COMMENTS FROM THE CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL ON THE WORK PLAN AND DATA QUALITY OBJECTIVES

APPENDIXES
PHASE II REMEDIAL INVESTIGATION
MCAS EL TORO

COLLABORATIVE REVIEW
SCO10016B74.WP5\94\CF

General Comments

1. Definition of Strata

We do not feel that the strata have been adequately defined for a stratified randomized sampling plan. Although an analysis of Phase I data is presented which purports to estimate the coefficient of variation within strata, we do not think such an estimate is possible, given the very small number of samples collected within any stratum in Phase I. Without this coefficient of variation, values for the minimum detectable relative difference (MDRD) cannot be validly calculated and the statistical basis for the sampling plan for Phase II must be called into question.

Statistical methodology used for defining the number of samples to be taken in Phase II is questionable, possibly invalid.

Response

Strata were previously defined as part of the Phase I Work Plan. Strata boundaries were then modified following the review of historical aerial photographs, and strata boundaries were documented in the Phase I Sampling and Analysis Plan (SAP) Amendment. Both the Phase I Work Plan and SAP were reviewed and approved by the regulatory agencies. Changes to the strata boundaries that were necessary based on the results of the Phase I RI or the results of additional historical aerial photograph review have been documented in the Data Quality Objectives (DQO) document. However, only five strata boundaries were modified. It is entirely possible that certain individual strata boundaries should be redefined. These should be identified by DTSC and, if necessary, the strata in question will be redefined. However, based on previous agency concurrence with strata definitions, the large amount of work that has been accomplished, and the results of the data to this point, it is inappropriate to issue a blanket condemnation of all strata definitions.

The coefficient of variance (CV) was not calculated separately for each stratum. Rather, the statistical distribution of sample-specific risks from all Phase I shallow soil data was used to calculate the CV, using a statistical technique called Analysis of Variance. Thus, the number of samples collected within each individual stratum did not affect the selection of the CV. The MDRD was not calculated from the CV. MDRD is a design variable, selected for each stratum based on the risk calculated from Phase I data for that stratum.

A discussion of the statistical approach used in the DQOs is presented in Chapter 4 of the Work Plan and in the Introduction to the DQO document. This approach utilizes standard statistical methodology and follows U.S. Environmental Protection Agency (EPA) DQO and risk assessment guidance.

Based on this DTSC comment, there is clearly confusion regarding the actual statistical methodology employed for MCAS El Toro. It is unfair to state that the statistical approach is questionable and possibly invalid when the approach is so clearly misunderstood. In addition, DTSC was apprised of the statistical approach in writing three months before the DQO document was released, and never expressed disapproval.

2. **Chemicals of Potential Concern (COPCs)**

COPCs are only partially identified as of the preparation of the document. It is entirely possible that chemicals in an analytical class will be detected in Phase II which were not detected in Phase I. If this occurs, these newly detected chemicals also become COPCs.

The locations of the boundaries of the strata are highly questionable. A large number of areas which seem to represent contamination have not yet been sampled and it is not at all clear, in the document as written, that these areas will be sampled in Phase II. We do not feel that the Phase II work plan as written will be adequate to identify COPCs and estimate their concentrations.

Response

Chemicals detected for the first time during Phase II will become COPCs. In any RI there is a possibility that new chemicals may be found in the late stages of the investigation. One of the benefits of a statistically-based sampling methodology is that statistical probabilities may be calculated for the likelihood that chemicals and their concentrations have been detected.

Again, the boundaries of the strata have been established for a long time. Most of the areas that DTSC is referring to have nothing to do with the existing strata. Rather, they are additional potential sites identified on historical aerial photographs that usually have nothing to do with RI site activities, but may lie adjacent to the RI sites. According to EPA's guidance, "...[s]trata should be defined so that physical samples within a stratum are **more similar** [emphasis added] to each other than samples from other strata." As such, a stratum must be tailored to an individual release location, cover a restricted geographical area, and include a set of potential contaminants that matches the release in question. If other potential release locations are identified, decisionmakers have the option of adding additional strata to the RI site, establishing a new RI site, or investigating the area in question outside the CERCLA program (e.g., under RCRA). It is inappropriate to expand stratum boundaries to include potential releases or migration pathways that have nothing to do with the stratum in question.

3. Optimization of the Sampling Strategy

Step seven of the Data Quality Objective (DQO) development process requires the optimization of the sampling strategy, given the available resources. The proposed sampling strategy will not adequately characterize the nature and extent of contamination, primarily because field analysis is not fully integrated into the optimization process. In many cases, the document indicates that field analysis will be used only to define the boundaries of the strata.

Another cost-effective field analysis technique that we believe should be incorporated into the characterization strategy is immunoassay methods, especially to enhance the initial screening of some sites. Apparently, immunoassays were not considered because some immunoassay detection limits are above risk-based concentrations (RBCs). This view does not consider the overall effect on false negatives and false positives, as required by the DQO process. A technique with detection limits above a RBC may still produce lower levels of false negatives if it allows the collection of more measurements. Despite the assumptions of the document, contamination is generally non-homogeneous. Techniques such as TD/GC/MS and immunoassays can produce lower levels of false negatives because they can produce lower levels of false negatives because they can produce more measurements than CLP protocols for the same resources.

For each site, include a rationale for the selection of field and laboratory methods based on specific information for that site.

Response

On the contrary, field screening sampling was incorporated into the design at 13 of the 24 sites precisely in order to optimize the sampling strategy. Field screening is utilized at strata where the calculated risk based on Phase I samples exceeded 5×10^{-5}. These are strata that are considered most likely to require eventual cleanup. At these strata, it is important to refine the extent of contamination in order to support eventual cleanup. At strata with lesser degrees of calculated risk based on Phase I samples, the Navy has decided that it is worth investing in additional Level 3 samples to support risk assessment, and evaluate whether cleanup is necessary. Statistical methodology will be used to evaluate the likelihood that calculated risk levels represent the actual risk levels at the site. A key question that the additional samples will answer is whether cleanup is necessary. If a site appears to require cleanup after the Phase II RI, then additional "extent" samples may be collected during the Remedial Design phase if necessary to support the cleanup.

Field screening sampling as an initial characterization approach was introduced by the regulatory agencies too late in the DQO process to be included in the RI

design for Phase II. It implies that the Phase I RI was inadequate to provide an initial assessment of whether contaminants were present at the stratum. The Phase I RI, one of the largest and most expensive RIs in CERCLA history, was designed with the full collaboration and approval of the regulatory agencies. It utilized statistical methodology at regulatory agency urging that allowed an initial statistical evaluation of the likelihood that contaminants were present. Until very late in the DQO process, all members of the team (agencies, Navy, consultants) agreed that further field screening should be used to evaluate extent of contamination, not presence of contamination. Again, regulatory agency comments should be focused on individual strata where shortcomings are perceived, not on a blanket condemnation of the entire approach. Finally, funding is limited. It is not feasible to re-characterize all sites at MCAS El Toro during the Phase II RI.

Immunoassay methods have merit, but again, they were proposed too late in the DQO process to be incorporated into the design. As described above, initial screening is inappropriate and unnecessary for the Phase II RI. They may have a use defining stratum boundaries at sites where known contaminants have been found that pose risk. However, detection levels are one or more orders of magnitude above the RBC, and during the DQO process all parties agreed that RBCs would be the trigger for cleanup decisions. Regulatory agencies have repeatedly been requested to agree in advance that they would be willing to base cleanup decisions on the results of immunoassay methods, but have been unwilling to commit to this. Thus, the resulting data would not be cost-effective.

As stated in the DQO document and in meetings, contamination is non-homogeneous. According to EPA's *Interim Final Guidance on Implementing the Data Quality Objectives Process for Superfund* (September 1993), "...[s]trata should be defined so that physical samples within a stratum are **more similar** [emphasis added] to each other than samples from other strata. Sampling depth, concentration level, previous cleanup attempts, confounding contaminants can be used as the basis for creating strata." The Navy believes it has, through historical data, aerial photographs, Phase I results, and employee interviews, adequately met the intent of Step 4 of the DQO process (Define the Study Boundaries). EPA's guidance never intended to place the impossible burden of finding perfectly "homogeneous" strata in an inherently heterogeous environment. Strata definition is meant to be accomplished with available data; the uncertainties are handled when the decision-makers arrive at acceptable decision errors. It bears repeating that the stratum approach to investigating the sites was initially proposed by the regulatory agencies, not the Navy.

The rationale for selection of field and laboratory methods was agreed to by the agencies during DQO meetings, and is stated clearly in Chapter 4 of the Work Plan and in the introduction to the DQO document. The rationale is risk-based and statistically-driven, and is too complex to repeat at each site. The point was

to develop rules and apply them consistently at each site without repeating them over and over again (see DTSC comment # 11 on redundancy).

4. **Shallow/Subsurface Soil Boundary**

The cutoff depth of 10 feet for sampling shallow soils is appropriate. However, for purposes of risk assessment, it must be remembered that some chemicals migrate only very slowly in soils and thus are found exclusively in the most surficial layers. PCBs and dioxins may be expected to behave in this manner in some shallow soils. DTSC feels it would be a waste of money to generate data in Phase II with a very large number of "non-detects". Therefore, we recommend that those situations be identified where inclusion of deeper samples will serve only to dilute estimates of exposure concentrations based on surface soils. For instance, if concentration data decrease by an order of magnitude with depth to 10 feet, it would be appropriate to use only the most surficial sample in estimating an exposure point concentration.

Response

This would be appropriate if the regulatory agencies would agree in advance that only surface data were needed at a particular site and be willing to commit to a decision based only on the surficial data. During discussions at DQO meetings, it was agreed that risk must be evaluated in surface soil all the way to the 10-foot cutoff. DTSC says that PCBs and dioxins may be expected to be found exclusively in the most surficial layers in some shallow soils. Again, identifying the appropriate places where this is true and agreeing to abide by the results in advance would allow this approach to be followed.

5. **Draft Work Plan Characterization/Investigation Strategies**

Explosive Ordnance Disposal (EOD) Range and Landfill Sites

The characterization/investigation strategies as proposed in the document will most likely result in land use/deed restrictions for some sites, e.g., Site 1 (EOD Range) and landfill sites. Capping of landfill sites may result in mitigation of potential soil exposure pathways, however, such sites may still be restricted from such reuses such as residential development, for example. While the use of institutional controls such as land use/deed restrictions may be an appropriate approach due to such considerations as cost and feasibility and may be consistent with U.S. EPA draft guidance (see Presumptive Remedy for CERCLA Municipal Landfill Sites, September 1993), the Navy should be cognizant of the implicit ramifications of agency approval of the "final" characterization/investigation strategies as presented in the document.

Response

The Navy is aware that these sites may ultimately require land use/deed restrictions and states the fact in the DQO document.

Stratigraphic Investigations

The proposed boreholes and well logs will not define the vertical and horizontal characteristics of the unconsolidated material and soil types. Most sites have minimal existing stratigraphic information, and the document proposes very few additional soil borings at the intermediate depths of the vadose zone (between 10 feet below ground surface (bgs) and the water table). To estimate the future impact of contamination to groundwater from the vadose zone, the soil matrix (and gas phase) must be evaluated. Although some sites have good surface or near surface coverage, most do not have sufficient deep borings. Based on existing and proposed soil data, it is not possible at many sites to define the lateral and vertical stratigraphic relationships, extent of soil contamination, and the point of original waste discharge. Please reevaluate the need for additional deep soil borings advanced within the vicinity of the waste discharge areas. These data will lend to a better understanding of the contamination and therefore future impact to groundwater.

Response

Deep borings placed within a contaminated area run the risk of providing a conduit for contaminants to migrate to the groundwater. Available stratigraphic information from the Phase I RI is extensive, and will be supplemented by geologic information collected during the drilling of additional monitoring wells during Phase II. Available information suggests that the stratigraphy is extremely heterogenous, as would be expected in an alluvial setting. Additional information will serve mainly to confirm this heterogeneity.

Contaminants that lie in the soil column deeper than 10 feet are of interest mainly for their potential to impact groundwater quality. The extensive network of monitoring wells, and the ongoing groundwater monitoring that will continue at MCAS El Toro, will adequately monitor groundwater quality. Groundwater samples collected so far do not indicate the presence of any major undiscovered sources of contamination in the vadose zone in addition to the source(s) of the regional VOC contamination. Unexpected contaminants that are discovered in groundwater during the future will be captured by the Desalter Project wells, or may be dealt with separately.

During the DQO process, it was agreed that the potential for contaminants to migrate to the groundwater at individual sites would be evaluated by vadose zone modelling. While not a perfect solution, it is preferable to spending large sums of money to collect additional deep soil information.

6. **Correction for Wells with Constant Speed Pumps**

The final work plan should include a correction for wells with constant speed pumps (see DTSC letter dated August 27, 1993); a proposal for the correction should be submitted to the El Toro Team for review and approval. All groundwater sampling should be performed with pumps capable of low flows.

Response

Data from constant speed pumps did not affect the design strategy at any OU-2 or OU-3 site. Constant speed pumps were installed in only a few wells and these were located in OU-1 wells. It should not be necessary to include a "correction" in the Work Plan. No Phase II RI monitoring well will be constructed with a constant speed pump.

7. **Agua Chinon Wash**

The work plan should include a proposal to characterize the extent of the petroleum hydrocarbon contamination at Agua Chinon Wash (see joint USEPA, DTSC, and RWQCB letter dated November 1, 1993) in preparation for the requested removal action, if additional characterization and/or a removal action is not implemented prior to the Phase II RI field effort.

Response

The removal action at Agua Chinon Wash will be performed as a separate activity from the Phase II RI, as described in the DQO document.

8. **Groundwater Flow Direction**

Groundwater flow direction as indicated in site plan views of Appendix A of the Draft Work Plan is at times inconsistent with groundwater contamination contouring presented in the Draft Work Plan and Technical Memorandum, dated May 7, 1993. For example, the groundwater flow directions in Appendix A of the Draft Work Plan for Sites 3/4, 13, 14, and 15 are inconsistent with the Draft Work Plan (e.g., see Figure 2-15) and Technical Memorandum contouring of the northern and southern benzene plumes. As another example, the groundwater flow direction for Site 16 as indicated in Appendix A is inconsistent with the proposed placement of the new downgradient wells.

Please address this comment in Section 2.4.6.3 (Groundwater Flow) and in each applicable site-specific section in Appendix A, including reevaluation of groundwater monitoring and/or extraction well placement.

Response

Groundwater contamination contours are sometimes at variance with the regional groundwater flow direction, and are the subject of ongoing investigation. Possible explanations include the presence of subsurface permeable zones (e.g., buried stream channels), historic pumping patterns in the basin, or even possible multiple contaminant sources at some locations. The groundwater direction arrow at each site is labeled "approximate regional groundwater flow direction". Additional monitoring wells at sites with observed groundwater contamination that are proposed for Phase II should allow an improved understanding of local variations in contaminant distribution from the regional flow direction.

Site 16 is considered a potential source for petroleum hydrocarbon contamination, based on Phase I RI vadose zone soil samples. There is a known plume of petroleum hydrocarbon contaminants to the south in the Site 13 area. A monitoring well has been placed between these sites to evaluate whether the contaminants are migrating along a buried stream channel, as was the case at the Tank 398 area. This well was not mistakenly placed cross-gradient from Site 16.

9. Field Screening

Section 4.13 (Statistical Basis for the Phase II Design), on page 4-120, states that "Following the field screening sampling, ... Level 3 samples will then be randomly allocated within the revised *(if the stratum is revised)* stratum boundaries."

The CLP samples should not be located randomly but used as confirmatory samples for the TD/GC/MS field screening samples, i.e., co-located. The CLP samples should be selected to confirm the range of results from the TD/GC/MS field screening, both detected and non-detected. Several potential CLP samples should be held pending the field screening results. The short "turn-around times" for field screening results should preclude the exceedance of the CLP sample holding times.

Response

The approach described here--field screening samples analyzed in a mobile laboratory by TD/GC/MS methods with CLP confirmation--is a completely new approach to the Phase II RI that was suggested very late in the DQO process

and represents a complete departure from the entire approach followed during the Phase I RI and in the Phase II DQO process to that point.

Level 3 samples were allocated randomly within a stratum so that statistical conclusions could be drawn. The purpose of field screening sampling was then to assist in the possible re-definition of stratum boundaries prior to the collection of Level 3 samples. Again, the statistically-based approach was originally mandated by the regulatory agencies. To discard the approach at this late stage is wasteful of time and money.

10. Field Screening Reports

DTSC proposes that to maximize the effectiveness of the field screening techniques with short result "turn-around times", El Toro Team meetings should be held on-base during the Phase II RI field effort to discuss the field screening results after the initial characterization for each such site is completed. Using such an approach, consensus on whether a site is adequately characterized can be reached. This should not present a delay in the field effort since sampling teams would normally move onto the next site anyway, and if initial field screening results did indicate additional characterization to determine extent is necessary based on team consensus, the sampling team(s) could return to the affected site at a later date during the field effort.

Response

If the team, at this late stage, now believes that "initial characterization" is required at the sites through field screening, then meetings should be held during the field effort.

11. Elimination of Redundancy

a) **Information presented in the Phase II RI documents should appear only once. DTSC reviewers have noted significant redundancy, e.g., the "Introduction to DQOs" in Appendix A contains a significant reiteration of information provided in Volume 1. Section 4.0 (Rationale for Sampling Locations) of the Draft SAP and Section 1.0 (Project Description) of the Draft Quality Assurance Project Plan also reiterate information provided in Appendix A. Redundancy should be eliminated.**

Please note that some of the following DTSC comments, specific to a single issue, refer to several sections of the Phase II RI documents that require change or clarification due to the multiple appearance of the information. It is preferred that all redundancy be eliminated rather than making changes for a single issue more than once.

Response

At the first DQO meeting it was agreed that the DQO document would be attached to the Work Plan as an appendix, but that it would be a "stand-alone" document so that field personnel could carry it along with them without the Work Plan. Therefore, essential information in the Work Plan had to be summarized in the DQO document.

b) **Please also note that the RBCs in Tables 4-3 through 4-7 in Volume 1 are inconsistent with those in Tables A-3a through A-3d in Appendix A; please delete the incorrect version.**

Response

A very few RBCs in the DQO document were revised to reflect comments received from EPA and DTSC late in the DQO process. These changes were inadvertently omitted from the table in the Work Plan, which should be updated.

c) **In Appendix A, please combine the applicable sections under "Problem Definition" and Phase II Remedial Investigation Design". These sections are often confusing, especially for sites with numerous strata, because incomplete information is presented under "Problem Definition" and then additional information is presented under "Phase II Remedial Investigation Design". The combined sections should remove redundancy resulting in a vast improvement.**

Response

These sections should be revised or combined to remove the redundancy.

12. **Screening of Organic Laboratory Contaminants**

It does not appear that trace detections of organics listed as COPCs have been screened against laboratory method or trip blank concentrations; please make all necessary changes, including changes to plan view diagrams.

Please describe how trace detections of organics will be screened against laboratory method or trip blank concentrations. The documents should indicate the approach used, e.g., an averaged blank concentration was subtracted from sample concentrations. Please specify which blanks were used (e.g., laboratory method and/or trip blanks) and why.

