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September 5, 2006

Keith Forman  
BEC, Hunters Point Shipyard  
Department of the Navy, BRAC  
Program Management Office West  
1455 Frazee Road, Suite 900  
San Diego, CA 92108-4310

**RE: Draft Phase III Soil Vapor Extraction Treatability Study Report, Parcel B, Hunter's Point Shipyard, San Francisco, California, July 2006**

Dear Keith:

Thank you for the opportunity to review the Draft *"Phase III Soil Vapor Extraction Treatability Study Report, Parcel B, Hunter's Point Shipyard, San Francisco, California,"* dated July 2006.

Major conclusions in the Report are based on an assumed linear relationship between laboratory results for trichloroethene (TCE) and measurements made with a photoionization detector (PID). Since it is known that this relationship is not linear, in part because PID readings include all volatile organic compounds (VOCs) that respond to the PID lamp, and the R squared coefficient of determination is likely only 0.7, the resulting calculations of system yield and reductions in contaminant concentrations should be considered rough estimates. In the future, all calculations of system yield and reductions in contaminant concentrations should be based on laboratory data. Our comments are attached.

Please contact me at 415-972-3024 if you have any questions.

Sincerely,

Michael Work  
Remedial Project Manager  
Superfund Division (SFD-8-3)

cc: (see Distribution List)

Attachment

## **Distribution List HPS**

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**EPA Comments on the  
Draft Phase III Soil Vapor Extraction Treatability Study Report, Parcel B, Hunter's Point  
Shipyards, San Francisco, California, July 2006**

**GENERAL COMMENTS**

1. The timeline provided in the text for the activities associated with this Treatability Study (TS) is quite confusing. It would be useful to provide a chronologically organized table that includes activities such as installation, sampling, analysis, initiation of extraction operation, soil vapor extraction (SVE) system shutdown, as well as which SVE wells, Vapor Monitoring (VM) wells and temporary soil gas sample locations are being sampled, serving as an extraction well or a passive injection well. Please provide this information in a chronologically organized table.
2. Photoionization Detector (PID) results are inaccurate and imprecise but Section 8 uses results calculated from field PID observations to calculate and evaluate system yield and the reduction of volatile organic compounds (VOCs). Based on a comparison of Tables 6 and 7, it appears that the cumulative yield based on PID results, 0.55 pounds as of August 23, 2005, is significantly different than the cumulative yield for the same date based on laboratory results (8.67 pounds). The text should include a discussion of the limitations of calculations based on PID results and should indicate that reduction and yield determined with PID results should be supported by analytical data and an uncertainty analysis. Specifically, the error propagation associated with application of inexact results to an algebraic equation should be discussed. Please conduct an uncertainty analysis of the system yield calculations and VOC percent reduction results obtained from field PID measurements discuss the need to collect and use analytical data for a more accurate estimation of yield and contaminant source reduction.
3. The text appears to oversimplify the relationship between PID and laboratory results. PID measurements were used to estimate trichloroethene (TCE) concentrations by comparing matched sets of laboratory and PID data, but this is problematic. First, PID data is a screening technique that is not intended to have the precision and accuracy of analytical data. Second, PID measurements may include VOCs other than TCE. As a result, it is unlikely that there is a simple linear relationship between PID data and TCE concentrations, even though a straight line has been drawn on Figure 9. Please provide explicit information in the text about the relationship between PID measurements and TCE analysis.

will provide a range of results for PID & lab  
8.67 lbs - use that but PID could be higher  
up low detections that lab sample could

**SPECIFIC COMMENTS**

1. **Section 2.2, Site History, Page 6:** The site history should include the fact that Hunters Point Shipyards (HPS) is on the National Priorities List (NPL) and the date it was placed on the NPL. Please revise the text to include this information.
2. **Section 3.1, Soil Sampling, Page 13:** It is unclear from the text how many soil samples were collected. The text indicated that 2 samples were taken from each of the 9 SVE wells and one sample each from the 24 temporary soil gas sample location (18 plus 24, or 42). The text states "two soil samples were collected from each of the 6 paired VM locations," but it is not clear if this means one soil sample from each of the nested wells or if it means two from each of the nested wells (either 12 or 24 samples). Please provide explicit information about the number of samples collected

3. ✓ **Section 3.2.2, Soil Gas Sample Analysis, Page 14:** The text indicates that two of the 24 soil gas samples could not be collected. Please explain why soil gas samples could not be collected from sample locations IR10SG064 and IR10SG065.

