

MEMORANDUM

TO: Treasure Island Restoration Advisory Board, and Jim Sullivan-NSTI

FROM: Paul V. Hehn, Treasure Island RAB - Technical Subcommittee Chair

DATE: May 19, 1997

RE: Comments on Document:
"Draft Remedial Investigation Report - Addendum 1
Contaminant Fate and Transport Modeling"

The following are my comments on the above referenced document.

The comments that have been prepared are related to general issues and to specific sections of the report.

DOCUMENT:

CONTAMINANT FATE AND TRANSPORT MODELING

Comments

Executive Summary:

As presented in the Executive Summary, the models are based on the use of individual hydrocarbon constituents for benzene and naphthalene and on metal in site soils that exceed the ambient concentrations. However, most of the models for the petroleum hydrocarbons as diesel used phenanthrene instead of naphthalene. Why was this changed and how representative of diesel is it? Also the basis of the ambient metals concentrations used for the Phase II RI is still open to debate and the results of this modeling may be limited if it is shown that the ambient metals concentrations are incorrect for the site.

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Was it known early on in the modeling process that the SESOIL was not going to work for the unsaturated soils at TI due to the shallow depth of groundwater? If it was known early on, why was the modeling carried out with a limited usefulness method rather than switching early to another method such as VLEACH? It seems to me that this should have been done in order to get good, total results rather than only being able to complete half of the objective of the modeling work plan.

Comments on Specific Sections

- Section 1.0 - Introduction - Again, since the stated objective of the work was to determine the leaching of contaminants from the soil in the vadose zone to groundwater, and the subsequent transport of the contaminant in the groundwater to the Bay, using the SESOIL and AT123D models, only half of the job is finished since the AT123D worked okay for the groundwater, and the SESOIL proved useless for the vadose zone work except for Site 11. The leachability studies still need to be completed to adequately complete the modeling and the objective of the work plan.
- Section 3.2 - Fate and Transport Conceptual Model - The modeling assumes a decrease in contaminant concentrations (attenuation) to result only from sorption, dispersion, and dilution. How were these assumptions arrived at? Please discuss the process of getting to these assumptions.
- Section 5.0 - Selection of Constituents for Modeling - As previously discussed, the use of the ambient soil concentrations as presented in the Phase IIB report may be incorrect and may need to be revised based on further discussion. Therefore the use of these concentrations may put incorrect or questionable data into the model at the very beginning of the process.
- Section 6.1 - Modeling in the Unsaturated Zone - Vadose zone model used to evaluate whether continued leaching from the unsaturated zone would increase the currently observed concentration in groundwater. What about of the level stays relatively constant over some time period or decreases? Are these cases also considered and discussed?
- Section 6.1 - Modeling in the Unsaturated Zone - Model did not match the observed concentrations in groundwater due to higher concentrations at the site but not detected or that contaminated soil in direct contact with the

groundwater. Couldn't both of these conditions be present and what would that do to the model?

- Section 6.1 - Modeling in the Unsaturated Zone - If other screening-level model such as SUMMERS or VLEACH would be more appropriate, why was the modeling not done using these models?
- Section 6.2.2 - Model Application - The modeling used groundwater concentrations measured during groundwater sampling in 1995. Why were the more recent groundwater sampling results not used? Did the modeling include the groundwater sampling from the new wells installed as a result of the Phase IIB work? If not, the model application and usefulness to the conditions known at the end of groundwater sampling from all wells may be limited.
- Section 7.1 - Site 05 Old Boiler Plant - The second figure showing concentrations referred to in the text but not included in the back of the report should be included to support the conclusions drawn from the data.
- Section 7.1 - Site 09 Foundry - Is Figure 22 for Treasure Island or for Alameda? Please correct either way.
- Section 7.1 - Site 14/22 New Fuel Farm/Navy Exchange Service Station - Was diesel also detected in the groundwater from this site? If so, was diesel (or some surrogate of diesel) also modeled for this site? If so, what was the outcome?
- Section 7.1 - Site 15 Old Fuel Farm - The second figure showing concentrations referred to in the text but not included in the back of the report should be included to support the conclusions drawn from the data.
- Section 8.0 - Summary and Conclusions - Modeling discusses use of naphthalene for diesel(?) but does not use it in the modeling. Uses phenanthrene instead. Why? If naphthalene were used instead of phenanthrene would the modeling results be the same? It appears that the concentrations for naphthalene were generally higher than phenanthrene in groundwater. Would this switch in constituents (to naphthalene) have resulted in much different model results since the initial groundwater sample results were higher?
- Section 8.0 - Site 15 - Old Fuel Farm - Same comment as above for the use of naphthalene instead of phenanthrene.