Response

Trace detections of organics were screened against laboratory method and trip blank concentrations according to EPA guidance. All tables and diagrams include screened data. This work was described in meetings and in the Phase I RI Technical Memorandum but is perhaps not documented completely enough in the DQO document. The DQO introduction should be expanded to include the specific information requested here.

13. **Compliance with Solid Waste Assessment Test (SWAT) Requirements**

The document should include a new section discussing both federal and state guidelines/requirements for landfill sites. We are aware that there are some differences in approach between USEPA's framework for a presumptive remedy (see Presumptive Remedy for CERCLA Municipal Landfill Sites, September 1993) and state requirements.

This section should indicate the SWATs (apparently air only and not groundwater) that have been performed for each of the landfill sites at MCAS El Toro. Please also provide a summary of the results.

State law requires testing at all active and some inactive landfills for specified toxic contaminants in the landfill gas, the air immediately above the surface of the landfill, ambient air adjacent to the site, and underground gas migrating beyond the landfill perimeter. To comply with the requirements for air testing, the Air Resources Board and a committee of the California Air Pollution Control Officers Association-Technical Review Group (CAPCOA-TRG) developed gas testing guidelines for landfill sites. Air analysis is required for

methane, oxygen, nitrogen, carbon dioxide, and ten specified contaminants: vinyl chloride, benzene, ethylene dichloride, methylene chloride, tetrachloroethene (PCE), carbon tetrachloride, 1,1,1-trichloroethane (methyl chloroform), trichloroethene (TCE) and chloroform. Please also see the list of twenty two primary target compounds by the California Regional Water Quality Control Board (Los Angeles Region) in *Work Plan Requirements for Active Soil Gas Investigation, Well Investigation Program (WIP)*. Please consider these constituents for the soil gas survey.

The new section should discuss a review of applicable requirements, how the requirements will be satisfied, and if not, rationale for the alternative approach.

Response

Air SWAT requirements were previously fulfilled at each of the landfills and are reported in *Solid Waste Air Quality Assessment Test Report, USMCAS El Toro (Strata Technologies Inc., October 1990)*. As stated in the DQO document, the purpose of the soil gas investigation at the landfills during Phase II was not to satisfy SWAT requirements, which have already been satisfied, but to provide updated information regarding potential volatiles in the landfills and to possibly locate VOC sources that could be remediated separately from the remainder of the landfill. Groundwater SWAT requirements are being met as part of the CERCLA investigation, and a separate investigation is not necessary.

In order to prevent redundancy, the Air SWAT results were not reprinted in the DQO document. Data from the Air SWAT comprise a four-volume set and DTSC is referred to this material.

14. Aerial Ground Penetrating Radar (GPR)

Please consider the use of aerial GPR to assist in delineating landfill boundaries, when applicable.

Response

Landfill boundaries have been evaluated with geophysics and analysis of historical aerial photographs. During the Phase II RI, boundaries will be further evaluated with geophysics, soil gas, and excavation at areas of remaining uncertainty. If this evaluation is unsuccessful, then perhaps aerial GPR may be employed.

15. **Collection of Soil Samples for Volatile Organic Compound (VOC) Analysis**

The document should evaluate and recommend techniques to minimize the loss of VOCs from soil samples.

There is evidence that preserving VOC soil samples by freezing with dry-ice is superior to preserving by cooling to 4° C.

There is also evidence that VOC soil samples preserved in methanol during the field sampling and cooled to 4° is superior to simply preserving by cooling to 4°. However, the methanol used for preservation must be absolutely pure in order to avoid introducing volatile contaminants. A field blank is also required (see *Environ. Sci. Technol.*, 1990, 24, 1387-1392).

Response

The appropriate place for this discussion is the Sampling and Analysis Plan. However, it is agreed that dry-ice or methanol preservation would be superior. During the recent Soil Gas Investigation, an evaluation was made of methanol preservation versus standard preservation. Results indicate that methanol preservation, which requires slightly higher detection limits, obscured trace levels of VOC contaminants, but provided better data when the concentrations of VOCs were at higher levels.

16. **Figures Indicating Chemicals of Potential Concern in Shallow Soil, Surface Water Runoff and Sediment**

Each site-specific figure (plan view diagram) in Appendix A (e.g., Figure A1-2) should indicate all COPCs, including petroleum hydrocarbon COPCs (TFH-gasoline and TFH-diesel). COPCs for site upgradient areas and catch basins, if applicable, should also be indicated. Please indicate the sampling depths from Phase I, e.g., following the sample location identification in the boxes listing the COPCs, include the sampling depths (e.g., "(0,2,& 4')" could be used to designate that samples were collected at 0, 2, and 4 feet bgs in Phase I). Also in the boxes listing the COPCs, separate organics from inorganics and indicate concentration units for each. Please thoroughly review each site in Appendix A and make all necessary changes.

Response

As described in the Work Plan and DQO document, and agreed by the regulatory agencies in position papers and meetings, TFH-gas and TFH-diesel were of interest in shallow soil only insofar as they had the potential to migrate to groundwater. Constituents of these fuels, such as benzene, toluene, ethylbenzene, and xylenes, are of concern for risk assessment in shallow soil. To

include TFH-gas and diesel as COPCs in shallow soil would have essentially constituted "double-counting" for risk purposes. Therefore, TFH-gas and diesel are included in the figures only if they occur at concentrations that exceed Leaking Underground Fuel Tank (LUFT) guidelines.

Sampling depths are included in these figures. Only the 0-foot depth was included in Figure A1-2 because only surface soil samples were collected at that depth at Site 1 during the Phase I RI. Concentration units are described in the legend for each figure.

17. Figures Indicating Chemicals of Potential Concern in Subsurface Soil and Groundwater

Each site-specific figure in Appendix A (e.g., Figure A1.3) should indicate all COPCs, including the following:

a) inorganic subsurface soil COPCs also detected in groundwater at concentrations exceeding Maximum Contaminant Levels (MCLs)

b) petroleum hydrocarbons in both subsurface soil and groundwater

c) detected organic constituents in subsurface soil and groundwater (footnote constituents in groundwater exceeding MCLs)

d) inorganic constituents as well as gross alpha/beta in groundwater exceeding either primary or secondary MCLs (use different footnotes to distinguish those constituents that exceed primary vs. secondary MCLs), and

e) general chemistry results exceeding applicable regulatory criteria.

Response

Since subsurface soil COPCs include all detected inorganic compounds (because a background level for these compounds in subsurface soil could not be attained during the DQO process), all detected inorganics may not be placed on the figures--they would be too crowded. At present, the figures contain all substances evaluated through VLEACH modelling to have the potential to migrate to groundwater in subsurface soil, as well as all substances in groundwater that exceed Primary MCLs (including inorganics). The figures could be modified to meet the criteria listed in notes "a" through "e" above, but of course it will require a great deal of additional work.

18 **Phase I Remedial Investigation (RI) Results**

Each of these site-specific sections in Appendix A should indicate the sampling/analysis methods used in Phase I, e.g., indicate if samples were analyzed for VOCs, pesticides, PCBs, metals, etc.

Response

All groundwater and surface water samples collected during the Phase I RI were analyzed for the complete Target Compound List and Target Analyte List. Soil and sediment samples were usually analyzed for these compounds as well. However, some soil samples were analyzed for a subset of these compounds, and some samples were given special analyses. The DQO document should be revised to include site-specific information on Phase I analyses.

19. **Chemicals to be Investigated During Phase II**

The following comments address sections entitled "Chemicals To Be Investigated During Phase II" in site-specific sections of Appendix A (e.g., Section A1.7).

a) **Statements Concerning Risks**

As a first paragraph to these sections, please include the following statement (in bold letters): "The statements in both this section and subsequent sections (such as those entitled "Potential Remedial Actions and Associated Data Needs") concerning human health and ecological risks are estimated based on Phase I RI results."

Response

Such a statement could be included in the text. However, the rules regarding chemicals to be investigated during Phase II were developed during the DQO process with agency collaboration, and are stated in Chapter 4 of the Work Plan and in the Introduction to the DQO document. Suggesting that this statement be printed in bold letters implies that the Phase I data are somehow lacking in quality. Again, an extensive amount of data were collected during the Phase I RI with agency participation and approval of the planning process. Data were collected in such a manner that statistical confidence limits may be placed on the results. Statements of risk were based on statistical calculations using standard procedures.

b) **Evaluation of Lead in Shallow Soil as a Chemical to be Investigated During Phase II**

In several instances, these sections fail to identify that lead exceeded human health RBCs. It appears that the constituent is listed in the appropriate tables indicating chemicals detected in Phase I that exceeded human health screening criteria (for shallow soil), however, the text does not always state so. Please thoroughly review each applicable site in Appendix A and make all necessary changes.

We note the USEPA's lead uptake and biokinetic (UBK) model was used in calculating the RBC for lead of 500 mg/kg in soil in a residential setting. This value is about twofold higher than the value that would have been produced using LEADSPREAD, the model recommended by DTSC. We find 500 mg/kg to be reasonably protective of health. However, the Navy will find that the UBK model is not useful for determining safe levels of exposure for adults in the occupational setting. We urge the Navy to use LEADSPREAD for estimating the adverse health effects of lead in adults.

Response

Lead and other metals were screened against RBCs only after being screened against background levels of metals in the vicinity of MCAS El Toro. The calculation of background, as well as the decision to screen metals against background, were accomplished with agency participation and approval. Thus, it is possible that some lead concentrations may have been found that exceed RBCs, but were not included because they do not exceed naturally-occurring background concentrations of lead.

RBCs were developed with the collaboration and approval of DTSC risk assessors. It is late to suggest changing the method of calculating the lead RBC. Finally, RBCs were developed for a residential setting, again with agency approval.

c) **LUFT Regulatory Limits**

Please provide all necessary information, including actual values, to show whether detected TFH concentrations are below or above regulatory limits.

Response:

LUFT values and the TFH concentrations that exceed these values are provided in Table A-4. However, these exceedances could also be reprinted on a site by site basis if DTSC desires.

d) **Evaluation of Groundwater General Chemistry Results**

These sections should evaluate groundwater general chemistry results. Include an evaluation of general chemistry results exceeding regulatory criteria (e.g., chloride, sulfate, nitrate, total dissolved solids (TDS) or gross alpha/beta exceeding MCLs) and compare downgradient to upgradient concentrations.

Response

General chemistry values and gross alpha/beta that exceed regulatory criteria are shown in Section 3 of each site specific section, as well as in Tables 1 and 2.

20. **Evaluation of Groundwater Remedial Technologies**

Each applicable site-specific groundwater remedial technologies section in Appendix A should evaluate whether constituents of concern would present remedial difficulties for the proposed Desalter Project. Moreover, based on site-specific groundwater contamination profiles (e.g., the depth of groundwater contamination), evaluate whether or not the Desalter Project, as proposed, would be effective in remediating groundwater contamination. For example, consider the distance to and a screened interval of the nearest Desalter Project extraction wells.

Response

The Desalter Project and other remedial responses to groundwater contamination are being evaluated in the OU-1 Feasibility Study. However, it is agreed that the Work Plan should identify constituents of concern that may present remedial difficulties for the Desalter Project.

21. **Tables Indicating a Summary of Samples and Analytical Parameters for Phase II RI**

After changes have been finalized, please thoroughly review these tables for consistency with the text and figures. Discrepancies were noted in the draft document.

Response

Tables and GIS figures are directly printed from the database. Tables and figures will be reviewed again before the Final Work Plan is prepared. If discrepancies were observed, specific references would assist in this review.

22. **Clarification of Sample/Analysis Methods**

For all sites in Appendix A, please clearly indicate the sample/analysis method. The numerous terms used in the document are confusing; these include "samples for further characterizing risk," "laboratory samples," Level 3 laboratory samples," laboratory analysis," "field-screening samples," and "survey-level samples." Please thoroughly review sections entitled "Problem Definition" and Phase II Remedial Investigation Design" and make all necessary changes. We recommend using the term "CLP Samples" for Level 3 or 4 samples and "TD/GC/MS field screening samples" when appropriate.

Please note that site maps showing locations for field screening, both in Appendix A and the Draft SAP, do not provide a key for the type of field screening to be performed at each location.

Response

The text sections will be reviewed and clarified where appropriate. The figures do not list all of the analyses that will be performed on samples, whether for "CLP" samples or "TD/GC/MS field screening samples". This would overload the figures. The reader should be able to refer to the text and tables for specifics on the analyses that will be performed.

As DTSC is aware, the field screening methodology had not been finalized at the time the DQO document was submitted. The field screening methodology proposed by the agencies near the end of the DQO process had not yet received federal or state approval. DTSC agreed that the methodology needed further evaluation, and that an amendment to the Quality Assurance Project Plan would be prepared after the evaluation was complete.

23. **Analysis for Metals (Non-CLP Samples)**

In each site-specific section of Appendix A when metals characterization (non-CLP) is specified, please clearly indicate the type of sampling/analysis method. Please thoroughly review each applicable section and make all necessary changes.

Response

See the response to No. 22, above.

24. **Protocols and Quality Control for Soil Gas, TD/GC/MS Field Screening, X-Ray Fluorescence and Dioxin/Furan Sampling/Analysis Methods**

Please make all necessary changes to provide a complete description, including protocols and quality control in the Draft SAP and Draft Quality Assurance Project Plan (QAPP), respectively, for soil gas, TD/GC/MS field screening and x-ray fluorescence sampling/analysis proposed in the document as well as for dioxin/furan sampling/analysis as requested in these comments.

Response

See the response to No. 22, above. Soil gas and dioxin/furan protocols will be added to the QAPP and SAP.

25. **New Groundwater Monitoring/Extraction Wells**

The document contains unsubstantiated technical statements and lacks the conceptual understanding of the hydrogeology, both regionally and site-specific, that is essential for a sound environmental assessment. At some sites it is nearly impossible to evaluate the proposed placement of additional monitoring wells because there is often not enough groundwater information to determine groundwater flow direction and rates. Well placement is often proposed either too far geographically form the source or in some cases cross-gradient when defined as a up-gradient or downgradient monitoring well.

All technical statements must be substantiated with adequate supporting data. In the case of groundwater flow, at a minimum, the following information must be provided: well location, well logs, well construction data (see additional comments below), water levels, hydrographs, location of pumping wells, location of recharge and discharge areas, and locations of groundwater barriers. Locations for upgradient and downgradient monitoring wells for a specific site cannot be proposed until groundwater flow beneath that site is understood and documented with substantive technical data. We suggest using cost-efficient techniques such as Cone Penetration Testing (CPT) or HydroPunch to collect groundwater samples (e.g., BAT samples) for plume delineation, and/or perhaps the relatively simple installation of piezometers, to aid in the evaluation of the hydrology before the installation of costly monitoring and extraction wells that may be improperly located.

Without additional information, it is not appropriate to propose extraction well locations at this time of the investigation. The hydrology has not been properly

evaluated, and in the case of Site 2, the VOC groundwater plume has not been laterally or vertically characterized. If the extraction wells are improperly placed it is possible to spread the plume into uncontaminated areas. There simply is not enough direct evidence to properly place an extraction well.

If you still feel that the proposal of extraction wells at this time is justifiable, please note that efficient extraction wells usually have much longer screened intervals than monitoring wells, and sometimes are designed with a larger casing diameter. The document implies that monitoring wells and extraction wells will be designed identically. Indicate the similarities and differences between the two types of wells. Provide rationale if identical construction is proposed for both the monitoring and extraction wells.

In each site-specific section of Appendix A when new groundwater monitoring and/or extraction wells are proposed, please provide a table for well construction details, including drilling method, depth of well, casing diameter and material, screen diameter (with slot size) and material, screen interval, length of drop pipe, make and model of pump to be installed and purpose of well (e.g., monitoring or extraction or both). In addition, for each applicable site, indicate if downhole geophysics will be performed and used to determine well screen depths. In an appropriate section of the document, please also include a master table providing this information for all wells.

In the text of each site-specific section of Appendix A, please provide a rationale for the proposed drilling method.

Response

The information requested here has been previously published in the Phase I RI Technical Memorandum and fills several volumes. It is hard to believe that DTSC, who expressed a concern about redundancy in Comment No. 11, above, would seriously request that this data be repeated in the DQO document. Also, it is important to remember that the DQO document only addresses OU-2 and OU-3 sites. OU-1, the Regional Groundwater Investigation, is not addressed in this document. Additional monitoring wells are proposed at some individual sites at areas where there are perceived information gaps. However, it is unfair to state that the design lacks a conceptual understanding of hydrogeology without being more specific. No extraction wells were proposed at any site. In some places, the statement was made that a given monitoring well may eventually serve as an extraction well based on the information gained during Phase II. However, that evaluation will be made in the future after more data are available. A monitoring well will not be used for extraction unless it is judged by the entire team to be suitable for this purpose.

Well construction procedures and drilling methods are provided in the SAP, and do not need to be repeated in the DQO document. It is impossible to predict in advance exactly where each new well will be screened, because of the heterogeneity of the geology at MCAS El Toro. Shallow monitoring wells, for example, are screened across the uppermost permeable unit encountered in the saturated zone. The location of this unit is unknown until each individual borehole is drilled.

Finally, methods such as CPT or Hydropunch are not feasible at MCAS El Toro becuase of the great depth to the water table. Installation of piezometers is not significantly more cost-effective in this situation, where the drilling costs far outweigh the cost of well materials.

26. <u>Soil Gas Investigation</u>

It is our understanding that the soil gas survey work plan will be available for regulatory review. The work plan at a minimum should include the following:

a) a Station-wide map showing boundaries of all areas included in the soil gas survey, as well as maps indicating the locations of the industrial waste sewer line and storm drain systems in the southwestern quadrant of the Station that discharge into Aqua Chinon and Bee Canyon Washes;

b) site-specific maps showing proposed probe locations and depths, include proposed and existing monitoring wells and borings;

c) rationale for probe locations and depths at each site;

d) a list of constituents of concern for each site and rationale for their selection based on considerations such as site history and previously demonstrated soil and/or groundwater contamination;

e) a detailed explanation of probe installation;

f) a figure showing typical probe installation construction (include both borehole and driven probe installation);

g) a detailed explanation of the vapor sample collection protocol, include proposed holding times of the sample from collection to analysis;

h) a figure showing the system design for the collection of vapor samples;

i) a detailed explanation of on-site mobil laboratory analytical procedures;

j) **a quality assurance/quality control package with detailed guidelines, including protocols for both in-the-field vapor sample collection and laboratory vapor sample analysis; and**

k) **a detailed explanation on how the data will be presented, such as site-specific concentration contour maps, stationwide contour maps if applicable, complete original sampling results, and summary tables of selected constituents. (Please note that complete information must be reported so that conclusions can be evaluated.)**

Any identified areas at MCAS El Toro that may have potentially been impacted by chlorinated solvents and/or petroleum hydrocarbons should be subject to a soil gas survey. The survey should not be limited only to the southwestern quadrant of the station and landfills, nor should the soil gas data points be limited to a grid pattern with predetermined specified depths of 10 to 20 feet bgs (non-landfill areas). Probe locations should be concentrated in areas of waste discharge and demonstrated soil and groundwater contamination. Generally, grid density should be tighter in the "hot spots" and decrease as soil gas results decrease. In areas of potential contamination, with no apparent point source and with little or no confirmed soil contamination, a grid pattern is appropriate. Multi-depth sampling locations should be in areas with known soil contamination and where prior soil gas sampling efforts have detected relatively high levels of constituents of concern. On-site, real time analysis of vapor samples is required to allow for field modification of the sampling plan based upon test results.