→ 4. **Section 6.0, Phase III SVE TS System Operations, Page 22:** It is unclear why samples were not collected during the period between January 3 and January 11 when the system was turned back on to reduce the rebound concentrations or why samples were not collected from all of the locations when extraction was completed. It is also unclear why subsequent rebound samples were not collected. Please explain why no samples were collected after January 3 when the SVE system was turned on for a short period subsequent to the final round of sampling. Please also discuss the rationale for not collecting a second set of rebound samples a few months after the shutdown of the SVE system.

✓ 5. **Section 8.3.1, VOC Reduction During Phase III TS, Page 31:** It would be helpful to indicate in the text which of the 3 SVE wells and four VM wells that rebounded above initial concentrations. Please identify wells IR10SG42-10, IR10SG45-10, IR10SG75-4, IR10SG75-6, IR10VW009A, IR10VW010A, and IR10VW12A as those with higher rebound VOC concentrations than initial concentrations.

✓ 6. **Section 8.4.1, Ratio of Laboratory Results to PID Measurements, Page 32:** The text discusses the average laboratory to PID ratio, but does not discuss the fact that these ratios ranged from 0.3 to 39.3. Please revise the text to discuss the full range of ratios between laboratory results and PID measurements.

✓ 7. **Section 8.4.2, Correlation of Laboratory to PID Results, Page 33 and Figure 9, Coefficient of Determination for Laboratory Data to PID Measurements:** The text indicated that a data set with an R squared of 0.7 shows a “strong and direct correlation between the laboratory data and the PID monitoring data,” but although this relationship is correlative it is not necessarily direct or strong. Please correct the text and include a discussion of the limitations of the relationship between PID and TCE analytical data. (Also see General Comments).

✓ 8. **Section 12.0, Recommendations, Page 39:** One of the recommendations is for active injection of ambient air, but it is unclear how this will be done so that creation of preferential flow pathways is minimized. If this recommendation is adopted in the future, please include in the work plan a discussion of how creation of preferential flow pathways will be minimized.

✓ 9. **Figure 6, Typical Nested Vapor Monitoring Well Construction:** It is unclear from the diagram if the two wells shown should be nested (i.e. two wells within one borehole) or if the description is inaccurate and the diagram is correct showing a pair or cluster of wells (two wells placed in close proximity to one another). Also, the text on pages 1, 10 and 16 (Section 4.0) refers to nested wells, but text on pages 12, 13, and 16 (Section 4.2) describes well pairs. Please clarify whether the wells were installed in pairs or if nested wells were installed, use consistent terminology in the text, and revise Figure 6, if necessary.

✓ 10. **Figure 10, Estimated Post-Treatment TCE Concentrations in Soil Gas:** This figure should clearly indicate that the estimated concentrations are based on extrapolated PID measurements. Please revise the figure to indicate that the estimated concentrations are based on PID measurements.

✓ In addition, it is unclear why there is a postings box for IR10SG076-2ft, when a vapor monitoring (VM) well screened at 2 feet below ground surface (ft bgs) was not constructed. There is a VM

well screened at 6 ft bgs, but the figure does not present analytical data for this VM well. Please resolve these discrepancies.

#### MINOR COMMENTS

1. ✓ **Table 8, Percent Reduction of VOC Concentration:** For clarity and completeness please indicate that concentrations represented in Table 8 were obtained from field PID measurements.
2. ✓ **Appendix D, System Monitoring Field Forms:** It appears from the field forms for PID measurements that no duplicate measurements were taken, but as a Quality Assurance/Quality Control (QA/QC) measure some duplicate measurements should have been made. Please clarify whether duplicate PID measurements were collected or discuss the rationale for not collecting any duplicate PID measurements.