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Naval Facilities Engineering Command
Southwest Division
Mr. Richard Selby, Code 57CS.RS (O)
Building 128
1220 Pacific Highway
San Diego, CA. 92132-5187

DATE: 03 February 1996
CTO #: 0073
LOCATION: MCAS El Toro

FROM: [Signature]
D. K. Cowser, Project Manager

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**RESPONSE TO SOIL-RELATED COMMENTS
DRAFT PHASE II FEASIBILITY STUDY
FOR SITE 24, OPERABLE UNIT 2A
MCAS EL TORO, CALIFORNIA**

<p>Originator: Tayseer Mahmoud, RPM Cal EPA</p> <p>To: Joseph Joyce, BRAC Environmental Coordinator MCAS El Toro</p> <p>Date: 03 February 1997</p>	<p>CLEAN II Program Contract No. N68-711-92-D-4670 CTO-0073 File Code: 0222</p>
<p><u>GENERAL COMMENTS</u></p> <p>1. 13. Section 4.3.1, In Situ Soil Vapor Extraction Description, page 4-6. This section cannot be reviewed with regard to the SVE well field design until the field data generated from the SVE pilot study is submitted to the agencies.</p>	<p><u>RESPONSES TO GENERAL COMMENTS</u></p> <p>Section 4.3.1 states that the SVE design is <u>conceptual</u> and based on the results of soil gas sampling and the Phase II RI/FS SVE Pilot Study, the report for which was submitted October 21, 1996. The actual SVE well field design will be based on the results of the Phase II RI/FS pilot test, results obtained from the continuation of this pilot test currently being conducted by the Navy's RAC contractor, and additional testing may be conducted in areas where SVE wells are not currently installed. The well field described here is meant to be conceptual only and not an accurate portrayal of the final design. The BCT will be provided the opportunity to review both the pilot test results and the final SVE well field design.</p>
<p>2. 16. Section 4.4.3.2, Long-Term Effectiveness and Performance for Alternative 6a, page 4-38 & Section 4.4.5.2, Long-Term Effectiveness and Performance for Alternative 10, page 4-50. According to the model, shallow groundwater unit will be dewatered in approximately 17 years. This would cause downward hydraulic gradients to develop and mobilize TCE into deeper units. The BCT should discuss, at the design stage, the possibility of partial groundwater reinjection to flush the aquifer. Also, SVE treatment after the aquifer is dewatered.</p>	<p>Groundwater extraction wells in the shallow groundwater unit are proposed to be operated using vacuum-enhancement in the upcoming groundwater remediation pilot test. The proposed extraction wells will be connected to a vacuum blower as with a standard SVE well. As the aquifer is dewatered, more of the extraction well screen will be exposed to unsaturated soil and 'SVE' air flow will increase. In effect, vacuum-enhanced groundwater extraction exposes both the dewatered aquifer material and vadose zone to SVE processes. These pilot test data will be discussed with the BCT as suggested to evaluate the benefit of applying SVE processes to dewatered aquifer material.</p> <p>Evaluation and discussion with the BCT of partial groundwater reinjection to flush the aquifer and limit vertical migration of TCE will be a component of the proposed groundwater remediation pilot test.</p>
<p>3. 24. Appendix A, Table A2-3, Chemical-Specific ARARs. Some chemicals in this table did not have risk base concentrations (RBCs). The following information on three chemicals might be useful.</p> <p>a) Dichlorodifluoromethane: This compound is also known as Freon</p>	<p>These compounds were not reported during the Phase I soil gas investigation, Phase II soil gas investigation, or during any pilot test sampling conducted to date. We appreciate the information provided by the DTSC; it will be utilized for groundwater issues.</p>

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<p>12. As of August 1996, U.S. EPA Region IX give residential Preliminary Remediation Goals (PRG) of 94 mg/kg in soil and 390 µg/L in water. These are based on an oral reference dose (RfD_o) of 0.2 mg/kg-day and an inhalation reference dose (RfD_i) of 0.057 mg/kg/day.</p> <p>b) 2-Butanone: This compound is also known as methyl ethyl ketone. As of August 1996, U.S. EPA Region IX gives residential PRGs of 7,100 mg/kg in soil and 1,900 µg/L in water. These are based on an RfD_o of 0.6 mg/kg-day and an RfD_i of 0.6 mg/kg/day.</p> <p>c) 2-Hexanone: This compound is also known as methyl-n-butyl ketone. No PRGs or reference doses are published for this chemical. However, n-hexane is metabolized in mammals first to 2-hexanone then to the neurotoxic 2,5-hexanedi-one. Therefore, n-hexane is an adequate surrogate compound. As of August 1996, U.S. EPA Region IX gives residential PRGs for n-hexane of 110 mg/kg in soil and 350 µg/L in water. The PRG in soil is a saturating concentration, while the PRG for tap water is based an RfD_o of 0.06 mg/kg-day and an RfD_i of 0.057 mg/kg/day. Table 4-1 in the Draft Final Risk Assessment gives the same RfD_o and RfD_i for dichlorodifluoromethane and 2-butanone, but this table shows no values for 2-hexanone. Risk-based concentrations for chemicals of potential concern are not shown in the human health risk assessment. PRGs are risk-based concentrations which do not contain any site-specific information.</p>	
<p>4. 27. Appendix E, Table E2.3, page E-4. A footnote text is not provided for footnote letter (c) shown in the table. Also, the number of SVE samples calculated may not be accurate. Please explain how you arrived at the number.</p>	<p>The footnote letter (c) will be deleted from the draft final version of the FS. Table E2-3 represents a <u>conceptual</u> schedule for vadose monitoring, as stated on Page E-3. It was assumed that 16 SVE wells would be tested per month for 21 months (336 total). In general, laboratory tests used to support the operation and maintenance of an SVE system are augmented with many more field measurements (e.g., portable photoionization detector). It was also</p>

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	<p>assumed that 21 SVE system samples would be collected for 6 quarters (126 total) to evaluate the effectiveness of soil gas treatment. The actual number of soil gas samples that are collected from each SVE well and from the treatment system will be highly dependent on the final SVE system design. The estimate shown in Table E2-3 is conceptual only and was used to assist in our cost estimation. It was not meant to be interpreted as an accurate portrayal of the number of SVE samples that will be collected to support operation of the SVE system.</p>