

USEPA Review of the Draft Technical Memorandum, Soil Vapor Investigation in Support of Vapor Intrusion Assessment, Parcels B, D-1, G and UC-2, Hunters Point Shipyard, San Francisco, California, July 2011

GENERAL COMMENTS

1. Throughout the HHRA, terms are used to describe risk and hazard such as “safe”, “acceptable risk,” “inconsequential hazard,” or “insignificant risk”. Risk management decisions take into account multiple factors, one of which is potential health risk/hazard, therefore, it is premature to classify a risk or hazard as acceptable, insignificant or inconsequential. Please revise the HHRA to remove such terminology and simply present risks and hazards in comparison to EPA’s risk management range of 1E-06 to 1E-04 or a target HI of 1.
2. The TM discusses Installation Restoration (IR) sites within each of the study areas throughout the document; however the figures presented do not identify the location and boundaries of the referenced IR areas. For clarity and understanding, please provide a figure that includes the IR sites for each parcel.
3. The document throughout proposes that results of the screening are the decision point on ARICs determinations. In general, we agree that most of the grids are suitable for moving off of the ARICs list. However, EPA reserves the right to not release the ICs on grids that passed the screening or that were not sampled. One-acre sampling grids are OK for a first pass screening, but there may be several grids where we want more data before releasing the ICs
4. It might be helpful to have the recommendations provide the process for altering the ARICs list. The RD is final for all of these parcels, so does it make sense for a Remedial Action Workplan to list ARICs before they get formalized in the deed and CRUP? Or is the Navy envisioning an amendment to the RD? However it gets done, this document is a good place to define the process.
5. Figures 4-1 through 4-4 show a tremendous amount of detail, so there’s no reason to repeat some of that on Figures 7-2 through 7-5. Please make the following changes to Figures 7-2 through 7-5 to better support the decision making process:
 - Please decrease the number of symbols. I think that the only symbols that really support the decision process are “Volatiles Detected in prior soil sampling”, “No Volatiles detected in prior soil sampling”, and Sampled VOC locations. There is no reason to distinguish between original and step-out samples. What is the point of the three “evaluated ...” symbols? They could probably be removed from the figures to improve clarity.
 - Please show only the Tier 2 results for both the green and orange grids. We’ll use Tier 2 for decision making, so no need to show Tier 1 here. Provide a separate set of figures with Tier 1 results for comparison.

- Please show grid results from the adjacent parcels on each figure. This will make it easier to evaluate an area, without the artificial parcel boundaries governing the display.
- Please provide figures at the same scale and orientation as Figures 7-2 through 7-5 that show both historical and current groundwater plume locations.

SPECIFIC COMMENTS

1. **Section 1.1, Project Objectives, Page 1-2, top paragraph:** Please add that the Cal/EPA SGALs screening criteria are also included.
2. **Section 2.6.1, Parcel B, Page 2-8, last paragraph:** The text states that methane source removal actions "have been proposed for sites located at IR-07" and discusses the potential that this removal is not feasible, but this removal action has already been completed successfully. Please revise the text to include the successful completion of the methane source removal action.
3. **Section 2.6.4, Parcel UC-2, Page 2-11:** The fourth paragraph discusses radiological surveys of buildings and former building sites and demolishing radiologically impacted structures, but there are no buildings or former building sites on Parcel UC-2. This parcel consists of streets, a parking lot, and some landscaping. Please revise the text to include only items relevant to Parcel UC-2.
4. **XX Section 4-1, Soil Gas Sampling Locations, Page 4-1:** The referenced figures 4-1 through 4-4 provide a great amount of detail about previous sampling efforts and current sampling locations. However, another useful figure(s) would show outlines of all historic groundwater plumes basewide and current groundwater plume outlines. Please take the groundwater information from the figures in Appendix A and show that in the context of the soil vapor grids and current soil vapor results.
5. **Section 4-1, Soil Gas Sampling Locations, Page 4-2, second paragraph:** Please edit the description of the sampling location selection to make it more understandable. The first sentence in particular is too long and disjointed. Do you mean to say "The parcels were divided into one-acre grids, because one-acre is appropriate for redevelopment and institutional control considerations. At least one sampling location was located in every grid that had a previous soil or groundwater sampling result above screening. Several grids, such as around IR-10, had more than one proposed sampling location because of multiple potential sources in the grid. Grids without any historical soil or groundwater sampling results above screening criteria were not sampled in this study"
6. **Section 4-1, Soil Gas Sampling Locations, Page 4-2, third paragraph:** Please clarify this paragraph. Are the additional locations within the grids discussed in the previous paragraph, in adjacent grids, or based on grids with lower PAH concentrations? Perhaps simply delete most of this paragraph since the same information is presented in the subsequent paragraphs.

