1. ***Provide a protocol for the fill material that is brought to the site***.

Response: The site has a net offhaul, and no fill is being brought to the site for grading purposes. Therefore this issue is closed.

Comment 2. ***Provide an evaluation of the use of DTSC's new residential construction attenuation factors in calculating screening levels and conformance with RWQCB guidance; appropriateness of soil type (loamy sand for gravel materials); and relationship of site-specific screening levels to soil gas detection limits.***

Response*:*

Use of the DTSC "new construction" attenuation factor was discussed with Ross Steenson at the Water Board. He indicated that the Water Board does not use the new construction attenuation factor.

The use of sandy loam criteria in estimating site-specific screening levels for silty gravel soil was reviewed with Mr. Steenson, and he agreed that the use of loamy sand is appropriate. Therefore the site-specific concentrations calculated by Apex are appropriate for the site. Mr. Steenson also indicated that the Water Board is comfortable with benzene screening concentrations well above the published values due to the attenuation in vadose zone soil with sufficient oxygen, which has been documented at this site. He noted that the Low Threat Closure Criteria is 1,000 times the Tier 1 concentration.

Site-specific screening levels for compounds that were not detected in soil gas at reporting limits of 100 mg/m^3 that are above default residential ESLs (i.e., vinyl chloride, chloroform, carbon tetrachloride, 1,2-Dichloroethane, benzene, 1,1,2-Tricholorethane, and 1,1,2,2- Tetrachloroethane) were calculated by Apex, as follows:

TABLE 5: SUMMARY OF SFRWQCB ESL AND SITE-SPECIFIC SL

Chemical	SFRWQCB Modified Soil Vapor ESL		Site-Specific SLs Loamy Sand		Site-Specific SLs Sandy Clay Loam	
	Residential ($\mu g/m^3$)	Commercial ($\mu g/m^3$)	Residential ($\mu g/m^3$)	Commercial ($\mu g/m^3$)	Residential ($\mu g/m^3$)	Commercial ($\mu g/m^3$)
Tetrachloroethene (PCE)	480	4,200	500	4,400	960	8,400
Benzene	97	840	76	660	130	1,100
Toluene	310,000	2,600,000	260,000	2,200,000	460,000	3,800,000
Ethylbenzene	1,100	9,800	1,000	8,800	1,800	16,000
m,p-Xylene	100,000	880,000	93,000	780,000	170,000	1,400,000
o-Xylene	100,000	880,000	93,000	780,000	170,000	1,400,000
Trichlorofluoromethane (Freon 11)	Not available	Not available	670,000	5,600,000	1,200,000	10,000,000
Dichlorodifluoromethane (Freon 12)	Not available	Not available	88,000	740,000	150,000	1,300,000
Chloroform	120	1,060	100	900	180	1,600
Carbon Tetrachloride	67	580	66	580	120	1,100
1,2-Dichloroethane	110	940	86	750	150	1,300
1,1,2-Trichloroethane	180	1,540	160	1,400	290	2,500
1,1,2,2-Tetrachloroethane	48	420	53	460	100	880
Vinyl Chloride	9.5	320	26	230	42	370

With the exception of vinyl chloride, the site-specific screening levels calculated for sandy clay loam (the predominant soil type at the site) for the seven non detected compounds of concern listed above, are all above the reporting limit of 100 $\mu g/m^3$. As discussed in the conference call, the absence of PCE degradation products in soil gas, including TCE, cis-1,2-DCE, t-1,2-DCE, indicates that PCE degradation is not occurring at the site. As such, vinyl chloride, the last chlorinated end product of PCE degradation would not be expected in soil gas. For these reasons, the reporting limit exceedance of the default residential ESLs is not considered significant for the site-specific evaluation of soil gas data collected from the site and this issue may be concluded.

Comment 3. ***Have pesticides been adequately tested?***

Response:

Nine borings were completed by PES on the approximately 6 acre site for the purpose of soil sampling for pesticide analysis (i.e., organochlorine pesticides ([OCPs], arsenic, and lead). Samples were collected from 1-2 and 3-4 ft bgs from each boring, which generally corresponds to the tilling zone of the former agricultural use of the property. For each boring the shallow soil sample was analyzed, and if detections above screening levels were identified, then the deeper soil sample was also analyzed. Fifteen soil samples were analyzed for OCPs. Nine soil samples were analyzed for arsenic and lead. Six of the borings (B1, B3, B5, B6, B7, B8) were sited at representative locations across the property that correspond to future residential building footprints; two borings were located within the footprints of the podium Buildings A and B (B11 and B12); one boring B13 was located within the future Memorial Street. Additionally, one boring (B16) was sampled at a location that at the time of sampling was understood to be a part of the project (current Capitol Avenue). Subsequently, this boring location was not a part of the project and is not included in the tally above.

