RESPONSE TO COMMENTS
DRAFT SOIL VAPOR EXTRACTION SYSTEM DESIGN,
SITE 24, OPERABLE UNIT 2A - VADOSE ZONE
MCAS EL TORO, CALIFORNIA

Originator: Tayseer Mahmoud, Project Manager Cal/EPA **To:** Joseph Joyce, BRAC Environmental Coordinator Navy **Date:** 6 March 1998	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0142** **File Code: 0222**
SPECIFIC COMMENTS	***RESPONSES TO 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.**	**RESPONSE 1:** Figures showing soil gas contour lines for TCE and PCE in the intermediate and shallow zones have been added to the work plan. These contour maps are overlain with the locations of the proposed SVE wells and their estimated ROI.
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 well as a great deal of time spent on**	**RESPONSE 2:** The discussion of how wells will be located has been revised. Wells will be installed using a 30:70 approach, with 30 percent of the wells installed, tested, and evaluated to assess the need for additional wells. During installation, the first (30 percent) wells will be tested to determine the relationship between applied vacuum and extracted air flow and to assess vacuum influence using surrounding SVE wells and monitoring points. The need for additional wells will be assessed as follows: - If airflow and vacuum influence conditions meet the expected design, the remaining wells will be constructed. - If flow is lower than expected, and/or poor vacuum influence is

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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.	encountered, additional wells may be constructed. - If flow is higher than expected or high vacuum influences are encountered, then additional wells will not be installed. Well installation is expected to take approximately 6 months and can be done in parallel with installation of the piping network and central equipment compound. System startup will occur once all required wells (100 percent) are installed.
3. **<u>Figure 3-1, Conceptual Pipe Layout Central Treatment Facility, page 3-5</u>: 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 µg/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.**	**RESPONSE 3:** The issue of coverage has been addressed and the number of wells has been increased to approximately 214 based on refined calculations of air flow and soil permeability. Figures 3-1 through 3-3 show the revised conceptual SVE system layout. The ability of the Norton system to support these wells will be evaluated in the Engineering Design Report. Although flows are expected to be less at MCAS El Toro than at Norton, preliminary calculations indicate that the system will be adequate for use at Site 24. Soil gas contours have now been provided for the shallow and intermediate vadose zone levels. Please see Section 3 of the draft final work plan.

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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.**	**RESPONSE 4:** The figures in Section 3 have been revised to show the wells screened in each zone on separate figures. The error in the legend has been removed.
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.**	**RESPONSE 5:** A figure showing the locations and extent of impermeable surface covers has been added to the draft final work plan. A section has also been added to address the effect of the cover. A more detailed evaluation of the impact of the impermeable surface covers on the SVE system will be presented in the Engineering Design Report.
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**	**RESPONSE 6:** A human health risk assessment will be performed using the expected emissions generated by the SVE system. This assessment will be included in the Engineering Design Report (EDR) as part of a Permit Equivalency Package that will serve to demonstrate substantive requirement compliance with SCAQMD Rules 1303 and 1401. Under CERCLA §121, remedies selected at Superfund sites must be protective of human health and the environment and must comply with applicable or relevant and appropriate requirements. Remedial actions taken under CERCLA §§ 104, 106, or 122 that are conducted entirely on site do not require Federal, State, or local permits, whether conducted by U.S. EPA, another federal agency, a state, or a responsible party. On-site remedies must comply with substantive requirements but need not comply with the administrative and procedural requirements. "On site" is defined as the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action. The Permit Equivalency Package will document how implementation of the SVE design and remedial action will meet the substantive requirements of

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funds for services. DTSC recommends that the Marines contact SCAQMD to discuss this matter.	SCAQMD Rules 1303 and 1401.
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.**	**RESPONSE 7:** This discussion has been added to Section 4.3.2. DON is planning to measure emissions using an organic vapor analyzer (e.g., PID or FID). Samples will be taken from the inlet to the primary adsorber, outlet of the primary adsorber, and outlet of the secondary adsorber. The lead vessel effluent and system effluent will be sampled in accordance with SCAQMD guidelines periodically during the first 48 hours at the inlet to the primary adsorber, outlet of the primary adsorber, and outlet of the secondary adsorber. After the first 48 hours, VOC concentrations will be measured at the outlet of the primary and secondary adsorbers at least once every operating day for the first two weeks and weekly thereafter unless calculation of carbon loading shows the need for more frequent sampling. Once the system is in full operation, samples will be collected from the inlet of the primary and at the outlets of the primary and secondary adsorbers using a Summa™ canister or tedlar™ bags. These samples will be sent to a fixed-based laboratory for analysis using U.S. EPA Method TO-14. The results will be used to confirm the results of the risk assessment performed in the Permit Equivalency Package.