7. **Section 4.1 Soil Gas Sampling Locations, Page 4-3:** In the third paragraph the sentence "Figures 4-1 through 4-4) would be collect better determine the extent" does not make sense as written. Please revise this sentence for clarity.
8. **Section 5.3.3, Purge Volume Test, Page 5-3:** The sentence "At a second set of representative locations for each parcel, a purge volume test was conducted after soil gas" is unclear and/or incomplete. Please revise the sentence for clarity.
9. **Section 5.3.4 Leak Test, Page 5-5:** This section does not address what level of leak check compound (LCC) detection was considered acceptable and when corrective action was necessary. The section also does not address what action(s) was/were necessary when testing resulted in an unacceptable level of LCC. It is not clear if another sample was taken after the corrective action was complete or whether associated Summa canister samples were submitted for off-site laboratory verification when LCC was present in samples analyzed onsite. Please revise the text to clarify measures taken in the case of leak test failure.
10. **Section 5.12.1, Vapor Intrusion HHRA, Page 5-13, second paragraph:** The text says that for Tier 1, results were compared to site-specific, risk based SGALs. It should instead say that results for Tier 1 were compared to the SGALs calculated from the default EPA attenuation factor.
11. **Section 5.12.1 and Section 6.3.1, Vapor Intrusion HHRA:** In accordance with the guidance Risk Assessment Guidance for Superfund (RAGS), Volume 1: Human Health Evaluation Manual, Part A: Baseline Risk Assessment (EPA, 1989), if there is reason to believe that the chemical is present in a sample at a concentration below the SQL, one half of the SQL is typically used as a proxy concentration. Please include a discussion of how ND analytical results are considered in the screening process and in the HHRA calculations to ensure that the cumulative risk and hazard are not underestimated.
12. **Section 5.12.2, Figure 5-2:** We consider this to be a screening level effort to move the easy grids off of the ARIC list. There may be several grids that pass the screen that we may want to retain for now on the ARIC list. More than one sample per acre may be necessary for those grids with complicating factors such as proximity to plumes or grids with higher results. Please add a box before the "No ARIC Needed" box on Figure 5-2 that says "Regulators require further evaluation". Add corresponding language to the text in Section 5.12.2.
13. **Section 5.12.2, Figure 5-2:** Implicit in this process is that most grids with no soil vapor sampling will be removed from the ARICs list. Please add appropriate language to the text explaining this.
14. **Section 6.1, Deviations from the SAP, Page 6-1:** This section is not consistent with Section 4.1, Soil Gas Sampling Locations, and Figure 4-1, Tier I HHRA Sampling Locations and Initial Evaluation of Data. The third bullet indicates that a "soil gas sample was not collected from the predetermined vapor monitoring well IR10SG074-4," but Section 4-1 (page 4-4 last paragraph) indicates "a soil gas sample was collected from SVE monitoring well IR10SG074-4" and Figure 4-1 shows the proposed sample location

IR10SG074-4 as being sampled. This section also indicates that samples were taken at nearby wells IR10SG074-6 and IR10SG47-10, which are included on Table 6-1, but not on Figure 4-1. Please revise the text, tables, figures for consistency and clarity.