A comprehensive soil gas survey in conjunction with companion soil matrix samples will determine the variation and extent of soil condemnation. Soil matrix samples generally cannot be used to confirm soil gas results. The combination of both sets of data will assist in characterizing the distribution of soil contamination.

When designing a soil gas survey, the objectives of the investigation are not only to identify areas of discharge but also to establish patterns of vapor distribution for the design of a possible vapor extraction system (VES). If, while conducting the soil gas survey, it is determined that an area can be adequately remediated using a VES, consider installing multi-depth, semi-permanent vapor probes. Note, the delineation of a vapor plume and the installation of a monitoring network can be completed during the same phase.

Response

The Soil Gas Survey Work Plan is a separate document. At the time of this response, the Work Plan has received DTSC approval. Additional soil gas surveys will be performed at selected RI sites during the Phase II RI. The

conduct of these surveys will be specified in the revised Work Plan for OU-2 and OU-3 and will undergo DTSC review.

27. <u>VLEACH Model</u>

Although parameters such as vertical contaminant distribution and recharge are identified as being conservative in the document, preliminary estimates of the total contaminant mass within the vadose zone may be underestimated. Studies have shown that in geologic and climatic environments similar to the MCAS El Toro Area, VOC mass tends to concentrate within the vapor phase. If a discrepancy exists between the contaminant mass estimate based on soil matrix samples and soil gas concentrations, it is likely the VLEACH model will underestimate the mass of contaminate leaching to groundwater. Therefore it is suggested that after the soil gas survey is completed, VLEACH is again applied using soil gas concentrations instead of soil matrix concentrations, if soil gas results are greater. Before choosing an input concentration value, evaluate all soil matrix and soil vapor data, and explain the rationale for input choice.

Consider using another model for inorganics.

<u>Response</u>

During the DQO process, the modeling was performed only as a tool to help identify sampling strategies for the Phase II RI and select chemicals for further investigation. It would be appropriate to run the VLEACH analysis again after the Phase II RI is complete, and data not only from the soil gas surveys but also from the additional soil sampling are available. The decision to use another model for inorganics should be made at that time. Meanwhile, the extensive network of monitoring wells and the ongoing groundwater monitoring proposed in the *Groundwater Monitoring Plan* will allow monitoring of contaminants that are potentially leaching to the groundwater.

28. <u>Tentatively Identified Compounds (TICs)</u>

For all applicable sites in Appendix A, please identify and discuss TICs; evaluate whether or not the identified TICs will affect the characterization strategies for Phase II.

<u>Response</u>

TICs were evaluated at the end of the Phase I RI. No TICs were identified that affect the characterization strategies for Phase II. A section should be added to the DQO Introduction that summarizes the TIC analysis.

29. Use of EPA Method 8310 for Polycyclic Aromatic Hydrocarbons (PAHs)

If PAHs are identified or suspected as COPCs in a stratum, EPA Method 8310 should be used for analysis. Properly used, this method should have detection limits for carcinogenic PAHs lower than the defined RBC. If a broader spectrum of SVOCs is needed, then EPA Method 8270 would be the method of choice. In any case, please provide rationale for the choice of PAH/SVOC analytical techniques.

Response

Agreed. This decision should be confirmed by the entire planning team.

30. Analysis for Organolead at Petroleum Hydrocarbon Contaminated Sites

Organolead compounds could be COPCs at sites where petroleum hydrocarbon contamination is identified or suspected. For each such site, include an analysis for organolead compounds or present adequate justification as to why it is not needed. Because of the difficulty and expense with the organolead method, a phased approach could be used to limit the number of organolead analyses needed.

Response

The team should evaluate the potential addition of organolead analyses. It would have been helpful if DTSC proposed these analyses during the DQO process.

31. Matrix Interferences

All analytical results for each site should be reviewed and, when necessary, evaluated for matrix interferences in the site-specific sections of Appendix A. Our Site-Specific comments indicate several instances where it appears petroleum hydrocarbon contamination interfered (elevating detection limits) with other results, such as those for PAHs. A failure to properly evaluate analytical interferences could result in an underestimation of human health and/or ecological risk.

Response

Analytical results will be reviewed for possible matrix inteference. Responses to site-specific instances described above will be made at the appropriate location. If DTSC feels that COPC were eliminated due to matrix inteference, it should identify specific examples.

32. **Round Two Groundwater Data and Quarterly Groundwater Monitoring**

The document should integrate round two groundwater results.

All existing monitoring wells should be sampled quarterly so that a statistically valid data set can be complied and a better understanding of site specific and Station-wide water quality can be achieved. Also, water levels measurements should be collected monthly. An approach for a water quality sample and analysis program may be to collect water samples during the first week of February, June, August, and November, and submit the quarterly reports no later than six weeks after collection. Monthly water level measurements should be included in the water quality reports. This monthly gauging should be done during the same week of each month for all monitoring wells. These data should be included together with past data as a running summary, in a tabular format, as well as reference point elevations, depths to water, water surface elevations, and dates of collection. All future groundwater monitoring wells should be added into the monitoring program as they are installed. After one year of quarterly monitoring reports, data should be evaluated, and if appropriate, the sample schedule reduced.

Response

The results of the second round of groundwater results had not been validated at the time the DQO document was completed. However, unvalidated results were considered in the Phase II design. Results are now available and could be incorporated into the revised Work Plan where appropriate.

Monthly water level measurements are being collected at MCAS El Toro. An ongoing groundwater monitoring plan has been proposed and is currently being reviewed by regulatory agencies. A groundwater quality and level report has also been prepared that summarises all existing data. This report has been provided to the regulatory agencies.

33. **Map of Above Ground Tanks and Underground Storage Tanks (USTs)**

The document should include a map displaying the following: 1) an outline of MCAS EL Toro, 2) the location of all RI sites, 3) the location of all tank farms and tanks (both above ground and below ground) containing petroleum hydrocarbons, including fuels, 4) the location of monitoring wells, and 5) contours of the groundwater plumes potentially associated with the USTs.

Response

Information regarding tank farms and USTs associated with RI sites has been included. However, potential petroleum contamination not associated with RI

sites is being addressed separately and is outside the scope of the RI. A database of all tank farms and tanks has been compiled as part of base closure activities.

34. **Holding Times**

Please identify all Phase I sample results for which the holding times were exceeded.

Response

Phase I results have undergone data validation. The MCAS El Toro data base contains data validation flags assigned to sample data. Any sample which may have exceeded holding time was flagged with an "R". No samples which may have exceeded holding times were used to make decisions.

35. **Employee Interviews**

Please make another attempt to schedule interviews with current and/or former MCAS EL Toro employees; the information from interviews may be useful in the determination of sampling strategies for Phase II.

Response

Employee interviews have been conducted since this comment was received. Where information gained in these interviews have an impact on the RI, the sampling strategies should be modified appropriately.

Site Specific Comments

Please note that the following Site-Specific Comments refer to sections in Appendix A (Volumes II and III), however, Section 4.0 (Rationale For Sampling Locations) of the Draft SAP as well as other portions of the document are also affected. Please make applicable changes to the Draft SAP based on these comments, however, as stated previously, DTSC would prefer that the redundant information presented in Section 4.0 of the Draft SAP be eliminated.

Site 1–Explosive Ordnance Disposal (EOD) Range

1. **A1.1.1 Setting and History**

   a) **Describe how groundwater flow was determined with two wells present at the site.**

Response

As described in the Phase I RI Technical Memorandum, the third (upgradient) well scheduled for construction at Site 1 could not be constructed because of the shallow depth to bedrock and lack of groundwater. Therefore, the third well was constructed just east of Site 1 in the main portion of Borrego Canyon. These three wells allowed triangulation and determination of the groundwater flow direction.

b) **In the last sentence of the first paragraph, add fuels to the suspected contaminants. Burning was conducted in pits and/or trenches at the EOD Range and fuels were used for ignition purposes.**

Response

Fuels should be added.

c) **Demilitarization of munitions is performed at Site 1. Currently, the "pink water" washout is not discharged to soil. Add a discussion of this issue and include both current and past demilitarization practices. "Pink water" is a waste containing degradation product of trinitrotoluene (TNT); TNT is an animal carcinogen, as are its byproducts.**

Response

A brief discussion of demilitarization of munitions should be added.

2. **A1.1.2 Strata**

a) **Change the last sentence of the first paragraph to read "According to employee interviews, however, the FS smoke was apparently burned in the northern portion of the site in an area currently exhibiting stressed vegetation** *[underline denotes change.*"

Response

There is no indication that the stressed vegetation has anything to do with the release of FS Smoke (which occurred in 1982). In fact, other employee interviews have contradicted this information.

b) **Change the first sentence of the second paragraph to read "One statistical stratum was established for the entire EOD Range in the Phase I RI *[underline denotes change]* because it was believed that surface soil samples collected randomly from any location within the EOD Range would have an equal probability of containing potential contamination, however, areas such as the FS smoke area or known detonation pits were not sampled in the Phase I RI."**

Make other necessary changes to the paragraph, but delete the last two sentences concerning the FS smoke. DTSC has visited this site a couple of times in the last few months. In a visit on November 8, 1993, DTSC observed an area of stressed vegetation just north of the current detonation pits; the EOD Range employee confirmed that it was the location of the FS smoke disposal. Furthermore, the area is consistent with the FS smoke area identified in the *Draft Site Sampling and Analysis Plan*, dated September 10, 1990. Therefore, DTSC strongly disputes that the precise location of the FS smoke area is unknown. Also, because of the stressed vegetation, DTSC believes the statement "In any case, over the years the FS smoke will have degraded through contact with water" may not be sufficiently substantiated. If chlorosulfonic acid is being dismissed as a COPC because it has a short half-life, please present supporting information.

Response

If the team believes that there is sufficient information to establish a separate stratum for the FS Smoke area, this should be done. However, employee interviews have conflicted regarding the location of the FS smoke area. Recall that, because the EOD Range is an active site, complete characterization cannot take place until the site goes inactive and all buried ordnance may be located and removed. In the interim, groundwater monitoring will continue. The Navy has agreed on the need for land use restrictions until this complete characterization occurs.

3. **A1.4.2 SAIC Survey**

Add the following statement to this section: Sites of potential concern identified in the *SAIC Report* include *[list the site numbers as identified in the SAIC Report, dated August 2, 1993, and include 116, 254, 444, and 472]*."

Response

This language may be added, with slight modification: "Sites of potential concern identified *in the vicinity of Site 1* in the SAIC Report...". However, it should be remembered that these sites, which include stains and trenches, are

features of normal EOD Operations that may be expected to shift constantly about the site over time. For this reason, it is inappropriate to establish separate strata for the features that just happened to be captured in one "snapshot" of time.

4. **A1.6 Conceptual Site Model**

Later in Section A1.9.2. (Subsurface soil), it is stated that explosive materials possibly present in subsurface soils pose a possible danger to receptors, yet this section and Figure A1.5 do not address this; please make all necessary changes.

Response

Agreed.

5. **A1.9.1 and A1.10.1 Shallow Soil**

a) **Under "Statement of Risk," change the second paragraph to read:**

> **"Site 1 is an active ordnance site where explosive devices continue to be detonated. There are undocumented, anecdotal reports that radioactive materials have been buried at the site. Limited Phase I RI soil sample locations were assigned randomly; based on aerial photograph results, samples were not in areas, including the FS smoke area, that may have a more likely probability of exhibiting contamination. Risks at the EOD Range may also include unexploded ordnance buried at the site."**

Response

All available information indicates that the mode of operation at the site is to excavate a trench, explode the ordnance, fill the trench, and excavate another trench. Based on interviews, and because of the limited area at the site, there is an equal probability that ordnance may have been disposed at any location at the site. Targeting samples judgementally at trench locations shown on historical aerial photographs violates the statistical basis of the sampling that the agencies urged the Navy to adopt. On the other hand, the presumed FS Smoke area may be set aside as a separate stratum if the entire team agrees.

b) **Under Sampling Strategy," change the paragraph to read:**

> **"No further investigation is proposed for Phase II, however Phase I RI samples were located randomly and not within trenches, pits or stains identified in aerial photographs. Site 1 is**

recommended for additional investigation during MCAS El Toro base closure, once explosive ordnance activities have been discontinued, to further characterize human and ecological risks as well [as] risks posed by the possible presence of explosive materials."

Any further investigation must include analysis for explosives and their degradation products. Additionally, geophysical methods, such as magnetometry, should be used to locate buried metal.

Response

See the response to comment No. 5 for Site 1, above.

c) **Under "Stratum 1," state that "No further investigation is proposed in the Phase II RI."**

Response

Agreed.

d) **Under "Rationale," delete the first sentence "There are no human health or ecological risk criteria exceedances."**

Response

Disagree. This statement is true. Deleting this sentence implies that the sampling strategy at Site 1, developed with the concurrence of the agencies, was somehow incorrect.

6. **A1.9.3 and A1.10.3 Groundwater**

a) **Under "Sampling Strategy," please clarify how the sampling of existing downgradient wells for metals and general chemistry will support the characterization of background levels for groundwater at the station.**

Response

As described in the Work Plan in Chapter 4, in the Introduction to the DQO document, and discussed at many meetings, all wells at MCAS El Toro were proposed for additional metals and general chemistry characterization as part of

the ongoing effort to evaluate the geochemical groundwater facies in the area and ultimately agree on concentration levels that constitute background.

b) **Under "Sampling Strategy," change the third sentence to read "Sample for VOCs to monitor the possible presence of toluene and other fuel constituents, which may indicate degradation of groundwater as a result of site activities."**

Response

Agreed. Toluene was included here because it is a constituent of explosives.

c) **Add explosives (EPA Method 8330A or comparable method), TFH-gasoline and TFH-diesel to groundwater analyses.**

Response

Agreed.

7. **A1.10.2 Subsurface Soil**

Change the first sentence to read "No further investigation is proposed in the Phase II RI."

Response

Agreed.

Site 2–Magazine Road Landfill

1. **A2.4.2 SAIC Survey**

Add the following sentence to the end of the paragraph: "Sites of potential concern identified in the *SAIC Report* include *[list the site numbers as identified in the SAIC Report and include 219, 263, and 455]*." Please evaluate site 455 identified in a 1981 photograph.

Response

The phrase "*in the vicinity of Site 2*" should be added to the sentence following the word "concern". Site 455 was a bermed area located about 600 feet north of the landfill. If does not appear to have been related to the landfill.

2. **A2.5 Site and Stratum Boundaries for Phase II RI**

Include that the recommendation to expand Stratum 1 to include the southern portion of former Stratum 2 is also based on visual observation of landfilled material, i.e., as a result of former recent erosion, it was evident that this area was also used as a landfill.

Response

The newly added southern portion of Stratum 1 is not based on visual observation. DTSC is mistakenly referring to erosion observed on the southern edge of the main portion of the landfill.

3. **A2.7 Chemicals To Be Investigated During Phase II**

a) **In the first paragraph, add the following statement: "Although TCE and gross alpha/beta were detected in upgradient groundwater, the concentrations did not exceed primary MCLs; however, the TCE and gross alpha did exceed primary MCLs in downgradient groundwater."**

Response

Agreed.

b) **Also in the first paragraph, add iron to the group of constituents that exceeded secondary MCLs. Also make the necessary change to Table A2-3b.**

Response

Agreed.

c) **Change the last sentence of the fourth paragraph to read "No classes of compounds were judged to have the potential to reach the groundwater, however, Phase I results indicate that Site 2 is releasing VOCs to groundwater."**

Response

Agreed.

d) **A2.8.1 Shallow Soil**

Under "Remedial Technologies," please include rerouting and/or lining of washes.

Response

Agreed.

5. **A2.8.2 Subsurface Soil**

a) **After the first sentence of the first paragraph, change the rest of the paragraph to read:**

> **"Based on Phase I results, no contaminants were detected in subsurface soils at levels that pose a threat to groundwater; however, these results are taken from only one deep boring drilled at the site. No potential remedial technologies and associated data needs were evaluated for subsurface soil for Site 2, however these needs will be reevaluated after reviewing the results of the soil gas survey proposed for the site. Installation of a cap at Site 2 should mitigate the mobility of the MCPP."**

Response

Agreed.

b) **Change the second and third sentence of the second paragraph to read:**

> **"This threat will be addressed by the soil gas survey proposed for Site 2 and by landfill closure designed to contain the wastes and limit or prevent percolation of water through the wastes. In-situ technologies to address subsurface landfill wastes will be reevaluated after reviewing the results of the soil gas survey."**

Response

Agreed.

6. **A2.8.5 Sediment**

This section should address the relatively significant detection of TRPH at 0.2_EF2 (4 feet bgs and at a concentration of 4,555 ppm).

Response

During the DQO process it was agreed that TRPH would not be considered a COPC during the Phase II RI because: (1) TRPH is used primarily as a survey tool that measures mainly heavy petroleum hydrocarbons that are relatively immobile; (2) there are no health-based standards for TRPH; (3) TFH-gasoline,

TFH-diesel, BTEX, and PAH compounds were also analyzed, and these compounds provide a better indication of human-health risk and potential impact to groundwater. Section A2.8.5 could mention the presence of TRPH, but should not have to address possible remedial actions or list data needs for the Phase II RI.

7. **A2.9.1 and A2.10.2 Shallow Soil**

Stratum 2 (Stained Area)

a) **Under "Sampling Strategy," please indicate that another possible option is to cap this section of Site 2; such a strategy would probably not require additional soil sampling.**

Response

Capping such a large area would be very expensive, much more expensive than the sampling strategy described in this section. The initial investigative strategy for Stratum 1 includes defining the landfill boundaries. If this activity indicates that the landfill does actually extend over Stratum 2, then capping would be a viable option. It is recommended that a statement be added that landfill boundary evaluation be performed first. If it is found that the boundary encompasses Stratum 2, then capping be considered in lieu of further sampling.

b) **Please provide an enlarged figure of Stratum 2 and indicate aerial photograph anomalies identified by USEPA (see Plate 4 of the *Sampling and Analysis Plan (SAP) Amendment*, dated August 26, 1992) and SAIC (see *SAIC Report*). Judgmental sampling should be located within the identified anomalies or the anomalies should be designated as new strata. Please make all necessary changes to applicable subsequent sections.**

Judgmental samples will lead to biases statistical inferences, however, the bias will tend toward the upper portion of the distribution of concentrations. This bias is in the health-protective direction and is entirely acceptable. The approach will be based on the best available information (such as aerial photography analyses) and sampling locations will be targeted in areas that have the highest probability of exhibiting contamination.

Response

As DTSC is aware, until now the regulatory agencies have urged that a sampling strategy be employed that allows statistical inferences to be made. Judgemental samples will do more than lead to biases in the statistical inferences--they will make it impossible to make any statistical inferences at all. Stratum 2 is a new

area, not previously evaluated during the Phase I RI. If the MCAS El Toro team agrees that a judgemental strategy should be pursued here, then this should be done.

8. A2.9.2 and A2.10.3 Subsurface Soil

These sections only address subsurface soil for Stratum 1; please make all necessary changes.

