

Arc Ecology

Environment, Economy, Society, & Peace

March 1, 2002

Richard Weissenborn
Department of the Navy
Southwest Division
Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, CA 92132-5190

Dear Mr. Weissenborn,

I have reviewed the Draft Remedial Investigation Report for OU-5, Alameda Point, dated December 21, 2001. I have several comments, listed below. Attached are comments that were forwarded to me by Patrick Lynch of Clearwater Revival Company. Arc Ecology shares his concerns.

A. General Comments

1. It is very disturbing that risk management decisions were made in the remedial investigation (RI) report. Risk management decisions should not be discussed until the feasibility study and should be finalized in the remedial action plan. Making these decisions in the RI restricts the ability of the community to evaluate all options at the feasibility study and proposed plan stages. (E.g., whether to collect fewer samples from the 4-8 foot depth interval and to collect fewer metal samples, sec. 5.5, p. 53)
2. The Navy has stated that the groundwater is located at 8 feet below ground surface. However there is no source for this information in the document (i.e., the boring logs (Appendix E) show no record of groundwater level.) This is a major oversight that needs to be more properly illustrated in the data.
Also, considering that all of the testing was done in May and June, during the dry season, it is likely that the groundwater level would be higher at other times of the year. Testing needs to be done during the rainy season as well.
3. Although the groundwater at OU-5 has been determined as an unsuitable drinking water supply, there is a potential for dermal contact with the groundwater for residents. Many residents in the surrounding areas find groundwater when digging in their yard at levels well above 8 ft. below ground surface. Please explore the risks associated with this additional exposure pathway.
4. Although restrictions are currently in place to prevent Coast Guard residents from planting vegetables, it cannot be assumed that the same restrictions will be put in place for future residents. Therefore, the exposure through uptake of chemicals into vegetables should be evaluated as a potential exposure pathway for future residents. (See section

5.7.8.1, page 152, last paragraph) Choosing to not evaluate this pathway is another inappropriate risk management decision.

5. It is initially asserted that soil exposure for residents is most likely to occur within the 0 to 4 ft. below ground surface depth interval (sec. 3.4, page 2.) Has a study been done to prove this statement? Please provide the source for this assertion. Furthermore, the time-critical removal action will remove only the top 2 feet of soil in the designated areas yet the data presented in Table 5-21 points out that the cancer risks for PAHs in the soil at the 0 to 4 ft. depth interval are equally as high, if not higher, than the risk associated with shallower soils in these areas. Please justify why the decision was made to only remove 2 feet of soil when a risk to residents still remains.

B. Specific Comments

1. Table 5-6:
 - a) There are some inconsistencies in the exposure assumptions listed:
 - i. They are gathered from several sources, including both new and old Exposure Factors Handbooks.
 - ii. The figures used for children correspond in some cases (e.g., inhalation rate) to a 6-8 year old, while other times the figures correspond to a 3 year old (e.g., body weight.) Please explain how these figures were chosen and why several sources were used, rather than always using the most current.
 - b) An exposure frequency of 125 days (or half a year) was used for a construction worker with an exposure duration of 1 year. This creates some confusion and the derivation of this conclusion should be better explained.
2. Section 5.4.2, page 44: The particulate emission factor used to estimate the exposure to airborne particulates for residents on a daily basis assumes regular site conditions. This value is significantly different than the value used for a construction worker. Since a time-critical removal action is currently underway *while* residents are living there, the estimation of the potential exposure via inhalation of dust should be calculated for current residents under the current site conditions using the same particulate emission factor as was used for a construction worker.
3. The source for Table 5-12 needs to be listed on the table.
4. Section 5.7.5, page 135, third paragraph: The figure referenced in Appendix B (Figure B-14) does not relate to the information being addressed.
5. In section 5.7.7, page 147 the assumption is made that the preliminary data from the areas in and around Parcels 179, 180, and 181 indicate that reasonable maximum exposure residential cancer risks are likely to lie within the risk management range. This assumption cannot be made with such limited sampling data, especially considering that all but one of the samples had a BaP-equivalent value greater than the EPA Region IX PRG value. Please remove this phrasing.
6. The Remedial Action Objectives that are established in section 6.4, p.6 are another example of risk management decisions being made in the RI. The purpose of the RI is to characterize the nature and extent of the contamination while quantifying the potential risk. Remedial action objectives should not be discussed until the feasibility study and should be finalized in the remedial action plan.

