



## GENERAL COMMENT

1. The large variability in volatile organic compound (VOC) concentrations in soil gas samples collected during the Multi-Phase Extraction (MPE) testing (shown graphically in Figures 5-12 through 5-14) are quite variable. TCE concentrations in soil gas samples collected from 16MPE1 were 132, 208, 215, 95, 131, 32, 44, 121, 91, 49, 110, 4, 94, 79, 97, 15, 72, 54, 61, 39, 59, 36, 11, 18, 28, 41, and 41 ug/L. The duplicate soil gas sample collected on November 14, 2000 also demonstrates variability (142 and 22 ug/L total VOC for duplicate samples). Please review the data to assess whether the variability is due to sample collection and analytical procedures, sample stability or inherent extraction fluctuations, and then revise the report to discuss the variability in the observed soil gas concentrations. If the variability is attributable to sampling and/or analysis problems, please revise the conclusions section of the report to recommend revised standard operating procedures (SOP) for collecting soil gas samples at El Toro to improve the quality of data.

## SPECIFIC COMMENTS

- 1. Section 2.4, Initial Groundwater Sampling Prior to Pilot Testing, Page 2-6:** Except for the MPE well, the initial groundwater samples were collected using a Grundfos Redi-Flo2™ submersible pump as the necessary equipment for low-flow purging was not available. While this change is understandable, it does generate a concern for the comparability of future monitoring data. Please revise the report to indicate what method the Navy will use to collect future groundwater samples to assure that the results of these samples will be comparable to the initial groundwater quality results and yet accurate and representative of groundwater quality.
- 2. Section 2.5, Initial Soil Gas Sampling, Page 2-6:** Please include a section describing the soil gas sampling techniques used to collect the soil gas samples and please provide the laboratory method used to analyze the soil gas samples.
- 3. Tables 3-1, 5-8 and 5-9, Soil Gas Sampling Results, Pages 3-10, 5-25 and 5-33:** The Quality Control Summaries included in Appendix D indicate that there were a number of calibration problems with the soil gas sample analyses, mainly concentrations out of the calibration range. If there were laboratory quality control problems that were not resolved, the data should have been flagged in some manner. However, none of the soil gas data presented in the tables are now identified as being of suspect quality due to calibration difficulties. Please review the soil gas analytical results and, if necessary, revise the tables to indicate which results are estimated or otherwise qualified. In addition, if there are significant laboratory quality control issues, please address the potential effects of those issues on the results of the study.
- 4. Table 5-8, Soil Gas Analytical Results During SVE and MPE Testing in Well MPE1, Page 5-25:** The table indicates that breakthrough of both carbon canisters occurred at some point prior to November 14, 2000 and that the Navy continued to discharge VOCs to the atmosphere at least through December 8, 2000. Please indicate what steps the Navy will take to prevent this type of release from occurring in the future.
- 5. Figure 5-10, MPE Test Vacuum and Drawdown in 16MPE1, Page 5-39:** The figure

indicates a sudden sharp increase in well drawdown from 6 to 8 feet at about 8800 minutes into the test. The cause of this sudden increase in well drawdown is not discussed in the text. In addition, at a constant pumping rate, a rise in the water level should have occurred when the vacuum was increased in the well at approximately 14,400 minutes into the test (the drawdown was lower under the initial vacuum, therefore it should have been lower still under a higher vacuum at constant flow rate). However no significant decrease in drawdown was recorded after the vacuum was increased. Please revise the report to indicate why there was a sudden increase in well drawdown at about 8800 minutes into the multi-phase extraction test and please also address the reason there was no significant decrease in drawdown after the vacuum was increased in the well.

**6. Section 5.8, Summary of Results of the MPE Pilot Study, Page 5-51:** The report indicates that the groundwater radiuses of influence of the groundwater extraction well and the MPE well are presented in Section 5.1.2.4. This latter section indicates, however, that the radiuses of influence will be presented later in the site feasibility study (FS) report and that they will be based on computer modeling. Please revise the report to clarify when and where this data analysis will be presented. In addition, it would be helpful if any data available from the operation of the MPE well through March 7, 2001 (specifically, well drawdown data) could be appended to the report if it is available. In addition, if possible, please qualitatively indicate what the expected groundwater radius of influence of the MPE well will be.

**7. Section 5.8, Summary of Results of the MPE Pilot Study, Page 5-52:** The last paragraph of the section indicates that, "The additional data collected will be helpful in determining whether MPE is effective in preventing further migration of VOCs in groundwater." An important purpose of the test is to evaluate the economics of MPE versus a separate SVE and groundwater extraction system. We suggest that the Navy address in the draft final FS whether the benefits of a few years of MPE outweigh the costs of implementation of MPE, given that control of the groundwater plume will likely be required for many years after the vadose zone has been remediated.

### **Minor Comments**

1. The dashed green line in Figure 3-3 is not defined.
2. Figures B-1 and B-2 are out of order.