Response

If Stratum 2 is found to lie within the boundaries of Stratum 1, then no changes will be necessary. If surface soil (0 - 10 feet bgs) is found to contain contamination, then some subsurface characterization may be necessary. It is suggested that language be added to allow for this possibility.

9. A2.10.1 Preliminary Investigation

Include the soil gas survey grid spacing (in feet) based on a total of 72 samples.

Response

The grid spacing is 100 feet. This language should be added.

10. A2.10.4 Groundwater

a) This section is confusing and can be improved by indicating the number of each new wall in the text (should be consistent with the well number in Figure A2-6b).

Response

Agreed.

b) Under "Rationale," change the last sentence to read "Because no VOCs were detected in upgradient wells *[underline denotes change]* in the second ground [sic] of groundwater sampling ...."

Response

Agreed.

Site 3/4–Original Landfill and Ferrocene Spill Area

1. A3/4.1.1 Phase I RI Site 3

a) The second paragraph states that Site 3 consisted of six separate pits and trenches. Please change this statement since it appears that the landfill actually consisted of more than six disposal areas.

At some point in this DQO section for Site 3/4, perhaps for a section discussing newly defined boundaries, provide an enlarged (drawn to scale) figure indicating the location of all pits, trenches and anomalies identified in aerial photographs, geophysical surveys, etc. The figure should include:

i) the two 1952 excavations east of Aqua Chinon that were probably used as landfills and possible stained areas west of the wash (identified in a 1952 photograph; see Plate 5 of the *SAP Amendment*);

ii) the two possible trenches in the southwestern portion of thee site and west of the wash (observed in a 1963 photograph; see Plate 5 of the *SAP Amendment*);

iii) the northwest-southeast oriented trench in the northern portion of the site that apparently contained liquid in its northern part and refuse in the southern part (observed in a 1946 photograph; see Section A3/4.4.2 [*SAIC Survey*] and 15 in the *SAIC Report*);

iv) the 900-foot-long east-west oriented trench in the eastern portion of the site that extended through and apparently beyond the boundaries of Site 4 (observed in a 1946 photograph; see Section A3/4.4.4 [*Saic Survey*] and 18 in the *SAIC Report*);

v) the trench observed in a 1958 photography that apparently was located outside existing site boundaries (this trench should be evaluated even though landfill activities allegedly ceased in 1955); see Section A3/4.4.2 (*SAIC Survey*) and 89 in the *SAIC Report*;

vi) the three former disposal pits as indicated by the geophysical survey in the northern portion of the site and west of the wash (see Plate 5 of the *SAP Amendment*);

vii) the smaller former potential area of buried waste indicated by the geophysical survey in an area east of the wash (see the text of the

***SAP Amendment*, however this area was not indicated in Plate 5 of the *SAP Amendment*);**

viii) stains in the northwestern portion of the site (observed in 1952 and 1970 photographs; see Plate 5 on the *SAP Amendment*);

ix) disturbed ground with possible staining west of the was observed in a 1980 photograph;

x) the locations of the buried wastes that were uncovered during the construction of Building 746 and a nearby parking/office area.

xi) the location of the two trenches in the area of Solid Waste Management Unit/Area of Concern (SWMU/AOC) 300 where digging was halted for a water supply line in October 1992 due to the presence of a strong petroleum odor;

xii) the piles of debris and mounded material that existed north of the Motor Pool area and heavy staining observed in the Motor Pool area west of the landfill area (see the *SAP Amendment*; and

xiii) the mounded materials on the northeast and southeast sides of Tank Farm 5 (observed in a 1971 photograph; see 197 in the *SAIC Report*).

The text should discuss the relationship of these areas with the original information in the *Draft Final Sampling and Analysis Plan*, dated February 28, 1991, which indicated three trenches, two 1-acre disposal pits, and a 4-acre disposal pit located in a slightly different configuration.

This information will be essential for delineating landfill boundaries and targeting the soil gas survey and trenching (if conducted).

Response

The six pits and trenches that are located within Site 3/4 boundaries for the most part correspond with the trenches that were located during geophysical surveys. In any case all of these features are located within the revised stratum boundaries (see Figure A3/4-6a). Landfill boundaries will be evaluated during Phase II through a combination of geophysics, trenching, and soil gas. DTSC will have an opportunity to comment on the landfill boundaries that are determined after these efforts are completed. Some of the other pits, trenches and stained areas listed above are all located well outside the Stratum 1 boundaries. For example, debris and staining observed in the former Motor

Pool and near Tank Farm 5 are not part of Site 3/4. In some cases, these were evaluated during the RCRA Facility Assessment. If DTSC still has concerns about these areas, they should be addressed during MCAS El Toro closure, not as part of the RI.

The addition of a figure would be interesting, but expensive and ultimately unnecessary since Phase II activities should refine the landfill boundaries in a far better manner than the intrepation of small-scale historical aerial photographs.

b) Please indicate the location of abandoned well 24-4247 in figures. Also, please change the wording in paragraph 3 concerning this well–it is not likely that an abandoned well could be sampled anyway.

Response

Agreed.

c. Please indicate the locations of SWMUs/ACCs 194 and 300 in Figure A3-1a; indicate the location of SWMU/AOC 300 in Figures A3/4-6a and A3/4-6B.

Response

SWMU/AOCs 194 and 300 should be included in Figure A3-1a. However, SWMU/AOC 300 should not be included in Figures A3/4-6a and A3/4-6b because these figures show the revised Site and Stratum boundaries for the Phase II RI, and SWMU/AOC 300 has been incorporated into Stratum 1.

d) As stated above, please indicate (in Figures A3-1b, A3/4-6a and A3/4-6b) the location of the two trenches in the area of SWMU/AOC 300 where digging was halted for a water supply line in October 1992 due to the presence of a strong petroleum odor.

Response

See the response above. SWMU/AOC 300 is the area where digging was halted for a water supply line. The SWMU/AOC was created after that incident took place.

e) Indicate how the location of SWMU/AOC 194 was identified.

Response

As the fourth paragraph indicates, SWMU/AOC 194 was identified during the RCRA Facility Assessment. If DTSC wants more information on the records search that led to the discovery of this facility, this may be added here.

2. **A3/4.1.2 Phase I RI Site 4**

a) **In the first sentence of the first paragraph, change the reference to "Figure A-1" to "Figure A4-1."**

Response

Agreed.

b) **Include the location of the (former?) 500-gallon ferrocene tank in all applicable figures.**

Response

The tank is no longer present, and its previous location is unknown. Due to its small size, it is possible that it was portable.

3. **A3/4.3 Chemicals of Potential Concern**

Chloromethane is listed as a detected VOC in groundwater at Site 3, but does not appear in Figure A3-3; please make the necessary changes.

Response

Figure A3-3 only shows chemicals detected in groundwater that exceed MCLs. Chloromethane was only detected in one sample from one well at a concentration of 3 ug/L. This compound has no established regulatory standard.

4. **A3/4.3.2 Subsurface Soil**

Provide a figure showing the subsurface soil COPCs for SWMU/AOC 300.

Response

Agreed.

5. **A3/4.4.2 SAIC Survey**

Add the following statement to the end of this section: "Sites of potential concern identified in the *SAIC Report* include *[list the site numbers as identified in the SAIC Report and include 15, 16, 18, 56, 89, and 197].*

Response

Add the phrase "*in the vicinity of Site 3/4*". Note that each of these features is located within the landfill boundaries except for sites 56 and 197, which are located outside Site 3 and have nothing to do with Site 3. Site 56 consists of stained soil unrelated to the landfill, while site 197 consists of mounded material associated with a nearby fuel farm.

6. **A3/4.6 Conceptual Site Model**

This section and Figure A3/4-4 should be changed to indicate potential infiltration of surface water runoff via the unlined section of Agua Chinon Wash running through Site 3/4. This recharge could potentially enhance the migration of subsurface contaminants in the landfill.

Response

Agreed.

7. **A3/4.7 Chemicals to be investigated During Phase II**

a) **Add the following statement concerning the location of shallow soil samples for former Site 3 (if it is true based on the new figure which will indicate identified pits, trenches, and other anomalies):**

> **"However, surface soil samples located west of Agua Chinon Wash were not within identified pit or trench disposal areas. The two surface samples east of the wash were possible located in fill material overlying landfill disposal areas (based on excavated areas observed in a 1952 photograph)."**

Response

Surface soil samples located anywhere above the landfill would not be located "within" identified pit or trench disposal areas. DTSC should realize that surface soil samples were collected at a depth of 0 - 6 inches, and in all cases represent cover material.

b) **This section should indicate if chemicals detected in subsurface soils exceeded screening criteria; if so, please make all necessary changes, including the addition of tables. Evaluate the results for subsurface soil at SWMU/AOC 300.**

Response

A statement should be added that no chemical was detected in subsurface soil that exceeded screening criteria in either Site 3/4 or SWMU/AOC 300. Additional subsurface characterization by drilling within the landfill is not advisable because of the potential that a borehole would provide a conduit for contaminants to migrate to the groundwater.

c) **This section should indicate if chemicals detected in dry wash sediment exceeded screening criteria; if so, please make all necessary changes, including the addition of a table.**

Response

A statement should be added that no human health or ecological criteria were exceeded in samples collected from dry wash sediment.

d) **This section should summarize the constituents or at least the chemical classes of the constituents that exceeded screening criteria. The results should be summarized for shallow soil, subsurface soil (VLEACH and petroleum hydrocarbon results), groundwater, surface water runoff and dry wash sediment. This information should not be presented in the following section, Section A3/4.8 (Potential Remedial Actions Associated Data Needs). Please move the applicable information into this section, make all necessary changes and add all requested information.**

Response

Agreed. See the responses above. This section needs to be expanded in the Site 3/4 subappendix.

e) **This section should discuss that although gross alpha and beta were apparently detected in upgradient groundwater, the concentrations were not above regulatory criteria. In downgradient groundwater, gross alpha was detected above regulatory criteria.**

Response

Agreed.

8. **A3/4.8.1 Shallow Soil**

a) **This section should be changed based on Comment 7d above.**

Response

Agreed.

b) **Please indicate that the concentration of TFH-diesel at the surface of the Drainage Ditch was 16,400 ppm.**

Response

Agreed.

c) **Under "Remedial Technologies," add diverting and/or lining Agua Chinon Wash in the vicinity of Site 3.**

Response

Agreed.

d) **Under "Remedial Technologies," clarify the statement "Only one surface soil sample exceeded the screening criteria for two chemicals."**

Response

The statement should be expanded to indicate that the two chemicals were dieldrin and benzo(a)pyrene, and were found in the Drainage Ditch at Site 4.

9. **A3/4.8.2 Subsurface Soil**

This section should be changed based on Comment 7d above. When the discussion of subsurface soil results is moved under Section A3/4.7 (Chemicals To Be Investigated During Phase II), indicate that for both former Sites 3 and 4, only one deep boring was completed at each site and located in areas estimated to be outside of landfill disposal areas (if this is in fact true based on the new figure which will indicate identified pits, trenches, and other anomalies). Include a discussion of the deep boring results for SWMU/AOC 300. As stated in Comment 7d above, also discuss VLEACH and petroleum hydrocarbon results for subsurface soil.

Response

See the response to Comment 7d above. The deep borings completed at Sites 3 and 4 were purposefully drilled immediately adjacent to but not within interpreted disposal sites. The Navy originally objected to drilling deep borings so close to possible contamination sites, because of the potential that the boreholes may provide conduits for contaminant migration to the groundwater. However, DTSC insisted that these deep borings be completed at these locations. Fortunately, no contaminants were found that exceeded LUFT or VLEACH guidelines. The potential that the landfill may release contaminants to the groundwater should be evaluated in ongoing monitoring at downgradient monitoring wells.

A discussion of SWMU/AOC 300 sample results from the RFA is provided in Table A3-1f. No criteria were exceeded, and the text should state this fact.

10. A3/4.8.3 Groundwater

a) This section should be changed based on Comment 7d above. When the discussion of groundwater results is moved under Section A3/4.7 (Chemicals To Be Investigated During Phase II), make all necessary changes based on the following comments:

Response

See the response to 7d above.

b) Include that the MCL for benzene, and antimony was exceeded (at Site 4).

Response

Agreed. However, please note that the only occurrence of benzene was found in a sample collected from the upgradient well. The concentration (3 ug/L) exceeded the California MCL, but not the federal MCL.

c) The site evaluation of Phase I RI groundwater data is inadequate. Evaluate the following:

i) the presence of benzene (3 ppb) in well 04_UGMW63;

ii) the presence of petroleum hydrocarbons, including TFH-gasoline (769 ppb) and TFH-diesel (78 ppb) in well 04_DBMW40.

III) the presence of the following contaminants in cluster well 18_BGMW01 which may be located downgradient of Site 3/4:

- TFH-gasoline (1,080 ppb) in the well screened at 205-245 feet bgs
- TFH-diesel (1,840 ppb) in the same well screened at 205-245 feet bgs
- benzene (270 ppb) in the same well screened at 205-245 feet bgs
- cadmium in wells screened at 242-262 and 330-350 feet bgs
- TFH-diesel (2,260 ppb) in a well screened at 466-486 feet bgs

Please evaluate the meaning of these results; consider if we see the same contaminant profiles in Round 2 data. The evaluation should consider all possible source areas, including Site 3/4, as well as other potential sources such as Tank Farms 5 and 6. Please also see Comment 13e below.

In the evaluation, please also address the following two concerns:

- The water table may have been above the screen interval of well 04_UGMW63 during sampling (see Figure B4-2 in the *Technical Memorandum*); the well pump is positioned near the bottom of the screen. Higher concentrations of benzene at the water table may be present.

- Is the petroleum hydrocarbon contamination in well 04_DBMW40 possibly related to Tanker Farms 5 and/ or 6 or is possibly due to the handling of fuels/fuel wastes at or near Site 4? TFH-diesel was detected in a surface soil sample at Stratum 2 at a concentration of 16,400 mg/kg. In addition to discussing this concern in the text, include a discussion of all potential sources and groundwater flow direction.

  Please also indicate the location of Fuel Farms 5 and 6 in figures shown site boundaries and well locations; the figure should indicate the number and location of the specific USTs within these two tank farms. In the text, provide the capacity and current as well as historic contents of each

UST. Indicate if the USTs have been integrity tested, and if so, in what year(s) and the results.

Response

The groundwater discussion may be expanded. However, the discussion is much more complete in the Technical Memorandum, and will be more complete in the RI Report. Please note that the petroleum hydrocarbons described above are not likely to have originated at Site 3/4. For one thing, cluster well 18-BGMW01 is clearly not downgradient of Site 3/4. For another, well 04_UGMW63 is upgradient of Site 4. The groundwater flow direction is indicated on site figures. As DTSC is well aware from previous discussions, these compounds most likely originated at Tank Farm 5 or 6, not Site 3/4 (in spite of the presence of diesel in the drainage ditch). These tank farms should be investigated; however, they are not part of Site 3/4 and are not part of the RI. It is inappropriate to include detailed information of each UST at the tank farms in the DQO document. A removal action is planned for the drainage ditch. Continued evaluation through monitoring of wells at the site is advisable.

Groundwater at well 04_UGMW63 does not lie under water table conditions. The Phase I SAP directed field personnel to screen monitoring wells across the uppermost permeable unit encountered within the saturated zone. This is the unit in which dissolved contaminants are most likely to migrate, not clays that happen to lie at the groundwater piezometric surface.

11. A3/4.9.1 and A3.10.2 Shallow Soil

Stratum 2 (Drainage Ditch)

a) **Phase I results indicate that the contamination at Stratum 2 is possible confined to the upper 2 feet of soil; consider that samples could be initially collected at 0 and 2 feet bgs. Samples at deeper depths, such as 5 and 10 feet, may not be necessary unless significant contamination is identified at 2 feet. Immunoassay techniques can be used to initially screen the stratum for semivolatile organic compounds [SVOCs], pesticides and TFH-diesel.**

Indicate the proposed number of Phase II samples for this stratum.

Response

Since this comment was made, the Navy (with DTSC concurrence) has decided to designate the Drainage Ditch for a removal action. Sampling to evaluate the extent of contamination will be a part of this action.

b) **Please make all necessary changes when Section A3/4.9.1 and A3.10.2 are merged. Section A3.10.2 apparently implies that CLP samples will be collected and analyzed for SVOCs, pesticides/PCBs, TFH-gasoline and TFH-diesel. However, Section A3/4.9.1. implies that field screening samples will be collected for TFH-diesel and that samples would not be collected for TFH-gasoline. Due to these inconsistencies, we are unable to ascertain what sampling strategies are actually being proposed. Please make all necessary changes in the text and tables, such as the tables providing a summary of samples and analytical parameters for the Phase II RI. Moreover, due to the inconsistencies in sample proposals for Site 3/4, we reserve the right to make additional changes to the sampling approach at a later date (e.g., during review of a Phase II SAP Amendment) once the strategies are clarified.**

Response

Section A3.10.2 is the correct version. Section A3/4.9.1 was inadvertently not corrected. However, see the response above--this stratum is planned for a removal action, so that the sampling strategy is now a moot point. Finally, while Sections 9 and 10 need to be revised, it is not clear that they should be merged, in violation of DQO guidelines.

SWMU/AOC 194 (Former Incinerator)

a) **Under "Hypothesis," change the beginning of the paragraph to read:**

> **"Elevated levels of VOCs were found in the shallow soil at SWMU/AOC 194. In fact, this was one of the few locations in the Phase I RI where relatively significant concentrations of chlorinated VOCs were detected in soils; PCE was detected at a concentration of 130 ppb in a soil sample collected at 2 feet bgs** ***[underline denotes change]*****."**

Response

This statement may be added, but the phrase "relatively significant" should be deleted. However, the VOCs were found during the RCRA Facility Assessment, not the RI.

b) **Under "Sampling Strategy," indicate that samples will also be located based on soil gas survey results. Consider using field screening techniques to characterize extent away from the former incinerator location.**

Response

A statement that samples will be based on soil gas results is already present (see the second sentence). It is agreed that field screening samples may be collected to characterize extent away from the former incinerator location.

c) **In this section within Section A3.10.2, please clarify the last sentence of the first paragraph which states "SVOCs will be analyzed for at this location only at depths of 0, 5 and 10 feet bgs." If this statement refers to the sampling strategy for the upper soil zone, it is not necessary because samples are to be collected only at 0, 5 and 10 feet bgs anyway. Or does this refer to the deep boring described in the previous sentence? If it does refer to the deep boring, prior corresponding Section A3/4.9.2 (Subsurface Soil) and the following Section, Section A3/4.10.3 (Subsurface Soil) indicate analyses for only VOCs, herbicides and fuel hydrocarbons; please make all necessary changes.**

Response

This section should be clarified.

12. **A3/4.9.2 Subsurface Soil**

a) **The wording of this section needs improvement. Define the problem at Stratum 1 first (include the deep borings at former Site 3 and at former Stratum 1 of former Site 4, then address subsurface soil at SWMU/AOC 300, followed by a discussion of SWMU/AOC 194.**

Response

The wording may be improved. However, no deep borings are proposed at Site 3, Site 4, or SWMU/AOC 300. The only deep boring will be completed at SWMU/AOC 194. The existing text states this fact and provides rationale.

b) **Under "Sampling Strategy," add a statement that soil gas survey results will be used in determining the "most contaminated" areas for the deep boring.**

Response

This was stated in the previous discussion of the soil gas strategy, but could be restated here.

c) **Under "Sampling Strategy," delete the statement "... drilling through landfill debris is hazardous ..."; this is really not the most appropriate reason for not completing a deep boring.**

Response

This is just one reason among several not to drill through the landfill. However, it is definitely a good reason.