- 15. Section 6.3, Onsite Analytical Results, Page 6-3 and Tables 6-1 through 6-8:** Section 6.3 text and Tables 6-5 through 6-8 are not consistent with Tables 6-1 through 6-4 as indicated by, but not limited to, the following examples:

- a. Table 6-6 lists eleven exceedances for benzene rather than ten as indicated in the text.
- b. Table 6-5 indicates Benzene for BCSG02-3.0 is 100 micrograms per cubic meter (ug/m³), but Table 6-1 lists results for BCSG02-3.0 of 23 ug/m³ and BCSG02-3.0 duplicate as 1002 ug/m³.
- c. Table 6-5 lists a single value for Chloroform for BCSG04-3.0 (900 ug/m³) when Table 6-1 includes multiple sampling results over 2 days ranging from 470 to 900 ug/m³ without any explanation.
- d. Some entries in Tables 6-5 through 6-8 correspond to duplicate samples in Tables 6-1 through 6-4 without any indication of such or the reasoning for including only one sample over other sample results. It appears the highest value often is presented, but this was not done consistently. For example, the Table 6-7 entry for PA33B013-0.5 Carbon Tetrachloride was 510 ug/m³, which corresponds to the "OS" sample for 9/23/2010 in Table 6-3 rather than the 600 ug/m³ in the sample collected on 9/14/2010.

Please review these tables and Section 6.3 for consistency, include all exceedance data on Tables 6-5 through 6-8 or provide the rationale for selecting one value over another.

- 16. Section 6.3.1 Detection and Reporting Limits, Page 6-7:** This section does not discuss how the data associated with compounds where the detection limit (DL) or reporting limit (RL) was greater than the SGAL was addressed, particularly in the context of completing the HHRA and whether or not any uncertainty was introduced as a result. Each occurrence where the DL or RL exceeds the SGAL should be discussed separately. An example of this issue is data in Table 6-1 for sample location BCSG04-3.0 collected on 9/9/2010. For this location, the RL exceeded the SGAL for three of four samples for benzene, ethylbenzene, trichloroethene, tetrachloroethene, 1,1-dichloroethane, vinyl chloride, and hexachloroethane. Please revise the text to discuss each case where the sampling DL/RL exceeded the SGAL, including how any resulting uncertainty was addressed in the HHRA.
- 17. Section 7.3.1.1.3, Exposure Point Concentrations, Page 7-8:** According to Section 7.2.4, Tier 1 Screening-Level Results for the Residential Exposure Scenario, for locations with multiple samples, the single sample with the highest cumulative risk value was retained as representative of that location; however, it is unclear if these same concentrations developed in the Tier 1 process were also used as the EPC in the Tier 2 evaluation. Please state what EPC was used in the vapor intrusion modeling for the Tier 2 Analysis.

18. **Section 7.4, Uncertainty Assessment, Page 7-12:** The uncertainty section does not discuss the uncertainties associated with the exclusion of data with elevated detection limits. Please include a discussion of the uncertainties associated with the exclusion of these data and its impact on the estimate of cumulative risk and hazard in the HHRA.
19. **Sections 7.5, HHRA Summary and Conclusion, second paragraph:** We disagree with using 5×10^{-6} as the screening threshold. The explanation that engineering controls and risk management will be sufficient is incorrect because engineering controls are exactly the remedy that is required in the ARIC grids. Please use 1×10^{-6} as the threshold for ARICs determination and add a sentence that the regulators may add other grids for site specific reasons. We might agree that some grids in the range of 1×10^{-6} to 5×10^{-6} can be removed, but they should be shown as orange and retained for further analysis in this document.
20. **Section 9, Recommendations, fourth bullet:** Please delete the sentence beginning “Secondly, minor engineering ...”. Engineering controls are specified in ICs, so this is not a valid reason for releasing a grid from the ARICs list.

REFERENCE

EPA. 1989. *Risk Assessment Guidance for Superfund (RAGS), Volume 1: Human Health Evaluation Manual, Part A: Baseline Risk Assessment*. EPA/540/1-89/002. December.