RESPONSE TO COMMENTS
DRAFT SOIL VAPOR EXTRACTION SYSTEM DESIGN,
WORK PLAN, SITE 24
MCAS EL TORO, CALIFORNIA

Originator: Herbert Levine, Hydrogeologist U.S. EPA **To:** Glenn Kistner, RPM U.S. EPA **Date:** 2 February 1998	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0142** **File Code: 0222**
COMMENTS **I have reviewed this document and found it to be well written and well organized. I only have a couple of comments to make. With regards to well field design, I would recommend considering using passive air intake wells to facilitate flow. This may prove to be beneficial since most of the area to be remediated is covered with concrete. Also, the Navy should be aware that the EPA HYPERVENTILATE software was designed and intended for screening purposes only, not for well field design (see Review of Mathematical Modeling for Evaluating Soil Vapor Extraction Systems, EPA/540/R-95/513, July 1995). With regards to monitoring, the Navy should consider several items. First is collecting soil samples in addition to soil gas as both part of the rebound study and as confirmation sampling. Second, the rebound study should be defined in the design document. The third item related to monitoring, and maybe this should be part of the rebound discussion is system optimization. It may be likely that the system as originally designed and operated may not be sufficient to reach the remedial goals. Often we find that after the initial design and operation the remedial goals are not met and the systems are optimized. System optimization may include modification of well field, change of extraction rates, addition of heat, to name a few. Some discussion on optimization would be appropriate in case as a contingency in case the remedial goals are not met with the initial design.**	***RESPONSE TO COMMENTS*** **RESPONSE:** Passive air intake will likely be beneficial to the SVE system operation. This will be discussed in the Work Plan and Engineering Design Report. The reference to HYPERVENTILATE software has been deleted. This software will not be used for well field design. Soil sampling is considered a less reliable indicator of TCE contamination at Site 24 than soil gas sampling. This is because the soil is very low in total organic carbon. Since TCE tends to partition into the organic carbon fraction of the soil, these low levels of organic carbon do not promote adsorption of TCE. The highest TCE concentration detected in the vadose zone during the Phase I RI was 400 µg/kg. During the Phase II RI, the highest concentration was 190 µg/kg. For comparison, TCE was detected in soil gas at concentrations up to 6,120 µg/L. Concentrations of TCE in soil at Norton were much higher (up to 69,000 µg/kg) than MCAS El Toro. The rebound study will be defined in the Engineering Design Report as suggested. System optimization will be discussed in the Engineering Design Report and in the Contingency Plan. A section has been added to the draft final work plan noting that a QA/QC Plan, an O&M Manual, and a Contingency Plan will be issued. The contents of each of these plans is also described briefly.

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WORK PLAN, SITE 24
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Originator: Glenn Kistner, RPM U.S. EPA **To:** Joseph Joyce, BRAC Environmental Coordinator Navy **Date:** 3 February 1998	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0142** **File Code: 0222**
COMMENTS	***RESPONSES TO COMMENTS***
1. **ARARS - Please list or reference the ARARs and TBCs that were in effect the date the ROD was signed and therefore are part of the remedy. They should be characterized as chemical-specific, location-specific, or action-specific. The text mentions that "hazardous waste determinations will be at the time waste is generated." What steps will be taken to determine if a waste is hazardous and what steps will be taken if such a determination is made?**	**RESPONSE 1:** The work plan has been revised to list the chemical specific, location specific, and action specific ARARs in effect the date the ROD was signed. Detail has also been added to the plan to describe the steps that will be taken to determine if a waste is hazardous and what steps will be taken if such a determination is made.
2. **Land-Use Restrictions - Please point out situations where institutional controls are needed such as easements, water-use restrictions, etc., and note the parties who have specific responsibilities for implementing the controls such as DOD, the state, or local government.**	**RESPONSE 2:** Institutional controls, in the form of deed restrictions, will be required in two situations. First, DON and regulatory personnel will require access to SVE wells, piping, and monitoring wells in order to operate the system and monitor the progress of remediation. Second, deed restrictions will be required during remediation to prevent disturbance of monitoring wells and SVE equipment. DoD reserves the right to enforce deed restrictions and other institutional controls and DON will ensure that language clarifying this right is incorporated into the transfer documents. Because this remedial action deals only with contamination present in the vadose zone, restrictions on use of groundwater are not appropriate. The need for such restrictions will be discussed in the OU-1/Site 24 groundwater ROD.
3. **Community Involvement Activities - The work plan should contain a schedule for updating the Community Involvement Plan (CIP) to reflect the remedial activities that will take place. The CIP itself should contain the necessary activities such as fact sheet preparation, updating mailing lists, community interviews, public meetings, etc.**	**RESPONSE 3:** Community relations for MCAS El Toro are addressed by means of a Community Relations Plan (CRP). The NCP (Section 300.435(b)(2)(c)(1) requires that, prior to the initiation of the remedial design, the lead agency shall review the CRP to determine whether it should be revised to describe further public involvement activities during the remedial design/remedial action that are not already addressed or provided for in the CRP. DON has reviewed the CRP and has determined that the document does

Originator: **Glenn Kistner, RPM** **U.S. EPA** **To:** **Joseph Joyce, BRAC Environmental Coordinator** **Navy** **Date:** **3 February 1998**	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0142** **File Code: 0222**
	not need to be revised at this time. The CRP contains necessary activities such as fact sheet preparation, updating mailing lists, community interviews, and public meetings and these activities have been part of the preparation for remedial design at Site 24. In conformance with the CRP, DON intends to issue a pre-remedial action fact sheet describing the remedial activities that will take place at the site. The fact sheet will be issued prior to initiation of the remedial action and has been added to the schedule in the work plan.
4. **<u>Predesign Phase Submittals</u> - In addition to a Contingency Plan, the Work Plan schedule should contain deliverables for a Site Management Plan, a Health and Safety Plan, a Field Sampling Plan, and a Quality Assurance Project Plan. Existing documents may be updated to reflect the new activities.**	**RESPONSE 4:** These deliverables have been added to the Work Plan schedule.

BECHTEL NATIONAL INC.

CLEAN II TRANSMITTAL/DELIVERABLE RECEIPT

Contract No. N-68711-92-D-4670 Document Control No.: CTO-0142/0378

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TO: Contracting Officer
Naval Facilities Engineering Command
Southwest Division
Mr. Richard Selby, Code 57CS1.RS
Building 127, Room 112
1220 Pacific Highway
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DATE: May 7, 1998
CTO #: 0142
LOCATION: MCAS El Toro

FROM: D. J. Tedaldi, Ph.D., P.E., Project Manager

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