13. **A3/4.9.3 Groundwater**

a) **Under "Statement of Problem," again, the evaluation of groundwater is inadequate; please see Comment 10c above.**

Response

Again, see the response to Comment 10c above.

b) **Please consider the following for well placements at Site 3/4:**

i) **a cluster well placed near wells 04_DGMW66, 04_DBMW40 or 04_DGMW63 may be more appropriate. Please see General Comment 8 concerning groundwater flow direction inconsistencies. TFH-gasoline and TFH-diesel were detected in well 04_DBMW40 and benzene was detected in well 04_UGMW63; and**

ii) **whether the benzene found in 04_UGMW63 is from Tank Farm 5 or 6.**

Response

See the response to General Comment 8 and 10c above. The investigation of possible petroleum releases from the tank farms is outside the scope of the RI. The existing wells are adequate to evaluate releases from Site 4. Also, the groundwater flow direction has been properly characterized.

c) **Indicate the number of each new well in the text and please be consistent with the well numbering in the figures.**

Response

The well numbering appears to be consistent. The number of each well should be indicated in the text, but in Section 10 (Investigation Design), not Section 9 (Problem Statement).

d) **Please indicate the location of well 04_DGMW66 in Figures A3/4-6a and A3/4-6b.**

Response

Agreed.

e) **Please indicate if any of the proposed wells would also be groundwater extraction wells, and if not, please explain why. Please consider and evaluate whether it would be feasible to design a groundwater monitoring/extraction strategy to monitor/remediate groundwater (contamination) from both Site 3/4 and other possible sources in the immediate areas such as Tank Farms 5 and/or 6.**

Response

After earlier criticism that monitoring wells at Site 2 may be considered for eventual extraction, it is surprising that DTSC is proposing that here. Relatively low concentrations of contaminants were observed in samples collected from monitoring wells installed during Phase I at Sites 3/4 that potentially originate from Sites 3/4. Petroleum hydrocarbon contamination observed in samples from Site 4 monitoring wells appears likely to originate outside of Sites 3 or 4. Additional evaluation is necessary to design a remedial strategy for releases at either the Original Landfill or the tank farms.

14. **A3/4.10.1.1 Soil Gas**

Stratum 1 (Landfill Area)

a) **Correct the statement "Collect soil gas samples for VOCs ..." since additional non-VOC constituents will also be analyzed.**

Response

The statement should read "VOCs and methane".

b) **The location of soil gas sampling points should also be contingent on the location of identified pits, trenches and other anomalies shown in a new figure (requested in an above comment).**

Response

Whether or not a new figure is prepared, it is agreed that the soil gas grid should be denser in areas where former trenches, etc., have been identified.

SWMU/AOC 194 (Former Incinerator)

Indicate in the text the number of soil gas sampling points; in Figure A3/4-6c, the number proposed is six.

Response

Agreed. Please note that SWMU/AOC 194 is a very small site.

Site 5–Perimeter Road Landfill

1. **A5.1.1 Setting and History**

This section should describe the current use of the site as a storage area for contaminated soil placed in "burritos"; please describe the type and origin of the contaminated soil.

Response

It is agreed that the section should mention that Phase I RI soil waste is stored in "burritos" at this site. There is no "hazardous" soil at the site; all soil are classifed as "designated" according to 23 CCR 2522[a][1]. The text should not include a complete inventory of the specific origin of the soil in each "burrito", but should briefly describe the origins of the soil (drill cuttings, etc.).

2. **A5.4.2 SAIC Survey**

a) **We do not necessarily agree with the conclusions in this section and the following section, Section A5.5 (Site and Stratum Boundaries for Phase II RI). We feel that the information presented in the SAIC Report warrants additional investigation of areas possibly related to the landfill. This section dismisses an impoundment surrounded by berms and containing open trenches as observed in a 1979 photograph as a possible construction site. However, we are unaware of any building or other similar such constructed unit being located at that area.**

We recommend the use of geophysics, including possibly GPR or aerial GPR, in suspected disposal areas identified in the *SAIC Report* and the following areas identified in the *SAP Amendment* but excluded from investigation in Phase I:

i) **a large tract of disturbed ground located southwest of the landfill observed in a 1980 aerial photograph;**

ii) **disturbed ground and a possible impoundment filled with an unidentified liquid located northwest of the landfill; and**

iii) **a possible impoundment, located west of the impoundment described in ii above, observed in 1986.**

Please provide a figure, e.g., a plan view diagram showing the anomalies identified in the *SAIC Report* and those mentioned above.

Response

The SAIC Report stated that site 416 appeared to be a facility under construction. This was merely repeated in the text. The other two areas listed above are outside the Site 5 boundaries and do not appear to be related to the landfill. Site 161, for example, described in the report as "disturbed ground and a possible impoundment filled with an unidentified liquid", was revealed in a field inspection to be nothing more that a drainage ditch located several hundred feet from the landfill.

b) **Add the following statement to this section: "Sites of potential concern identified in the *SAIC Report* include *[list the site numbers as identified in the SAIC Report and include 161, 413, and 416]*."**

Response

The phrase "*in the vicinity of Site 5*" should be inserted after the word "concern".

3. **A5.6 Conceptual Site Model**

This section and Figure A5-4 should address contaminated soil stored at the site. Figure A5-4 does indicate Phase I wastes, but please address the "burritos" if they were derived from another origin.

Response

The soil stored at the site is all derived from the Phase I RI. Section A5.6 should describe the soil, as mentioned in Comment 5-1, above.

4. **A5.7 Chemicals To Be Investigated During Phase II**

a) **Did aluminum actually exceed the secondary MCL? Our information indicates that the MCL for aluminum is 1,000 ppb; if this is correct, please make all necessary changes for this site and the entire document.**

Response

1,000 ppb is the California Primary MCL for aluminum. The federal secondary MCL for aluminum is 50 ppb, as indicated in the text.

b) **The second paragraph briefly discusses the source of detected TCE, PCE and benzene in groundwater. Please briefly discuss Round 2 data and indicate if the results support an upgradient source.**

Response

Round II data do not change the conclusion, but it is agreed that this additional language may be placed in the text.

c) **The last sentence of the fourth paragraph states that "No classes of compounds were judged to have the potential to reach the groundwater." However, vadoese zone samples were collected from only one deep boring which was located outside of the actual landfill boundary. The *Initial Assessment Study (IAS)*, dated May 1986, indicates that supplies with an expired shelf life were disposed of at Site 5 from 1955 through the early 1970s; some of these supplies/wastes may have included liquid chemicals. Please add a statement that indicates landfill wastes may pose a threat to groundwater.**

Response

The deep boring was located within three feet of the edge of the landfill. Samples collected from this boring were appropriate for the evaluation of chemicals migrating from the landfill to the groundwater. A statement that landfill wastes may pose a threat to groundwater may be appropriate, but it is also true that there is very little evidence to date that the landfill is impacting groundwater quality.

d) **Please add a discussion of Round 1 groundwater results from the cluster wells at 18_BGMW02; this well is located downgradient of the landfill. Also consider Round 2 results, as well as all TDS results.**

Response

This well may or may not be downgradient from the landfill. In any case, it is agreed that a discussion of groundwater results from this well may be added.

5. **A5.8 Potential Remedial Actions and Associated Data Needs**

One of the subsections should address remedial actions for contaminated soil stored at the site.

Response

This soil will be disposed separately from the landfill, and should not be addressed here.

6. **A5.8.2 Subsurface Soil**

Change the last sentence to read: "In-situ technologies to address subsurface landfill wastes will be reevaluated after reviewing the results of the soil gas survey proposed for Site 5."

Response

Agreed.

7. **A5.10 Phase II Remedial Investigation Design**

a) **This section states that soil gas samples for VOCs will be collected at 10 and 20 feet bgs. Yet Table A5-6 indicates the sampling depths will be 5 feet bgs; please make all necessary changes.**

Response

Agreed. The correct depth is 5 feet bgs. The text should be modified.

b) **This section indicates soil gas will be conducted at 13 locations, yet Figure A5-6 and Table A5-6 indicate 7 locations; please make all necessary changes.**

Response

Agreed. The correct number is 7 locations.

c) **Once again, due to inconsistencies in sampling proposals, we reserve the right to make additional changes to the sampling approach at a later date (e.g., during the review of the Phase II SAP Amendment) once the strategies are clarified.**

Response

Understood.

d) **We recommend the use of GPR or other geophysical techniques to further characterize the landfill boundaries, especially in areas identified as anomalies in the *SAIC Report* and *SAP Amendment* (see Comment 2a**

above). Instead of a one-row grid for the soil gas survey at Site 5, we recommend that additional soil gas sampling locations be contingent on the geophysical results.

Response

The existing landfill boundaries have been very well characterizied by GPR during the Air SWAT investigation, and by Electromagnetic (EM) ground conductivity during the Phase I RI. EM measurements were collected at 5-foot intervals on east-west lines crossing the landfill at 50-foot intervals. These investigations have corroborated the landfill boundaries observed on historical photographs, and are consistent with each other. Additional geophysical work should only be conducted if the MCAS El Toro team agree to include other areas as part of this site.

e) **Under "Rationale," please delete the last sentence. We disagree that the landfill boundaries have been sufficiently delineated and that a one-row grid of soil gas samples is adequate.**

Response

See the response above. The landfill boundaries have been very well delineated, and are so narrow that a one-row grid inside the landfill is appropriate.

Site 6–Drop Tank Drainage Area No. 1

1. **A6.1.1 Setting and History**

a) **The *SAP Amendment* states that two vertical tanks were observed in a 1952 aerial photograph. Where were the tanks located and what were the contents? Please make all necessary changes, including changes to figures and possible changes to characterization strategies.**

Response

The two tanks were only visible on the 1952 photograph, and were not present on a 1955 photograph. There is no evidence that the tanks ever leaked, or that spills took place. It should not be necessary to spend time on these tanks.

b) **We disagree with the conclusions concerning SWMU/AOC 204. The document states that the area will not be included in the Phase II RI because it is a curbed concrete pad and wash water was collected in a sump. However, we believe that fuel wash out potentially drained onto the grassy area west of the concrete pad. Evidence supporting this hypothesis can be found in the *SAP Amendment* (see Plate 10) which**

indicates that liquid was observed flowing from the concrete pad in aerial photographs from 1970 and 1980. Please note that the *SAP Amendment* indicates that the flows ended in a stained area that was persistent in 1970, 1980, and 1981 (see later comments concerning this stained area which was not sampled in the Phase I RI).

Please add the area west of the concrete pad and towards Stratum 2 to Stratum 2 or create a new stratum. Please make all necessary changes, including figures. Immunoassay and/or the TD/GC/MS field screening techniques can be used to initially characterize this area (see later comments).

Response

It is agreed that Stratum 2 should be expanded to include this area even though activities in this area are not necessarily related to Site 6 activities. Field screening sampling would be a good way to do this.

c) **Indicate the maximum TRPH concentration detected (4,582 ppm) at SWMU/AOC 204.**

Response

See the response to comment #6 for Site 2, above.

d) **Please review the *SAP Amendment* and include a discussion of the possible stained area, located approximately 250 feet west of Site 6, that was evident in a 1986 photograph. Is this the same area identified in the *SAIC Report* as potential sites 125 and 183 (in photograph from 1961 and 1968, respectively) on the east side of the taxiway south of Site 6? Irrespective of whether the areas are the same, the areas identified as potential sites 125 and 183 in the *SAIC Report* should be, as recommended in the *SAIC Report*, added to the Phase II RI; a decision on the stained area identified in the *SAP Amendment* (if not the same area) is pending additional information.**

Please add potential sites 125 and 183 in the *SAIC Report* to Stratum 3 or create a new stratum. Please indicate these areas in a figure(s) and make all necessary changes, including changes to strata and characterization strategies. Immunoassay and/or the TD/GC/MS field screening techniques can be used to initially characterize this area (see later comments).

Response

The "possible stained area" described by DTSC cannot be located. However, site 125 is an area of wet soil adjacent to the taxiway, while site 183 consists of several stains that may or may not overlap Site 6. This site will be investigated using field screening methods, and the site boundaries enlarged as necessary based on the results.

e) **Include the triangular-shaped impoundment-like area, located west of Site 6, in a stratum for Site 6 (possible as a part of Stratum 3 or create a new stratum). This area was identified in a 1991 aerial photograph (see *SAP Amendment*) and based on recent site visits appears to be a former fuel storage area, possible for engine tests conducted in the area. Please obtain all available information about this area and make all necessary changes, including changes to figures, strata, and characterization strategies. Immunoassay and/or the TD/GC/MS field screening techniques can be used to initially characterize this area (see later comments).**

Response

This area should not be added to Stratum 3, because no information exists to indicate the possible activities at the area are related to those at Stratum 3; to do so would violate the original stratum definition. It would be possible to create a new stratum. However, if investigation is required at this area, it should be conducted outside the CERCLA program.

2. **A6.3**

Provide a figure showing the COPCS for SWMU/AOC 204.

Response

Agreed.

3. **A6.4.1 EPA Survey**

Please make all necessary changes based on Comment 1 above.

Response

See the response to Comment No. 1 above.

4. **A6.4.2 SAIC Survey**

a) **Please make all necessary changes based on Comment 1 above.**

Response

See the response to Comment No. 1 above.

b) **Add the following statement to this section: "Sites of potential concern identified in the *SAIC Report* include [list the site numbers as identified in the *SAIC Report* and include 124, 125, and 183]."**

Response

Insert the phrase "*in the vicinity of Site 6*" after the word "concern".

5. **A6.5 Site and Stratum Boundaries**

Please make all necessary changes based on Comment 1 above.

Response

See the response to Comment No. 1, above.

6. **A6.7 Chemicals to be Investigated During Phase II**

a) **Change the second sentence of the first paragraph to read "Lead (at concentrations up to 1,410 ppm) exceeded RBCs in shallow soil at Stratum 3."**

Response

Agreed.

b) **Discuss the detection of TRPH (at a concentration of 1,041 ppm) at the upgradient location; indicate potential sources for the result.**

Response

See the response to Site 2, comment #6.

c) **The *Technical Memorandum* indicated that phenol in groundwater at Site 6 also exceeded regulatory criteria. Yet the text in this section does not discuss results for phenol; please make all necessary changes, including Table A6-3b.**

Response

Table A6-1c lists phenol as exceeding criteria. Yet this was inadvertently omitted from the text and from Table A6-3b. This should be corrected.

d) **Also in the second paragraph, change the fourth sentence to read "Although no individual chemical exceeds 1 for cancer risk) [*underlines denote change*], the chemical class contributing most to the cancer risk is SVOCs."**

Response

Agreed.

e) **We disagree with the statements made in paragraph 3. Shallow soils at Site 6 should be investigated for TFH-gasoline and TFH-diesel based on the site history. Please make all necessary changes, including Table A6-5.**

Response

Shallow soil at Strata 1 and 3 should be analyzed for TFH-gasoline and TFH-diesel now that the stratum boundaries have been enlarged.

7. **A6.9 Problem Definition**

Stratum 2 (Drainage)

We disagree with the proposal for no additional sampling because areas of possible disposal activity have not been investigated. In a figure(s), indicate the stained area that was persistent in 1970, 1980, and 1981 (see *SAP Amendment*, including Plate 10.

Please propose a sampling strategy to include the flowing liquid area and other areas within the former Stratum 2, including the persistent stain area (which was not sampled in Phase I). Immunoassay and/or the TD/GC/MS field screening techniques can be used to analyze for TFH-gasoline, TFH-diesel, and PAHs. Propose a field screening sampling/analysis method for metals at Stratum 2.

If proposed, initial immunoassay samples can be located at 0.1-0.5 feet bgs. If the immunoassay results are negative in the expanded areas (i.e., new areas not previously characterized in Phase I and added for Phase II), then no additional TD/GC/MS field screening sampling is required. If the immunoassay results

are positive, use the TD/GC/MS filed screening method to further characterize extent, if needed; TD/GC/MS analyses should include VOCs and PAHs.

To further characterize the human risk with Level 3 or 4 data and if needed, to confirm the TD/GC/MS results with Level 3 or 4 data, please propose at least one CLP sample location in each of the following areas: 1) the flowing liquid area of SWMU/AOC 204, 2) the persistent stain area, and 3) another location placed in Stratum 2. Consider collecting two CLP samples form each of the three locations, at 0.1 and 2 feet bgs, unless TD/GC/MS field screening results indicate that deeper samples are needed. Analyze CLP samples for TFH-gasoline, TFH-diesel, VOCs, SVOCs, and metals.

Please make all necessary changes to the text as well as figures and tables. Please note that Table A6-6 contains errors based on the sampling strategy that is proposed in the document.

Response

See response #1 for Site 6, above. It is agreed that Stratum 1 should be enlarged to include this additional area. It is also agreed that field screening samples are a good way to define the boundaries of the stratum. However, it is recommended that Level 3 or 4 samples be placed randomly within the revised stratum boundaries, so that statistical conclusions may be drawn. The depth of samples may be determined by the MCAS El Toro team. The errors in Table A6-6 should be corrected after the sampling strategy is finalized.

Stratum 3 (Storage Area)

Please revise Stratum 3 boundaries or create new strata based on Comments 1d and 1e above. In a figure(s) showing the revised or newly created stratum boundaries, indicate potential sites 125 and 183 recommended for further investigation in the *SAIC Report* and the triangular-shaped impoundment-like area. Also consider the stained area identified in the SAP Amendment from a 1986 photograph (see Comment 1d above).

Immunoassay and/or the TD/GC/MS field screening techniques can be used to analyze for TFH-gasoline, TFH-diesel, and PAHs. Propose a field screening sampling/analysis method at Stratum 3.

If proposed, initial immunoassay samples can be located at 0.1-0.5 feet bgs. If the immunoassay results are negative in the expanded areas (i.e., new areas not previously characterized in Phase I and added to Phase II), then no additional TD/GC/MS field screening sampling is required. If the immunoassay results are positive, use the TD/GC/MS field screening method to further characterize extent, if needed; TD/GC/MS analyses should include VOCs and PAHs.

To further characterize the human risk with Level 3 or 4 data and if needed, to confirm the TD/GC/MS results with Level 3 or 4 data, please propose at least two CLP sample location in each of the following areas: 1) potential sites 125 and 183 (from the *SAIC Report*), 2) the triangular-shaped impoundment-like area, and 3) two locations placed in other areas of Stratum 3. Consider collecting two CLP samples from each of the three locations, at 0.1 and 2 feet bgs, unless deeper samples are needed. Analyze CLP samples for TFH-gasoline, TFH-diesel, VOCs, SVOCS, and metals.

Please make all necessary changes to the test as well as figures and tables.

Response

See the response to Comment No. 7 for Stratum 2, above. Also note the Navy's position on why the triangular-shaped impoundment should not be added to Site 6.