DTSC sampling guidance (DTSC, 2008. *Interim Guidance for Sampling Agricultural Properties (Third Revision)* August 7) recommends for a 6 acre site, a total of 12 borings and the analysis of 4 composite samples for OCPs and four discrete samples for arsenic. Although a lower number of borings were completed (9), the total number of samples analyzed for OCPs was 15, with 9 of the samples collected from the shallow soil zone, where typically the highest concentration of pesticides are found on former agricultural properties. The total number of arsenic samples was 9. Consequently, more than double the number of samples were analyzed compared to the DTSC guidance. Also, all of the OCP samples were discrete samples which are not susceptible to the potential dilution that can be encountered with composite samples. In summary, this issue may be considered closed by DEH because there was adequate and sufficient testing of pesticide residues for this former agricultural site.

Comment 4. ***Provide an evaluation of the use of the DFA leak detect compound & comparison to oxygen content.***

Response:

TEG, the laboratory that was used for the soil gas sampling, uses DFA as a leak check compound. DTSC sampling guidance does not specify which leak check compound should be used, rather the only stated

requirement is that the compound should not be a suspected site-specific contaminant. DFA is not a suspected contaminant at the site.

The initial soil gas sampling reports that PES prepared showed 1,000 μg/m^3 as the reporting limit for DFA in Table 1. The actual reporting limit for DFA is 10,000 μg/m^3, as shown on the TEG lab reports, which was fixed on Table 1 in later reports. As discussed on p.6 of the March 15, 2016 Report of Results memorandum, "*Leak testing was conducted during the collection of soil vapor samples to evaluate the integrity of the sample and the potential for atmospheric leakage of ambient air. Leak testing was performed using a gaseous leak check compound, 1,1-Difluoroethane (1,1-DFA), utilizing a shroud in accordance with Section 4.2.2.2 and Appendix C of the Advisory. As shown on Table 1, 1,1-DFA was not detected above the laboratory reporting limit (10,000 micrograms per cubic meter [μg/m^3]) in any of the samples. In addition, an under-shroud leak check concentration is collected once per day to confirm that the leak check concentrations exceed the 10,000,000 μg/m^3 threshold set by TEG. As such, the leak check compound detection limit (10,000 μg/m^3) for the samples is well below 5% of the shroud concentration (500,000 μg/m^3), the maximum acceptable leakage value recommended in the Advisory. In other words, there is no indication of leakage during sampling and the sample results are considered valid*."

The oxygen content of the soil gas samples is at most 21%, which is the (rounded off) concentration of oxygen in the atmosphere. As would be expected, higher oxygen concentrations were detected in the shallow (5-10 ft bgs) soil samples collected from the site, with oxygen contents ranging from 14-21%, and lower concentrations of 9.2-11% in the deeper soil gas samples collected at 25 ft. bgs. As noted above, there is no indication of leakage during sampling; consequently, the observed oxygen contents are considered valid and the matter may be deemed resolved by DEH.

Comment 5. ***Provide the trench dam details and incorporate into the construction drawing.***

Response:

As proposed in the Basis for Site Remedy Addendum, trench dams are proposed as a gas migration barrier (to minimize PCE soil vapor intrusion into the buildings north of Declaration Street) for all utility trenches that extend beneath the foundation from outside the perimeter of the building. It has been determined that the sanitary sewer laterals for Buildings 7 through 12 are the only utility that extend beneath those building foundations from outside the perimeter of the building. The trench dams will be installed in the sanitary sewer utility trench immediately adjacent to the exterior of the building foundation and be approximately 3 feet in length and 1.5 feet in width (see attached PES map and RJA construction plans). The trench dam detail was developed in accordance with the City of Los Angeles, Department Building and Safety's Methane Hazard Mitigation Standard Plan details. The proposed trench dam locations and a trench dam detail are shown on the attached Trench Dam & Trench Plug Plan construction drawing. As shown on the trench dam detail, there will be a sanitary sewer riser/cleanout within each trench dam.

In order to prevent the potential migration of soil vapors along main utility line corridors that run from the State Street area to other areas of the site located south of Declaration Street, trench plugs are now proposed to be included along Nation Avenue. The trench plugs are proposed to be installed along the water, storm and sanitary sewer main lines near the intersection of Nation Avenue and State Street and near the intersection of Nation Avenue and Declaration Street. The proposed trench plug locations and a trench plug detail are shown on the attached Trench Dam & Trench Plug Plan construction drawing.

The trench dams and trench plugs will be constructed using bentonite cement slurry. Inspection of the trench dam and trench plug construction activities will be performed to verify conformance with the attached plans and specifications. The trench dam and trench plug installation activities will be documented in the vapor mitigation system (VMS) construction completion report that will be submitted to ACEH for review and approval following installation of the VMS.

Regards,
Carl

Carl J. Michelsen, P.G., C.HG.
Principal Geochemist

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Note that we have recently moved to the address above. Please update your records.