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Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502

Attention: Mr. Mark Detterman, PG, CEG
Ms. Dilan Roe, PE

**RESPONSE TO ACDEH COMMENT ON
CEMENT TREATED BASE REPORT
39155 AND 39183 STATE STREET
FREMONT, CALIFORNIA**

Dear Mr. Detterman and Ms. Roe:

On behalf of Fremont State Street Center LLC (FSSC), this letter has been prepared by PES Environmental, Inc. (PES) to respond to a technical comment from the Alameda County Department of Environmental Health (ACDEH) regarding PES' cement treated base (CTB) report, dated April 5, 2017. ACDEH's comment was provided in a conference call on May 17, 2017.

In the conference call, ACDEH requested that the laboratory reports provided in the CTB report be reviewed to verify that the reporting limits for the volatile organic compound (VOC) analysis results (via U.S. EPA Test Method 8260B) are below their respective Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) Tier 1 Environmental Screening Levels (ESLs¹).

PES has reviewed each laboratory report and has confirmed that with the exception of the compounds vinyl chloride, 1,2-dichloroethane, 1,2-dibromoethane, and 1,2-dibromo-3-chloropropane, all of the reporting limits for all of the VOC results are below their respective ESLs.

¹ February 2016 (Rev. 3) Regional Water Quality Control Board, San Francisco Bay Region (SFRWQCB) Environmental Screening Levels (ESLs).

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PES contacted Curtis & Tompkins (C&T), the analytical laboratory, to enquire whether or not there were any actual detections of these four compounds above their respective method detection limit (MDL), but below their reporting limit. C&T confirmed that there were no detections of vinyl chloride, 1,2-dichloroethane, 1,2-dibromoethane, and 1,2-dibromo-3-chloropropane above their respective MDLs of 0.9 micrograms per kilogram ($\mu\text{g}/\text{kg}$); 0.9 $\mu\text{g}/\text{kg}$; 0.6 & 0.7 $\mu\text{g}/\text{kg}$; and 0.9 $\mu\text{g}/\text{kg}$. The Tier 1 residential soil RSLs for these compounds are 8.2, 4.5, 0.33, and 4.5 $\mu\text{g}/\text{kg}$, respectively. Consequently, with the exception of 1,2-dibromoethane, each MDL is below the corresponding Tier 1 residential soil RSL.

The MDL (0.6 & 0.7 $\mu\text{g}/\text{kg}$) for 1,2-dibromoethane is approximately a factor of 2 greater than the Tier 1 residential soil RSL of 0.33 $\mu\text{g}/\text{kg}$. This indicates that analytically the RSL is not achievable by the EPA 8260B Method.


The Tier 1 residential soil RSL of 0.33 $\mu\text{g}/\text{kg}$ is based on protection of groundwater via the leaching pathway. As discussed in the ACDEH-approved *Revised Human Health Risk Evaluation of Subsurface Data* (Apex, 2016²), “the soil ESLs for protection against leaching to groundwater were not considered in the selection of appropriate soil ESLs for the Site.” The next lowest residential soil RSL is 36 $\mu\text{g}/\text{kg}$, based on the residential shallow soil direct exposure human health risk level. This RSL is above the MDL for 1,2-dibromoethane.

In summary, with the exception of four compounds, all of the VOC reporting limits were below their respective Tier 1 ESLs. For three compounds, vinyl chloride, 1,2-dichloroethane, and 1,2-dibromo-3-chloropropane, there were no detections above the MDLs, which are all below their Tier 1 ESLs for these compounds. For one compound, 1,2-dibromoethane, the Tier 1 ESL is analytically not achievable, but the MDL value is below the residential shallow soil direct exposure human health risk level. Thus, the MDL for this compound, and the lack of detections above the MDL, is protective of human health.

Please call if you have any questions.

Very truly yours,

PES ENVIRONMENTAL, INC.


 Carl J. Michelsen, PG, CHG
 Principal Geochemist



² Apex, 2016. *Revised Human Health Risk Evaluation of Subsurface Data 39155 and 39183 State Street, Fremont, California*. November 7.