Site 7–Drop Tank Drainage Area No. 2

1. **A7.1.1 Setting and History**

   a) **In addition to Figure A7-1, please provide an expanded overview site map to include the location of well 07_DGMW91.**

   Response

   Agreed.

   b) **Please describe the abandoned well to the north/northeast of Site 7. Describe its use and when and how it was abandoned; indicate the location of the well in a figure.**

   Response

   A description of this well and the information known about the well is included in the DQO text for Site 24. In addition, the location of the well is shown in a Site 24 figure. This well is not a part of Site 7.

2. **A7.1.2 Strata**

   The document states that two hazardous waste storage areas, SWMUs/AOCs 71 and 72, are within Strata 1 and 2 and will be investigated as an integral part of these strata. Please clarify this statement since Stratum 2 is not recommended for further investigation and the characterization strategies for Stratum 1 do not address these

storage areas. Please make all necessary changes. Indicate the storage areas in figures, including Figure A7-6.

Response

The text should be modified to read that the SWMUs/AOCs lie within Strata 1 and 3. Stratum 3 will be investigated during the Phase II RI. The storage areas should be shown in figures.

3. **A7.4.1 EPA Survey**

This section states that "On the 1970 photograph, nine [*underline added for emphasis*] probable vertical tanks ...are seen on the grassy area northeast of Building 295." Yet a review of the *SAP Amendment* indicates that "...a [*underline added for emphasis*] probable vertical tank..." was situated on the grassy area northeast of Building 295. Please make all necessary corrections.

Our comments on the *Technical Memorandum* questioned the contents of this tank, yet no additional information is provided in the document. Please discuss the contents of the tank, and if necessary, make changes to the characterization strategies. Indicated the location of the tank(s) in a figure(s).

Response

The "probable" storage tanks were only visible on the 1970 photograph. They are too small to be identified or counted with the naked eye, so we must rely on the EPA interpretation. There is no indication that releases ever occurred at the tanks. The tanks are contained within the boundaries of Stratum 1, and this stratum is proposed for investigation during Phase II by field screening sampling. The sampling program may be expanded to include field screening for TFH-diesel and TFH-gasoline.

4. **A7.4.2 SAIC SURVEY**

Add the following statement to this section: "Sites of potential concern identified in the *SAIC Report* include [*list the site numbers as identified in the SACI Report and include 49, 131, 138, 247, 406, 407, and 507*]."

Please indicate that areas identified with flowing liquids, especially the drainage ditch areas contributing to Agua Chinon Wash, will be investigated with the soil gas survey proposed for Site 24.

Please indicate that the storage areas identified in the *SAIC Report* that are outside of the Site 7 boundaries will be investigated in the *Base Closure Plan*.

Response

Add the phrase "*in the vicinity of Site 7*" after the word "concern". The soil gas survey is described elsewhere in the text for this site, but may be added again here. The text also mentions that the area around Site 7 is part of Site 24, the VOC Source Area. The entire area will be evaluated for possible contributions to the VOC contamination in regional groundwater. The soil gas survey will include the drainage areas. Text may be added that describes the investigation that will accompany base closure.

5. **A7.7 Chemicals to be Investigated During Phase II**

a) **This section states that lead in shallow soils at Stratum 5 exceeded ecological criteria, however, it appears that the text should also state that lead exceeded the RBC as well. Lead was detected at the surface of 07_GN1 at a concentration of 931 ppm. This detection of lead is listed in Table A7-3a as exceeding human health screening criteria. Please make all necessary changes.**

Response

Agreed.

b) **This section should discuss the TFH-diesel detected in well 07-DBMW70 at a concentration of 2,660 ppb.**

Response

Agreed.

c) **This section should discuss the Phase I TRPH results:**

Stratum 1

TRPH was detected at a concentration of 942 ppm at the surface of 07_ST1. TRPH was detected at a concentration of 3,329 ppm at the surface of 07_ST2. TRPH was detected at a concentration of 3,188 ppm at the surface of 07_ST3.

Stratum 5

TRPH was detected at concentrations of 32,091 and 1,007 ppm at the surface and 2 feet bgs, respectively, at 07_GN1. TRPH was detected at concentrations of 4,074 and 983 ppm at the surface and 2 feet bgs.

TRPH was detected at a concentration of 2,222 ppm at the surface of 07_GN3.

Response

See the response to Comment #6 for Site 2. As previously mentioned, DTSC has concurred that TRPH results would not be used during the DQO process.

d) **This section should discuss that Site 7 is one of the few locations where TCE was actually found in subsurface soil. Please add the following to an applicable section of Site 24:**

> **"The 110 and 120 foot depth soil samples of well 07_DGMW 71 had TCE concentrations of 74 and 27 ppb, respectively. The 110 foot depth sample was 4 feet above the water table; these were the only two soil samples collected at this location."**

An applicable section of Site 24 should also identify borings and depths (including concentrations) where TCE was found in this area during RCRA Facility Assessment (RFA) investigation.

Response

The soil samples from well 07_DGMW 71 are considered to be more indicative of TCE in groundwater than TCE in soil. Therefore, the fact that this was one of the few locations where TCE was found in subsurface soil does not add any insight. The Site 24 writeup does include discussion of the results of the RFA investigation.

6. **A7.8.2 Subsurface Soil**

This section should address the detection of TFH-diesel in groundwater at well 07_DBMW70 at a concentration of 2,660 ppb. It seems there is a potential upgradient subsurface soil source for this contamination. Could this be related to the probable former tank located to the northeast of Building 295?

Response

The hypothesis is believed to be doubtful, considering the fact that the tank was present 25 years ago, if it was present at all. See the response to comment #5 for Site 7, above.

7. **A7.9.1 Shallow Soil**

Stratum 1 (North Pavement Edge)

Phase I results indicate that the soil surficial contamination at Stratum 1 is possibly confined to the west end of the stratum. Contamination is apparently localized. Consider remediation without further investigation, however, TFH-diesel was detected in well 07_DBMW at a concentration of 2,660 ppb. Phase II sampling and analysis must identify the source of the hydrocarbons in groundwater.

If further surficial soil investigation is undertaken, then consider that samples could be initially collected at 0.1 and 2 feet bgs. Samples at deeper depths, such as 5 and 10 feet, may not be necessary unless significant contamination is identified at 2 feet.

Immunoassay techniques can be used to initially screen the stratum for PAHs; TD/GC/MS/ field screening samples can then be located in areas with a positive immunoassay result. CLP samples collected at 5 and 10 feet may not be necessary; base the required sampling depths on the TD/GC/MS field screening results.

At a minimum some immunoassay, and preferably some TD/GC/MS field screening samples, should be located in the area of the former tank which was situated on the grassy area northeast of Building 295.

Please make all necessary changes to the text, figures, and tables.

Response

See the response to Comment #3 for Site 7, above. Characterization of the former storage tanks site is unnecessary. However, it is agreed that Stratum 1 should be characterized by field screening methods for petroleum hydrocarbons.

Stratum 3 (New East Pavement Edge)

a) **Make all necessary changes based on the comments from Stratum 1 above.**

Response

Stratum 3 has also been proposed for field screening sampling. As with Stratum 1, the sampling may include petroleum hydrocarbons (even though Phase I

samples provided no indication that petroleum hydrocarbons pose a risk to human health or groundwater at this stratum).

b) **Provide a figure of Stratum 3 indicating aerial photograph anomalies identified by USEPA (see Plate 11 of the *SAP Amendment*). Locate at least one of the TD/GC/MS field screening samples within the three empty dormant areas (probably used for fuel bladders); please note that these areas were not sampled in Phase I.**

Response

Field screening samples should adequately characterize the entire stratum. The density of the grid should be agreed to by the entire team. It is not necessary to provide a new figure. This would be redundant. In addition, groundwater sampling has provided no indication that this area has contributed to petroleum contamination in groundwater.

Stratum 5 (Open Dirt Area)

Explain why the TD/GC/MS field screening method was not proposed for this stratum. Additional sampling at depths deeper than 2 feet may not be required if significant contamination is not found at the 2 foot depth.

Response

Risk calculated on shallow soil samples collected during Phase I did not exceed the criteria for field screening sampling stated in the DQO document: namely, 5×10^{-5}. The risk that was calculated was based almost entirely on a single detection of benzo(a)pyrene.

8. **A7.9.3 Groundwater**

Well 07_DBMW70 should also be analyzed for SVOCs, TFH-gasoline, and TFH-diesel.

Response

Only TFH-diesel has been detected in two rounds of groundwater samples. However, given the DTSC concern for the possible presence of petroleum hydrocarbons, these compounds should be added to the Phase II analyses.

9. **A7.10 Phase II Remedial Investigation Design**

Revise this section based on the above comments.

Response

See the comments above. Modifications will be made as necessary.

Site 8–DRMO Storage Yard

1. **A8.1.1 Setting History**

a) **For clarity, change the first sentence of the second paragraph to read: "As shown in Figure A8-1, the site has two primary areas of concern: the Old Salvage Yard (near Building 800) and the current storage yard consisting of both a west and east section."**

Response

Agreed.

b) **For clarity, change the third paragraph to read:**

> **"In 1984, several gallons of PCB oil were spilled in the current Storage Yard...Refuse piles in the west portion of the current Storage Yard and the Old Storage Yard are evident in the site aerial photographs since 1952."**

Response

If adding the word "current" will help, then this should be done.

c) **Provide an enlarged figure of the eastern portion of the current Storage Yard and indicate the area where soil was excavated. According to the *ISA*, several cubic yards (about 10,000 pounds) of PCB contaminated soil adjacent to ramp 633 was excavated. Please also indicate ramp 633 and Phase I sampling locations in the figure. Please explain how the excavated area was filled with soil. Was soil from Stratum 1 scraped into the excavated area? It appears from the Phase I results that Strata 1 and 4 can be combined into a single stratum.**

Response

An enlarged figure showing the ramp would be helpful. It is unknown where the soil originated that was used to fill the excavated area. It is doubtful that soil from Stratum 1 was scraped into this area, because that would necessitate re-grading. The strata should not be combined.

2. A8.1.2 Strata

a) **For clarity, change the second paragraph to read (note the first sentence has been deleted):**

"Heavy and continual staining was observed in the East Storage Yard throughout the photographic record. In the West Storage Yard, however, stains were...No information was available regarding possible contaminant releases in either portion of the current Storage Yard (except for the PCB Spill Area which has been designated as a separate stratum). Therefore, it was decided to divide the current Storage Yard into two strata on the basis of the photographic record: East Storage Yard and West Storage Yard."

Response

Agreed. In other words, the first sentence will be deleted.

b) **Indicate the three drum storage areas (SWMUs/AOCs 104, 105, and 106) in figures, including Figure A8-6.**

Response

Agreed.

3. A8.3.3 Groundwater

Please include the groundwater COPCs for the upgradient location in Figure A8-3.

Response

Agreed.

4. A8.4.1 EPA Survey

This section as written is confusing; change the paragraph to read:

"The EPA photograph survey first noted staining and refuse piles within Stratum 2 (West Storage Yard) on the 1952 photograph. Throughout the years, refuse piles were seen mostly in the central portion of Stratum 2, specifically the area designated as Stratum 3 (Refuse Pile). Stains were noted all over Stratum 2, but were concentrated in the eastern portion of this stratum. Numerous drums were identified in [*add applicable stratum or strata*] on the 1970 photograph, and probably in 1991 as well. Stains

were observed in Stratum 5 (Old Salvage Yard) on 1965 and 1970 photographs..."

Response

Disagree. DTSC is confusing Stratum 2 (West Storage Yard) with the entire current DRMO storage yard, which lies to the west of the original yard, or Stratum 5 (Old Salvage Yard). The refuse pile was always in the same place on each figure. Stains were concentrated in Stratum 1 (East Storage Yard). However, recommended changes regarding the drums and Stratum 5 should be made.

5. **A8.4.2 SAIC Survey**

a) **Please review site 50 in the *SAIC Report*. It appears that storage was conducted at the present location of Building 360; it appears that this could be a former portion of the DRMO Storage Yard. Please address this in the document; include whether or not a military construction investigation/report was conducted/prepared for Building 360. Records, including plan diagrams, for MCAS El Toro should be reviewed. Please make all necessary changes.**

Response

This possible storage area was tentatively identified on a 1946 photograph. Unless other evidence indicates that a release took place (e.g., groundwater evidence), it should not be necessary to investigate this area.

b) **In a figure(s), indicate the location of the stain identified as site 132 in the *SAIC Report*.**

Response

This stain is not part of Site 8 and should not be included on a figure.

c) **Please review site 137 in the *SAIC Report*. Two stained areas are identified; one of them is outside the current Site 8 boundaries (please indicate the location of this stain in a figure). Please make all necessary changes, including changes to characterization strategies.**

Response

The stain that lies outside Site 8 should be addressed separately from the CERCLA program. The other stain lies within the Old Salvage Yard. No change in strategy is necessary because of this 25-year-old stain.

d) **Please review site 180 in the *SAIC Report*. In figures, please indicate the location of the two upgradient stained areas. Make all necessary changes, including changes to characterization strategies. Was the upgradient Phase I sampling location (08_UGS) with detected concentration of 512 ppm TRPH within one of these stained areas?**

Response

The only portion of Site 180 that lies within the DRMO area is referred to as "probable wet soil". No change in strategy is necessary because of this tentatively identified 1968 feature.

e) **Please identify the locations of Buildings 1749 and 748 in figures. Site 461 in the *SAIC Report* indicates a stain adjacent to these buildings; the photograph is not provided in the *SAIC Report*.**

Response

These buildings and features are clearly outside the boundaries of Site 8.

f) **Add the following statement to this section: "Sites of potential concern identified in the *SAIC Report* include [list the site numbers as identified in the *SAIC Report* and include 50, 132, 137, 180, and 461]."**

Response

Add the phrase "*in the vicinity of Site 8*" after the word "concern".

Please make all necessary changes to this section based on the above comments. Please clearly indicate the correct stratum in the text.

6. **A8.5 Site and Stratum Boundaries for Phase II RI**

Please make all necessary changes based on Comment 5 above.

Response

See the response to Comment No. 5, above.

7. **A8.7 Chemicals to be Investigated During Phase II**

a) **Lead also exceeded RBCs in Stratum 1; please make the necessary change in the text.**

Response

Agreed.

b) **Lead also exceeded RBCs in Stratum 3; please make the necessary change in the text.**

Response

Agreed.

c) **This section should discuss the Phase I TRPH results:**

Upgradient

TRPH was detected at a concentration of 512 ppm at the surface of 08_UGS.

Stratum 1

TRPH was detected at a concentration of 665 ppm at the surface of 08_ST1. TRPH was detected at a concentration of 7,730 ppm at the surface of 08_ST3. TRPH was detected at a concentration of 2,144 ppm at the surface of 08_STDB; deeper samples at this location were not collected in Phase I.

Stratum 3

TRPH was detected at concentrations of 1,661 and 891 ppm at the surface and at 2 feet bgs, respectively, at 08_RE1. TRPH was detected at concentrations of 1,806 and 1,314 ppm at the surface of 08_RE2 and 08_RE3, respectively.

Stratum 4

TRPH was detected at a concentration of 6,001 ppm at the surface of 08_PCB1. TRPH was detected at a concentration of 5,094 ppm at the surface of 08_PCB2. TRPH was detected at a concentration of 1,299 ppm at the surface of 08_PCB3.

Response

TRPH is not being evaluated as part of the DQO process. See the response to comment #6 for Site 2.

8. **A8.8.2 Surface Soil**

This section states no contaminants were found in subsurface soils at concentrations and depths that threaten migration to groundwater; yet earlier in Section A8.7 (Chemicals to be Investigated During Phase II) it is stated that based on LUFT guidelines, TFH-diesel in shallow soils at Stratum 4 may pose a threat to groundwater. Please clarify this apparent discrepancy and make all necessary changes.

Response

Agreed.

9. **A8.9.1 Shallow Soil**

Stratum 1 (East Storage Yard)

Phase I results indicate that the contamination at Stratum 1 is possibly confined to the upper soil layers; consider that samples could be initially collected at 0.1 and 2 feet bgs. Samples at deeper depths, such as 5 and 10 feet, may not be necessary unless significant contamination is identified at 2 feet. Immunoassay techniques can be used to initially screen the stratum for PCBs; TC/GC/MS field screening samples can then be located in areas with a positive immunoassay result.

Please indicate the field screening method that will be used to analyze for lead. Characterization of lead should include delineating the extent of contamination at 08_ST3.

CLP samples collected at 5 and 10 feet may not be necessary; base the required sampling depths on the TD/GC/MS field screening results.

Response

DTSC has earlier agreed that the depth to which a human health risk assessment must be performed is 10 feet. In fact, DTSC was instrumental in having this depth lowered from 8 feet, as originally proposed by the Navy. In order for sampling to be eliminated at the 5- and 10-foot depths, DTSC should provide assurance that it will accept the results of a risk assessment prepared on shallow (less than 5 feet) samples, and be willing to proceed to a ROD on this basis.

As DTSC has agreed, the type of field screening sampling that will be performed, as well as Quality Assurance procedures, will be specified in an amendment to the QAPP. Regulatory agencies need to proceed with

certification of the methods, so that the Navy may have some assurance that, after having agreed to collect immunoassay and TC/GC/MS samples, the results of the analyses will be acceptable to the agencies.

If a field screening strategy is adopted for this site, then the extent of the "hotspot" at 08_ST3 may be an option. Otherwise, the goal of the sampling should be to evaluate the overall risk posed by the entire stratum.

Stratum 2 (West Storage Yard)

Provide a figure of Stratum 2 indicating aerial photograph anomalies identified by USEPA (see Plate 12 of the *SAP Amendment*).

Immunoassay techniques could be used to analyze for PCBs in the identified anomalous areas (please note that these anomalous areas were not sampled in Phase I) at 0.1-0.5 feet bgs. If the immunoassay results are negative, then no additional TD/GC/MS field screening sampling is required for the anomalous areas. If the immunoassay results are positive, use the TD/GC/MS field screening method to further characterize extent, if needed; TD/GC/MS analyses should include PAHs and PCBs.

Propose a field screening sampling/analysis method for metals.

To further characterize the human risk with Level 3 or 4 data and if needed, to confirm the TD/GC/MS results with Level 3 or 4 data, please propose at least three CLP sample locations in the anomalous areas of Stratum 2. Collect two samples from each of the three locations, at 0.1 and 2 feet bgs, unless deeper samples are needed. Analyze for SVOCs, pesticides/PCBs, and metals.

Response

See the response to General Comment #3. DTSC is suggesting here that the sampling design that they previously required the Navy to adopt (i.e., stratified random sampling), be now discontinued and replaced by judgemental sampling.

Stratum 3 (Refuse Pile)

Stratum 3 is contaminated. Field screening methods should be used to delineate the extent of contamination, i.e., the volume of soil to be remediated.

Response

Stratum 3 has already been subjected to a removal action. Field screening methods may now be used to evaluate whether all the contaminated soil has been removed.

Stratum 4 (PCB Spill Area)

Indicate the proposed sampling locations for this Stratum in the figure requested in Comment 1c above, i.e., an enlarged figure of the eastern portion of the current Storage Yard indicating the area where soil was excavated.

The sampling strategy should indicate the extent and depth of the excavation so that proposed samples are not located in fill material.

Indicate the depths of the TD/GC/MS field screening methods.