I appreciate the opportunity to comment on this document. Please feel free to call me with any questions.

Sincerely,



Lea Loizos
Staff Scientist

Attachment: Comments from Patrick Lynch, P.E., Clearwater Revival Company

Cc:

Ms. Anna-Marie Cook, US EPA, Region IX

Ms. Marsha Liao, Department of Toxic Substances Control

Mr. Dan Murphy, Department of Toxic Substances Control

Mr. Laurent Meillier, San Francisco Bay Regional Water Quality Control Board

Mr. Dennis Mishek, San Francisco Bay Regional Water Quality Control Board

COMMENTS RECEIVED ELECTRONICALLY FROM PATRICK LYNCH, CLEARWATER REVIVAL CO.

- 1. Methane risks are not addressed in the Risk Assessment. Estimates of methane emissions should be made to determine if a risk of explosion currently exists, or will potentially exist in the future, if contaminants remain in place. The final RI Report should discuss the convective transport of contaminants in methane emissions. A discussion of risks from the transport of methane through preferential pathways (storm and sanitary sewer laterals, improperly abandoned borings and wells) should also be included in the final RI Report.**
- 2. The lack of clay layer at 8 feet below ground surface was noted in soil borings CH-1, CH-3, CH-5, CH-13 and CH-17. The final RI Report should discuss whether the lack of this confining layer affects contaminant transport.**
- 3. The final RI Report should attribute the benzene in groundwater to jet fuel rather than historical industries. Industrial waste discharges prior to 1940, would not include 1,2-dichloroethane a component of jet fuel. This chemical is consistently found with benzene throughout OU-5. Elevated levels of nickel in soil also suggest jet fuel is the source of contamination in OU-5.**
- 4. The RI Report states that a computer model VLEACH was used to estimate contaminant emissions from soil gas into indoor air. The modeling however is poorly documented. It is impossible to verify the modeling results which are reported in Table 5-11 of the RI Report as "Estimated Soil Gas-to-Air Transfer Coefficients. Input and output data should be provided in the RI Report for each model simulation.**
- 5. VLEACH requires input of a contaminant soil concentration. With the exception of Naphthalene, no chemical for volatile organic compounds in soil sample was conducted during the RI. The RI Report indicates that the soil gas concentration of naphthalene and the other volatile organics was used to establish the model's initial conditions. The details of how model input was changed to accommodate soil gas data should be provided in the RI Report. A comparison of the model results based on naphthalene concentrations in soil and naphthalene concentrations in soil gas should be reported in the RI Report.**
- 6. The VLEACH model is a Vadose Zone Leaching Model and the appropriateness of this model for estimating indoor air quality has not been demonstrated. The VLEACH model allows two conditions, no vapor flux from soil to the atmosphere or 100 percent vapor flux to the atmosphere. The RI Report**

indicates a 10 percent vapor flux was used to model indoor air, without explaining the fate of the other 90 percent.

7. The RI Report states that to estimate gas diffusion a uniform concentration was set for the entire soil column. Uniform contaminant distribution eliminates gas diffusion. Diffusion occurs due to concentration gradients that do not exist in a uniformly contaminated medium. These concerns with the models results should be addressed in the final RI Report in the a sensitivity analysis. A sensitivity analysis is recommended by the VLEACH program manual.
8. The concentration gradient that exists between groundwater and soil gas was also ignored during all model simulations except the "construction worker scenario." The model for residents therefore predicts that soil gas contaminant concentrations can only decrease. If the evaporation of contaminants from groundwater is considered the soil gas concentrations will significantly increase over time. The groundwater-to-indoor-air pathway should therefore be considered in the cumulative risk estimates in the final RI Report.
9. The Risk Assessment does not estimate the impact to outdoor air suggesting that this risk is insignificant. The area of contamination at OU-5 is large enough that subsurface contaminants may significantly impact outdoor air quality. The groundwater-to-outdoor-air pathway and the soil gas-to-outdoor air pathway should be considered in the cumulative risk estimates in the final RI Report.