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MCAS EL TORO  
SSIC #5090.3



*Department of  
Toxic Substances  
Control*

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March 6, 1998

*Pete Wilson  
Governor*

*Peter M. Rooney  
Secretary for  
Environmental  
Protection*

Mr. Joseph Joyce  
BRAC Environmental Coordinator  
U.S. Marine Corps Air Station - El Toro  
P. O. Box 95001  
Santa Ana, California 92709-5001

Dear Mr. Joyce:

**COMMENTS ON DRAFT SOIL VAPOR EXTRACTION SYSTEM DESIGN,  
SITE 24, OPERABLE UNIT 2A - VADOSE ZONE, MARINE CORPS AIR  
STATION (MCAS) EL TORO**

The Department of Toxic Substances Control (DTSC) has completed the review of the above subject document dated January 1998, prepared by Bechtel National Inc. The work plan includes a discussion of the remedial action objectives, conceptual design, and design approach for a soil vapor extraction (SVE) system to address volatile organic compounds (VOC)-contaminated soil at Site 24.

This letter is to transmit the enclosed DTSC comments on the draft work plan. If you have any questions, please call me at (562) 590-4891.

Sincerely,

Tayseer Mahmoud  
Remedial Project Manager  
Base Closure Unit  
Office of Military Facilities  
Southern California Operations

Enclosure

cc: See next page.

*Mr. Joseph Joyce*  
*March 6, 1998*  
*Page 2*

cc: Mr. Glenn Kistner  
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**DEPARTMENT OF TOXIC SUBSTANCES CONTROL**  
**Comments on Draft Soil Vapor Extraction System**  
**Design Work Plan for Site 24 Vadose Zone**  
**Marine Corps Air Station El Toro**  
**Dated January 1998**

**GENERAL COMMENTS**

DTSC finds the design work plan to be generally complete, comprehensive, and well-written.

**SPECIFIC COMMENTS**

**1. Section 1.5, Site Characterization Activities, Figure 1-2**

Soil gas concentration contours are shown for both TCE and PCE. The legend shows that the soil gas contours represent soil gas concentrations near the water table. The SVE wells are conceptually screened to target three vadose zone levels: in the shallow vadose zone (0 to 40 feet below ground surface (bgs)), at an intermediate level (40 to 70 feet bgs), and in the deep zone (70 to 110 feet bgs). Please provide, in this work plan, the soil gas contour lines for TCE and PCE for the intermediate and shallow vadose zones, to facilitate evaluation of SVE well coverage at the three different depths. As a further step in this direction, the soil gas contour maps at the particular depths (shallow, intermediate, and deep) should be overlain with the locations of the proposed SVE wells and their estimated radii of influence (ROI) for the same depths (shallow, intermediate, and deep), respectively.

**2. Section 1.8, Proposed SVE Wells, page 1-8**

The work plan is unclear as to how new SVE wells will be located. Section 1.8 states that *"additional well drilling for the project will generally be carried out in well groups. The well group will consist of an extraction well and at least one monitoring well. Monitoring wells provide data used to estimate the extraction well radius of influence (ROI), soil air permeability, and soil gas travel time. This information is used to design an efficient SVE well field."* These statements seem to imply that a pilot test will be performed after the drilling of each SVE well. With as many as 100 SVE wells to be installed (about 90 in the conceptual design), or more, there will be a great number of monitoring wells installed, as

*Comments on Draft SVE Work Plan  
Marine Corps Air Station El Toro  
Page 2*

well as a great deal of time spent on monitoring them during SVE well development. DTSC recommends that this issue be further detailed and clarified. We would also like to see an estimate of the time involved in the additional SVE well installations. Please include a discussion of the logistics or order of sequencing to bring wells on-line.

**3. Figure 3-1, Conceptual Pipe Layout Central Treatment Facility, page 3-5**

The conceptual SVE system layout shown is based on 100-foot ROIs produced by a 100-standard cubic feet per minute (scfm) extraction rate per SVE well. These parameters appear quite reasonable for fine to medium sands, and it is not likely that final SVE design parameters will vary a great deal from them. Also, at these parameters, the capacity of the huge, 8,500-scfm SVE system considered to be transplanted from Norton AFB would seem to be fully utilized. However, a comparison of the conceptual layout of the SVE wells screened in the deep zone (Figure 3-1) with the near water table TCE soil gas contour line (at the soil gas cleanup objective of 27  $\mu\text{g/L}$ )(Figure 1-2), indicates inadequate areal coverage by those wells. Thus, new SVE wells which would provide the seemingly missing coverage would have to be supported by an SVE system capacity beyond that which the Norton AFB's system could furnish. This means that the Norton AFB unit has to be augmented or integrated with additional SVE capacity. Has this issue been evaluated?

Since no soil gas contour lines were provided for the shallow and intermediate vadose zone levels, this issue may also apply to those vadose zone levels.

**4. Figure 3-1, Conceptual Pipe Layout Central Treatment Facility, page 3-5**

The legend relating the vadose zone intervals is not accurate. Please provide the correct screen depths.

**5. Section 3, Conceptual SVE System Design**

The Work Plan should include a figure that details the locations and extent of impermeable surface covers. Impermeable surface covers can affect or reshape ROIs, especially for shallow SVE wells. Under some conditions, vent wells may have to be considered to aid or reshape the soil gas extraction patterns. Since a large portion of Site 24 is covered with concrete, the work plan should include a section to address the effect of the cover.

*Comments on Draft SVE Work Plan  
Marine Corps Air Station El Toro  
Page 3*

**6. Section 3.7, Discharge Treatment Standards, page 3-6**

The work plan states that South Coast Air Quality Management District (SCAQMD) Rules 1303 and 1401 were identified as applicable. It further states that Rule 1401 requires that the best available control technologies for toxics be applied to equipment emitting chemicals at concentrations exceeding the maximum allowable individual cancer risk. Based on these statements, DTSC recommends that the Marines prepare a health risk assessment using the expected emissions generated by the SVE system. The high flow rate can lead to high mass emission rates, even at low concentrations of VOC emissions. It may be necessary to provide protection or to limit time of operation of the SVE system for worker safety.

Also, please submit documentation to SCAQMD to demonstrate that the system will be in compliance with Rules 1303 and 1401 and obtain a letter to that effect. Please note: It will be necessary for the Marines to submit payment of fees for the cost of review by SCAQMD of these documents. DTSC does not have an Interagency Agreement with SCAQMD, and therefore cannot distribute DSMOA funds for services. DTSC recommends that the Marines contact SCAQMD to discuss this matter.

**7. Section 4.3.2, Selection of Emission Abatement Equipment, page 4-7**

Please include a discussion of the expected type of emission monitoring equipment that will be used to measure the discharges from the SVE pilot system.