Add SVOCs and metals to the analyses for the CLP samples. Phase I results indicate that the contamiation at Stratum 4 is possible confined to the upper soil layers to about 2 to possibly 4 feet bgs; please review the proposed CLP sample depths, but consider the former excavation depth.

Response

If an enlarged figure is prepared for this portion of the site, then the grid sampling proposed for Stratum 4 could be shown on the figure. It is agreed that the sample depths should be specified, so that fill material is not characterized. As far as the total depth of sampling is concerned, see the response to Comment #9 for Site 8, above.

There is no need to add SVOCs or metals to the analyses. These chemical classes did not meet the criteria for selecting chemicals for further investigation, as agreed to previously by DTSC (see the Introduction to the DQO document, Section A.6.8).

Stratum 5

Provide a figure of Stratum 5 indicating aerial photograph anomalies identified by USEPA (see Plate 12 of the *SAP Amendment*) and SAIC (see site 132 identified in the *SAIC Report*). Discuss the results of the three deep borings in this stratum, e.g., which borings were located within identified anomalies? Other questions that should be addressed include when was the Old Storage Yard covered with fill material and was

storage conducted after it was covered with fill material? This information is important in making an informed decision for this stratum. The Phase I investigation for this stratum consisted of three deep borings with samples collected at 5, 10, 15, 20, and 25 feet, but surface soil samples were not collected in Phase I. The contamination at other strata in Site 8 appears to be limited to the upper soil layers. Please propose a strategy based on the above comments to characterize surficial soils for PCBs and metals.

Please make all necessary changes to the text as well as figures and tables.

Response

The 25-foot borings were randomly located within Stratum 5. DTSC has previously agreed that isolated anomalies shown on photographs taken nearly 40 years ago do not necessarily represent the risk posed by this stratum. DTSC previously agreed, in fact insisted, that a stratified random sampling approach should be followed at this stratum. DTSC also approved the Phase I sampling design for this stratum, including the locations of the Phase I borings. Under the procedures agreed to by the team, that stratum should not be investigated further.

Site 9–Crash Crew Pit No. 1

1. **A9.4.2 SAIC Survey**

a) **Please review site 248 in the *SAIC Report*–it indicates that seven possible vertical tanks were located near the west and south sides of Building 435 (Crash Crew). Is it possible that these tanks may have held waste fuels, oils, solvents, and fire fighting foam for the burn pit? Or were the flammable liquids delivered to the burn pit by another method, e.g., by trucks?**

Response

It is possible that these tanks contained the materials described. The method by which flammable liquids were delivered to the pits is unknown. In any case, the tanks are not part of Site 9. If DTSC is concerned about possible releases it should pursue these concerns outside of the CERCLA program. Groundwater data do not indicate the presence of a major source of petroleum hydrocarbons in this area.

b) **Add the following statement to this section: "Sites of potential concern identified in the *SAIC Report* include [list the site numbers as identified in the *SAIC Report* and include 167, 182, 204, 248, and 486]."**

Response

Add the phrase "*in the vicinity of Site 9*" after the word "concern".

2. **A9.9.1 Shallow Soil**

The document concludes that no further investigation of shallow soils is needed. However, this conclusion is questionable because it is based on three surface only samples which may have been located in fill material (see Section A9.1.2). It is true that one 25-foot boring was completed in the east pit (which included samples at 5 and 10 feet bgs) and a deep boring was completed in the west pit (which included samples at 5 and 10 feet). The dioxin sample at 20 feet bgs was targeted too deep. Moreover, none of the Phase I soil samples were located in the areas where liquids were reportedly flowing, i.e., near the northern edge of the pits. Propose a sampling strategy for shallow soil at Site 9 addressing these concerns (include analysis for dioxins/furans in surficial soils).

Response

Results of soil samples, both shallow and deep, and of groundwater samples, provide no indication that Site 9 poses either a risk to human health or to groundwater. It is true that the dioxin sample may have been collected too deep. However, DTSC first says that surface soil samples results may be questionable because samples may have been collected in fill material, and then asks for dioxin analysis in surficial soil. If dioxin samples are truly needed at this site, then they should be taken at a depth of about 5 feet, near the former surface of the pit.

If contamination has not been found within or beneath the pit areas, it does not appear likely to be found in the flowing liquid areas either. However, additional sampling in this area should be accomplished during Phase II.

3. **A9.9.2 Subsurface Soil**

Please add that the soil gas investigation for Site 24 will also include Site 9.

Response

Agreed.

4. **A9.9.3 Groundwater**

Consider changing the hypothesis to "Site 9 does not appear to be contributing to groundwater contamination; the actual source may be upgradient."

Response

Agreed, although this weakens the hypothesis somewhat.

Site 10–Petroleum Disposal Area

1. **A10.1.1 Setting and History**

a) **Embellish the description of Site 10 with the following information (in a later section, we are requesting that Site 10 be expanded based on this information):**

- **Near Site 10, the former Heavy Duty Maintenance Shop was located in Building 1589 [indicate Building 1589 in a figure(s)]. Apparently two portable 500-gallon tanks were stored in Building 1589 and used to collect waste oils and solvents. When the portable tanks were filled, they were lifted onto a truck, a spray bar was attached, and the tank contents were sprayed onto the ground for dust control. This disposal occurred over a period of approximately 13 years with an estimated maximum volume of 52,000 gallons (Brown and Caldwell, 1986).**

Response

This information should not be added to the description of Site 10, because Site 10 should not be expanded to include Building 1589. The building was investigated during the RCRA Facility Investigation. Additional investigation should be conducted under RCRA, or under base closure activities, but not under the CERCLA program. Additionally, even though Building 1589 may have been the source of a portion of the materials that were released at Site 10, it was not the only source. In any case, Site 10 is where the release actually occurred, and should be the focus of the current investigation. Finally, all of Site 10 and Building 1589 will be included in the newly created Site 24 (Potential VOC Source Area), and will be investigated both during the soil gas survey and during Phase II as necessary. If Building 1589 is found to be a potential VOC source area, it will be included in the RI and investigated as Site 24.

- **Various cleaning solvents were used in parts dip tanks in the former Heavy Duty Maintenance Shop. From 1952 through the mid-1960s, this solvent was used to wash the cement decks once per weekend and the lube racks daily; these solent volumes are estimated, respectively, at 144 and 240 gallons per year (Brown and Caldwell, 1986). The solvents were then washed into storm drains [please provide an expanded figure to indicate the location of the cement decks and lube racks].**

Response

See the response above.

- **The former Heavy Duty Maintenance Shop also contained a waterfall paint booth; sludges from the paint booth were drained onto the ground (Brown and Caldwell, 1986) [please indicate the location of the paint booth area in a figure(s)].**

Response

See the response above

b) **Please describe the abandoned well at Site 10. Describe its use and when and how it was abandoned; indicate the location of the well in a figure.**

Response

All available information on this well (there is not much) is provided in the DQO text for Site 24 (Potential VOC Source Area).

2. **A10.4.1 EPA Survey**

a) **Discuss the trenches that were observered in the western portion of the site in a 1952 aerial photograph; indicate the locations of the trenches in a figure(s). What types of wastes were likely disposed of in the trenches? Is it likely that paint wastes from the former Heavy Duty Maintenance Building were disposed of in the trenches?**

Response

The features are referred to as "possible trenches". It is definitely not clear that any material was disposed in this area, much less paint wastes from Building 1589, located about 300 feet away. These "possible trenches" are located well outside the Site 10 boundary and should not be identified on a figure.

b) **Locate the dark material identified in 1965 and 1970 (see Plate 7 of the *SAP Amendment*) in a figure(s) of Stratum 1.**

Response

"Dark" material was identified once, in 1965. "Material" was located in 1970. Otherwise, these "features" were not observed on any photograph. Including them on the site figure would imply greater significance than they deserve.

3. **A10.4.2 SAIC Survey**

a) **Please review site 142 in the *SAIC Report*. Extremely dark stains are visible in the southern portion of Site 10; the stain areas extend south of the current Site 10 boundaries. Consider extending the boundaries of Stratum 2 to the south.**

Response

The stains appear to barely extend beyond the boundary, if at all. This area and the concrete apron will be investigated during the soil gas survey. Additional investigation should wait for the results of this survey.

b) **Add the following statement to this section: "Sites of potential concern that are idendified in the *SAIC Report* include [list the site numbers as identified in the *SAIC Report* and include 42, 44, and 248]."**

Response

Insert the phrase "*in the vicinity of Site 10*" after the word "concern".

4. **A10.5 Site and Stratum Boundaries for Phase II RI**

Expand Site 10 to include the former Heavy Duty Maintenance Shop at Building 1589. Rationale for this request includes that this location was the source of waste oils and solvents applied at Site 10 for dust control. Moreover, the solvent fraction of the liquids applied for dust control as well as the part dip tank solvents used for washing cement surfaces may have contributed to groundwater contamination at the site; identified as such, the soil gas investigation conducted for Site 24 can include this area, including possible sample points along storm drains that may have carried solvents from cement washing operations at the former Heavy Duty Maintenance Building.

Response

See the response to Comment #1 for Site 10, above.

5. **A10.9 Problem Definition and A10.10 Phase II Remedial Investigation Design**

Stratum 1 (Aircraft Matting Area)

Immunoassays and/or the TD/GC/MS field screening method can be used to screen the stratum for PAHs. If immunoassays are proposed, locate several immunnoassay samples within the dark material area identified in 1965 and 1970 (see Plate 7 of the *SAP Amendment*) at 0.1-0.5 feet bgs. Locate CLP

samples in areas with a positive immunoassay result. If the immunoassay results are negative, locate the CLP sample locations randomly, except locate at least one of the CLP sample locations in the dark material area and at least one near 10_GN1. Consider locating the CLP samples at 0 and 2 feet bgs, unless deeper samples are needed.

Make all necessary changes, including figures and tables.

Response

See the response to General Comment #3. If the team decides to use judgementally-placed field screening samples, then immunoassays may be a good choice. DTSC has not provided the Navy any assurance it would abide by the results, agree that the method is acceptable, and that O and 2 foot samples are adequate for both characterization and risk assessment.

Site 11–Transformer Storage Area

1. A11.1.1 Setting and History

a) **A UST is located at Site 11 just outside the east fenceline. The UST may have been used to store PCB fluids. Please add a description of the UST to this section and indicate its location in a figure(s).**

Moreover, during the Phase II RI fieldwork, collect a sample (wipe sample, if necessary) from the UST and analyze for PCBs. If the results indicate that PCB fluids were stored in the UST, please remove the UST as part of the Phase II RI fieldwork in accordance with all applicable requirements, including collection soil sample requirements below the UST. Please make all necessary changes.

Response

Research should be conducted on the possible contents of this UST. The fieldwork described above also sounds reasonable.

b) **Add a description of the PCB spill (appromimately 50 gallons) that occurrd on September 29, 1982 when a transformer fell off a truck between Buildings 369 and 335 (please indicate the location of this spill and Building 335 in a figure(s). Describe the spill clean-up procedures; indicate if confirmation sampling was performed. Describe other PCB spills in the vicinity of Site 11. Make all necessary changes.**

Response

This spill, while possibly requiring further investigation, is outside the boundary of Site 11. The MCAS El Toro team as a whole should decide how to address sites such as this one that may need further attention. It may be expected that this issue will come up repeatedly during the closure of MCAS El Toro. It has been the opinion of the Navy that these sites should be addressed outside of the CERCLA process whenever possible.

c) **Looking at the storage yard from the east (near the UST), it appears that fill material and several layers of asphalt may exist below the current storage yard gravel surface. Please address this concern in this section, consider how this might affect sampling strategies (if true), and make all necessary changes.**

Response

If a sample location is found to be covered with asphalt, then the surface soil sample should be collected immediately beneath the asphalt.

2. **A11.1.2 Strata**

This section states that "Transformer oil...was believed to have migrated to the edge of the [concrete] pad, and discharged onto the unlined surface of the storage yard...it was believed that surface soil samples collected at any location on the pad perimeter would have an equal chance of containing PCBs." Based on observations made during a site visit, the sample locations were cored through the pad concrete. Preferably, the samples should have been located off the edge of the concrete pad.

Response

Samples were collected both along the perimeter of the pad and in the interior of the pad. The current DQO design calls for additional field screening sampling along the perimeter of the pad and in the storage yard during Phase II on order to better evaluate the extent of contamination. This field screening sampling was specified because it was felt highly probable that the Navy would have to remediate this site, and so field screening sampling would be used to determine the extent of contamination for remediation purposes.

3. **A11.4.1 EPA Survey**

a) **Indicate the location of the possible vertical tank in a figure(s); please note that apparantly the same tank was identified by the SAIC Survey.**

Please identify the contents of the former tank and make all necessary changes to characterization strategies, including analytical parameters.

Response

It is agreed that the contents of the vertical tank should be identified, if that is possible. However, unless there is some indication that releases may have occurred, the Navy questions the use of limited resources on "possible" releases.

b) **In a figure(s), indicate the location of the stained area observed at the center of Site 11 in a 1965 aerial photograph.**

Response

Agreed. This area, which is the low area just north of the pad where standing water may be found after rain storms, will be investigated further during the Phase II RI.

c) **Add the following statement to this section: "Sites of potential concern identified in the *SAIC Report* include [list the site numbers as identified in the *SAIC Report* and include 506 and 550]."**

Response

Add the phrase "*in the vicinity of Site 11*" after the word "concern".

4. **A11.9 Problem Definition and A11.10 Phase II Remedial Investigation Design**

Stratum 1 (Concrete Pad and Surrounding Area)

Move the four sample locations through the concrete pad to the immediate area adjacent to the pad (off the edge of the pad). Use the TD/GC/MS field screening method at these four locations as well as the filled-in circle locations as shown in Figure A11-6.

Consider eliminating the hollow circle sample locations as shown in Figure A11-6. The sampling strategy as proposed in the document assumes PCB contamination migrated away from the concrete pad; this is an important consideration. Another approach would be to assume that PCB releases could have occurred anywhere in the storage yard, i.e., units containing PCB fluids were stored throughout the storage yard and not limited to the concrete pad. Moreover, releases could have occurred from the vertical tank and there may also be a more likely probability in detecting contamination in the stained area (identified in the 1965 aerial photograph). We prefer a combination of these approaches. Therefore,

consider using immunoassays to initially screen the rest of the storage yard for PCBs and PAHs; locate some of the immunoassay samples within the area of the possible vertical tank and the stained area. The TD/GC/MS field screening method can be used to further characterize extent, if needed, in areas with a positive immunoassay result.

If proposed, locate immunoassay samples at 0.1-0.5 feet bgs; locate TD/GC/MS and CLP samples at 0.1, 2, and 4 feet bgs, but consider the possible several layers of fill at the site.

Response

The orignial site was only the area where PCB spills had occurred, and a drainage ditch leading away from the site. The DQO document expanded the site to include an additional area of potential drainage away from the spill site. DTSC is now suggesting that the site be expanded to include the entire fenced-in storage area, on the potential that transformers may have been stored somewhere else in the enclosure, or that PCBs may have been released somewhere else. If the MCAS El Toro team agrees with this approach, then it is suggested that immunoassay analysis for PCBs will be sufficient as a field-screening approach. The entire site may be sampled along a grid, with tighter sample spacing near the concrete pad. The depth of samples may be 0.1-0.5 feet bgs, as suggested by DTSC. The areas identified as containing PCBs may be further sampled by immunoassay methods to evaluate depth of contamination. Then, after the horizontal and vertical extent of contamination has been characterized, Level III samples may be randomly allocated within the contaminated areas.

Stratum 2 (Drainage Ditch)

Change the field screening sampling depths to 0.1, 2, and 5 feet bgs. CLP samples should be located based on the TD/GC/MS field screening results; it does not appear that samples at 10 foot bgs will be necessary.

Response

Field screening samples by immunoassay methods may be collected at progressive depths until the extent of contamination has been evaluated. CLP samples should be randomly allocated within this area.

Site 12–Sludge Drying Beds

1. A12.1.1 Setting and History

a) **The document dismisses the two former inpoundments located southeast of Stratum 2 (East Sludge Drying Beds); these units were apparantly identified in aerial photographs from 1945, 1965, and 1970 (see Plate 13 of the *SAP Amendment*). This is within the same area that the *SAIC Report* identifed an impoundment and six vertical tanks. Please provide a history of the tank contents. All available information, e.g., aerial photographs and MCAS El Toro records/plans, should be reviewed; there apears to be sufficient evidence to warrant adding this area to an existing or new stratum. Please make all necessary changes.**

Response

Since this comment has been written, the MCAS El Toro team has agreed that all of Site 12, including each of the three strata and two additional areas of concern (former Wastewater Treatment Plant [WWTP] and Industrial Wastewater Treatment Plant [IWWTP]) should be evaluated by field screening and soil gas sampling. The two impoundments and vertical tanks are located between Stratum 2 and the former WWTP. Sample locations should extend across the entire site on a grid, to include all of the former WWTP and Stratum 2, as well as the impoundment areas mentioned in this comment. Analyses should be broad enough to provide a good initial characterization of the entire area, and should include at a minimum the classes of compounds detected during the Phase I RI; namely, PAHs, pesticides, PCBs, and metals. Planners should also consider adding petroleum hydrocarbons to this list. Volatiles, including BTEX, will be evaluated by soil gas samples. Confirmation and Level III samples may be collected at areas identified during the field screening sampling. If this comprehensive sampling program is followed, then it will not be necessary to provide a history of tank contents, which will be very difficult to accomplish.

b) **Please provide construction details for the sludge drying beds, including depth. This type of information may be obtained from reviewing MCAS El Toro records/plans.**

Response

Available evidence (Brown and Caldwell, 1986) indicates that the sludge was placed on the ground within bermed impoundments. Proper sampling for a range of contaminants will eliminate the need for further research.

c) **PCBs were detected in Stratum 3 (Drainage Ditch). The document should include a discussion of SWMU/AOC 7 (PCB Transformer Storage**

Area) and the location of this area should be identified on a site map(s). Is it possible that PCB releases from SWMU/AOC 7 contributed to the prescence of PCBs in the Drainage Ditch? DTSC's comments concerning SWMU/AOC 7 in the *Draft RFA Report* are repeated below:

> **"The Preliminary Review/Visual Site Inspection (PR/VSI) Report states that one transformer, located near the center of the storage area, leaked oil from a valve onto the unpaved soil. The boring location as indicated in Figure 5 of Appendix B, while located near or within a stain area, is apparently not near the center of the storage area. Was the release from the transformer valve investigated? What is the origin of the stain indicated in Figure 5? Please indicate the extent of the stain in Figure 5 and the locaion and extent of the leaked oil near the center of the storage area."**

DTSC finds the response to these comments in the *Final RFA Report* to be unsatisfactory. The issue of whether SWMU/AOC 7 possibly contributed to the PCB contamination of the Drainage Ditch should be addressed. Please make all necesary changes.

Response

SWMU/AOC 7 lies outside Site 12 boundaries. It is actually downgradient from Site 12, and is unlikely to have contributed to the PCBs in the ditch. Finally, this area was sampled during the RFA, and no PCBs were detected.

2. **A12.2 Phase I Remedial Investigation (RI) and RFA Results**

Please review the description of RFA activities at SWMU/AOC 90 and make all necessary changes.

Response

Agree. Two samples (2 and 5-foot depth) each were collected from 9 soil borings (for a total of 18 shallow soil samples) distributed in a grid across the former WWTP (SWMU/AOC 90) during the RFA.

3. **A12.3 Chemicals of Potential Concern**

a) **Provide figures indicating the locations and concentrations of COPCs for SWMU/AOC 90 (shallow soil) and Boring 265B1 (shallow soil and subsurface soil).**

Response

The locations, concentrations, and depths of COPCs are provided in Figure A12-2D.

b) **It appears that the PCB COPC results for 12_DDX are missing in Figure A12-2c; please make all necessary changes.**

Response

PCBs were not detected in the samples collected at 12_DDX.

c) **Apparently TFH-diesel was found at SWMU/AOC 90 up to 830 ppm; please make the necessary changes to the COPCs under SWMU/AOC 90 in Section A12.3.1 (Shallow Soil).**

Response

TFH-diesel does not appear in the database for any samples collected from SWMU/AOC 90.

4. **A12.4.2 SAIC Survey**

Add the following statement to this section: "Sites of potential concern identified in the *SAIC Report* include [list the site numbers as identified in the *SAIC Report* and include 85, 90, and 129]."

Response

Insert the phrase "*in the vicinity of Site 12*" after the word "concern".

5. **A12.7 Chemicals to be Investigated During Phase II**

a) **Add analyses for metals and cyanide for all strata and areas of investigation at Site 12; make all necessary changes in all applicable sections of the text and tables.**

Response

Metals are already included for analysis in all strata and areas of investigation at Site 12 during Phase II. They are listed in the text and in each table. Cyanide was detected at very low levels in a few samples collected from Strata 2 and 3, and not at concentrations high enough to exceed the criteria for selection for further investigation that the MCAS El Toro team agreed would be followed in the Phase II design. It is not recommended that additional samples be taken for

cyanide analyses in Strata 1, 2, or 3. However, because cyanide was not analyzed in samples collected from the former WWTP, and the former IWTP has not been characterized yet, the team may consider analyzing for cyanide in samples collected in these areas.

b) **This section does not discuss the chemical classes that will be investigated at SWMU/AOC 90; please make the necessary changes.**

Response

Agreed. Please see Table A12.5 for the list of chemical classes.

c) **This section should discuss the significant Phase I TRPH results, including the following:**

Upgradient Area

TRPH was detected at a concentration of 6,770 ppm at the surface of 12_UGS.

Stratum 3

TRPH was detected at a concentration of 42,529 ppm at 12_DDX.

Please provide possible explanations for these results and evaluate potential impacts on further characterization strategies.

Response

As stated before (see comments in previous sections and the DQO introduction), TRPH risk was evaluated by TFH-gasoline, TFH-diesel, PAH, and BTEX analyses. This approach was agreed to by the DTSC toxicologist.

6. A12.8.2 Subsurface Soil

This section states no contaminants were found in subsurface soils at concentrations and depths that threaten migration to groundwater; yet earlier in Section A12.7 (Chemicals to be Investigated During Phase II) it is stated that based on LUFT guidelines, petroleum hydrocarbons in Stratum 3 may pose a threat to groundwater. Please clarify this apparent discrepancy and make all necessary changes.

Response

This section is discussing subsurface soil. The Stratum 3 results were discussed under shallow soil.

7. **A12.9.1 and A12.10.1 Shallow Soil**

Stratum 3 (Drainage Ditch)

Consider using immunoassays to initially screen the Drainage Ditch rather than the proposed approach; PAHs, PCBs and/or pesticides could be used as indicator compounds. If proposed, locate immunoassay samples at 0.1-0.5 feet bgs. The TD/GC/MS field screening method can be used to further characterize extent, if needed, in areas with a positive immunoassay result. Phase I results indicate that the contamination at Stratum 3 is possibly confined to the upper 4 feet of soil; TD/GC/MS field screening or CLP samples at deeper depths may not be necessary unless significant contamination is identified at 4 feet.

Indicate the percentage of the estimated risk ratio for metals that is due to lead.

Response

The DQO document specified field-screening samples for the componds listed above, but did not specify the method (agencies agreed that this would be accomplished in a QAPP Addendum following further evaluation of the methodology). Immunoassay methods seem appropriate. However, after the stratum boundaries have been refined, some deeper samples should be collected for risk assessment purposes, unless the agencies are willing to abide by the results of samples collected less than 4 feet deep.

8. **A12.9.3 and A12.10.3 Groundwater**

Compared to the semi-upgradient well 12_UGMW31 and well 18_PS1, well 12_DBMW48 near the center of Stratum 1 does exhibit slightly higher concentrations of PCE in the same permeable zone (based on both round one and two results except for 18_PS1 which was not sampled in round one). TCE does not exhibit the same trend. With the additional information from round two results, it does not seem likely that Site 12 is a contributor to chlorinated VOC plume.

We recommend that additional well installations as Site 12 be on a contingent basis, i.e., justification of additional wells should be supported by other needs or information such as monitoring requirements, soil gas survey results, or Phase II investigation results. For example, the James M. Montgomery (JMM)

Report *MCAS El Toro Off-Station Remedial Investigation Final Work Plan*, dated March 1990, suggests that, based on a soil gas investigation, shallow PCE soil contamination may exist east of and immediately adjacent to Bee Canyon Wash. New soil gas survey results may indicate the need for a true downgradient well as Site 12.

Please note that the proposed new upgradient well is apparently not indicated in figures.

Response

As discussed in the DQO document, based on current understanding of the groundwater flow direction, a large portion of Site 12, including the newly added WWTP and IWWTP sites, do not have downgradient groundwater coverage. In addition, the new monitoring well is needed to monitor the impacts of nearby Desalter extraction well IDP-3.

The new upgradient well is indicated, on Figure A12-6b.

Site 13–Oil Change Area

1. **A13.1.1 Setting and History**

   a) **The second paragraph states "Underground storage tanks (USTs) at Tank Farm No. 2 may [*underline added for emphasis*] contain waste oil and JP5 fuel." Definitive information on the contents of these tanks, both past and present, should be available and should be indicated in the document.**

   Please note that later in Section A13.9.3 (Groundwater) the document states that No. 2 fuel oil is also stored at the tank farm. Please make all necessary changes, including those for consistency.

   Please indicate if all the USTs at Tank Farm 2 were leak tested in 1990 and include all test results. Indicate the capacity of each UST.

Response

Tank Farm No. 2 is not part of Site 13. It is agreed that the text should be modified to reflect the actual contents of the tanks. This is of interest to the regional groundwater investigation. However, detailed investigation of the tank farm is outside the scope of the RI.

The MCAS El Toro team has agreed that removal actions will be performed at both strata at Site 13. Therefore, no further investigation will be necessary for characterization purposes. However, field screening samples may be collected to confirm that all the contaminants have been removed. Field screening should include PAHs (the only class of compounds to exceed screening criteria based on Phase I RI samples); and may include fuel hydrocarbons and metals, based on site history.

Groundwater monitoring wells proposed in the DQO document should be installed, as these will help define the regional extent of the benzene plume in the area, and help to monitor the Desalter Project.

b) **In figures (including Figure A13-6a), please indicate the locations of SWMUs/AOCs 67, 217, and 218.**

Response

Agreed.

2. **A13.4.2 Survey**

a) **In Figures (including Figure A13-6a), please indicate the locations of Buildings 1505 and 244 and the possible vertical tank (near the northwestern corner of Building 1505) noted in the 1971 aerial photograph.**

The document should indicate the contents of the former vertical tank. The *SAIC Report* indicates that there was a stain on the northerly side of the tank area. Make all necessary changes to characterization strategies.

Response

Building 242 is not part of the site. The locations of Buildings 244 and 1505 are uncertain. All other features identified by SAIC are located within Stratum 1, and will be subject to removal.

b) **Add the following statement to this section: "Sites of potential concern identified in the *SAIC Report* include [list the site numbers as identified in the *SAIC Report* and include 170, 205, and 462]."**

Response

Insert the phrase "*in the vicinity of Site 13*" after the word "concern".

3. **A13.7 Chemicals to be Investigated During Phase II**

a) **Please evaluate the Phase I elevated detection limits (20,000 ppb) for PAHs in the surface soil sample at 13_SA2.**

Response

Agree. However, this soil will be subject to removal.

b) **Please evaluate the Phase I elevated detection limit (276) ppm for arsenic in the 2 foot soil sample at 13_SA3. The evaluation should consider whether arsenic may actually be present in Stratum 1 at concentrations exceeding the RBC or the 99th percentile of the distribution of background values; this could affect whether analysis for metals should be added (note that only analysis for SVOCs is proposed). Please make all necessary changes.**

Response

Agree. However, this soil will be subject to removal.

c) **This section should discuss the significant Phase I TRPH results, including the following:**

Upgradient Area

TRPH was detected at a concentration of 936 ppm at the surface of 13_UGS.

Stratum 1

TRPH was detected at a concentration of 1,605 ppm at 5 feet bgs and 13_DBMW49.

Response

Regulatory agencies, including DTSC, agreed that TRPH would not be considered during the DQO process.

4. **A13.9.1 and A13.10.1 Shallow Soil**

Stratum 1 (Area Southeast of Tank Farm)

Instead of using randomly located samples, please consider at least one judgmental sample located in the area of the vertical tank and perhaps another located near SWMUs/AOCs 217 and 218.

Response

This stratum will be subject to removal. Sampling (preferably field screening) will only be required to evaluate the success of the removal.

Stratum 2 (Area Southwest of Tank Farm)

Based on Plate 14 of the *SAP Amendment*, apparently only one stained area in Stratum 2 was sampled in Phase I. Instead of using randomly located samples, please consider using judgmental samples located in stained areas. Please indicate the stained areas in Stratum 2 in Figure A 13-6a.

Response

This stratum will be subject to removal. Sampling (preferably field screening) will only be required to evaluate the success of the removal.

5. **A13.9.3 and A13.10.3 Groundwater**

a) **Please update the combined section to indicate that apparently an 8,000 gallon UST (UST 240-A) containing aviation gasoline existed near Building 240 (Aero Club); it was abandoned or replaced in 1985 with a 10,000 gallon UST (UST 797). Please provide as much information about these two USTs as is possible, for example: 1) indicate if the two USTs were leak tested and if so, in what years, 2) if ancillary piping for the USTs was also leak tested, 3) the reason for abandonment or replacement of UST 240-A was removed, and if so, in what year, the observed condition of both the UST and soil beneath it, and soil analysis results if available. Indicate the location of the two USTs in a figure(s). Discuss any additional USTs located in the area of Site 13 that may potentially impact groundwater with benzene, TFH-gasoline, and/or TFH-diesel if a release occurred.**

It is likely that the benzene (730 ppb) and TFH-gasoline (1,690 ppb) observed in upgradient or cross-gradient well 13_UGMW32 is attributed to UST 240-A, especially if information corroborates that this UST may

have had a release. However, please note that well 13_DGMW78, located downgradient or semi-downgradient from Tank Farm 2 also had benzene (110 ppb) as well as the TFH-diesel (436 ppb). Please evaluate the likelihood that Tank Farm 2 may also have contributed to the petroleum hydrocarbons in groundwater, especially if No. 2 fuel oil or JP-4 was stored at the tank farm.

Reconsider the necessity and placement of wells for this site based on this and additional new information. Note that newly proposed wells 3 and 4 may not be downgradient of UST-240 A or Tank Farm 2; however, new well 1 or a well just to the north of new well 1 should be installed to help evaluate the source of the groundwater contamination.

Response

Building 240 and Tank Farm 2 are not part of Site 13. However, the groundwater contamination in the area is certainly of interest to the RI as part of the regional groundwater contamination, and because a Desalter extraction well lies just to the west of Site 13. The proposed monitoring wells were included with Site 13 because there was no other logical place to put them, since Site 18 (Regional Groundwater Investigation) will not be given a Phase II RI. The MCAS El Toro team may consider creating a new RI site (Benzene source area), just as Site 24 was created to address the source of the VOC contamination in the southwest quarter. Alternatively, the team may decide to expand Site 13 to include the benzene source area. In any case, it must be recognized that the benzene source area investigation is not currently part of Site 13.

Monitoring well "New 2" is mistakenly placed on Figures A13-6a and b. "New 2" should be located approximately 200 feet north of "New 1", west of the northern portion of Tank Farm No. 2. This corrected placement should partially address DTSC's comment. "New 3" may be moved a little to the north in order to better evaluate possible contributions from Building 240. However, "New 4" should stay where it is currently proposed because it serves the dual purpose of monitoring the performance of the Desalter system.

b) **Please evaluate if metals (aluminum, cadmium, and manganese) detected in downgradient well 13_DGMW78 are indicative of a release(s) from Tank Farm 2 and/or Site 13. Manganese, used in the manufacture of alloys (including of aluminum), was detected in all three wells at Site 13, but at approximately an eighteenfold concentration in downgradient well 13_DGMW78.**

Response

It is believed that these occurrences all have natural causes. A complete treatment will be provided in the OU-1 RI Report.

Site 14–Battery Acid Disposal Area

1. **A14.1.1 Stetting and History**

This section states that "In a 1970 aerial photograph, an unidentified liquid appears to have ponded around Building 243, located north of the site, and flowed past the western portion of the site." Could this have been a likely disposal area? The current Site 14 is located behind the former heavy equipment maintenance shop. The shop doors are located on the Building 243 side of Building 245. Is it likely that all or most wastes were carried behind the building rather than just dumped directly outside the shop doors, perhaps in an unpaved area towards Building 243? Or is it possible that surface runoff from Building 245 drained towards Building 243? Please note that the *SAIC Report* identified a possible stain on the northwesterly side of Building 243 (see site 481 in the *SAIC Report*).

Response

Phase I RI results appear to corroborate the Brown and Caldwell (1986) report, in the sense that releases have occurred on and adjacent to the paved area south of Building 245. The MCAS El Toro team has designated this entire area, including both Strata 1 and 2, for removal. Therefore, no further RI sampling will be necessary. Additional field screening sampling during the removal action may help evaluate whether all contaminants have been remediated. Building 243, and the north side of Building 245, are not part of the site. Rather than add them to Site 14, the team should consider addressing them under base closure activities, or RCRA.

2. **A14.4.2 SAIC Survey**

a) **In a figure(s), indicate the location of former Building 246 (use dashed lines).**

Response

There is no need to show the location of this building, since there is no informationto indicate the building is related to Site 14 activities.

b) **Please review sites 143, 169, and 505 in the *SAIC Report*. Probable excavations are indicated near Site 14; a possible expansion of the site is recommended to include these areas. Evaluate these sites in the text; please make all necessary changes.**

Response

These sites may be mentioned in the text. However, expansion of Site 14 is not warranted at this time. During removal activities, if contamination is found to extend beyond the present stratum boundaries, then is should be remediated along with the rest of the site. However, areas not contiguous with the current site should be evaluated separately.

c) **Please review site 481 in the *SAIC Report* (see Comment 1 above).**

Response

See the response to Comment #1 above.

d) **Please review site 526 in the *SAIC Report*. Evaluate this site in the text; please make all necessary changes.**

Response

This site, an "open storage area", lies well to the west of Site 14 and does not require investigation (particularly under CERCLA).

e) **Add the following statement to this section: "Sites of potential concern identified in the *SAIC Report* include [list the site numbers as identified in the *SAIC Report* and include 31, 80, 143, 169, 275, 481, 505, and 526]."**

Response

Insert the phrase "*in the vicinity of Site 14*" after the word "concern".

3. **A14.7 Chemicals to be Investigated During Phase II**

a) **It appears that lead also exceeded RBCs for shallow soil in Stratum 1; please make all necessary changes, including the text and Tables 14-3a and A14-4.**

Response

Agreed. This must have been a mistake.

b) **Please check that the Total Metals Stratum Noncancer Risk Ratio in Table A14-4 for Stratum 2 includes lead; make all necessary changes.**

Response

Agreed. See comment above.

c) **The third paragraph states that "Metals will also be investigated in Stratum 2 [sic];" Stratum 1 was intended, however, please add analysis for metals to both strata.**

Response

Agreed.

d) **This section should discuss the Phase I TRPH results:**

Stratum 1

TRPH was detected at a concentration of 1,367 ppm at the surface of 14_GN5.

Stratum 2

TRPH was detected at a concentration of 960 ppm at the surface of 14_DD6.

Catch Basin

TRPH was detected at a concentration of 7,364 ppm.

Response

TRPH was not evaluated during the DQO process, as per agreement with the regulatory agencies.

4. **A14.9.1 and A14.10.1 Shallow Soil**

a) **Add analysis for soil pH at both strata.**

Response

The site will be subject to a removal action. Soil pH may be a part of confirmatory sampling.

b) **Phase I results indicate that the contamination at Strata 1 and 2 is possibly confined to the upper soil layers. Phase I results for PAHs and metals in shallow soils suggest Strata 1 and 2 might be combined.**

Consider that the TD/GC/MS samples could be initially collected at 0.1 and 2 feet bgs. Samples at deeper depths, such as 5 and 10 feet, may not be necessary; base the required sampling depths on the TD/GC/MS field screening results.

Response

During removal, a strategy must be devised for confirmatory sampling that will define the vertical extent of contamination in order to limit the volume of soil subject to remediation.

5. **A14.9.3 and 14.10.3 Groundwater**

a) **Site 14 could be a potential contributor to the carbon tetrachloride detected in groundwater up to 19 ppb (up to 26 ppb based on round two results); the round one result was apparently the highest detection for carbon tetrachloride on the Station.**

Other evidence that indicates that Site 14 could be a potential contributor to the carbon tetrachloride detected in groundwater includes:

- **wells semi-upgradient to Site 14 at Site 13 did not exhibit the presence of carbon tetrachloride, at least not above regulatory levels;**

- **the concentration of carbon tetrachloride is similar or slightly decreased in semi-downgradient well 18_SW135; and**

- **methylene chloride and other solvents associated with paints are potential contaminants. The disposal of paint wastes in the area of Site 14 indicates that painting occurred in the vicinity and likely degreasing activities occurred prior to painting. Solvents were likely used at Building 245 at Site 14 since it was the heavy duty maintenance shop. Carbon tetrachloride would be a potential contaminant at Site 14.**

Site 14 also has petroleum hydrocarbon contamination in groundwater–downgradient or semi-downgradient well 18_DW350 with a screened

interval of 310-350 feet bgs did exhibit 943 ppb TFH-diesel (430 ppb based on round two results).

We do not necessarily agree with the conclusions for groundwater at Site 14.

Response

Because of occurrences of carbon tetrachloride in upgradient wells, it appears most likely that groundwater beneath Site 14 is part of a larger plume with sources upgradient of Site 14. However, this site may be a partial contributor. In any case, the present DQO document and approved groundwater monitoring scheme requires ongoing monitoring for VOCs, including carbon tetrachloride, at Site 14.

b) **Evaluate whether the screen length of irrigation well 18_TIC055 near Site 14 could actually provide a conduit for deeper aquifer contamination.**

Response

Agreed. Well construction data and results of well 18_TIC055 will be evaluated in greater detail.

Site 15–Suspended Fuel Tanks

1. **A15.1.1 Setting and History**

Indicate the location of SWMU/AOC 31 in figures.

Response

Agreed. However, there has been no evidence of release taking place at this SWMU, and the site activities (drum storage) are not related to Site 15 activities (diesel fuel leakage).

Since these comments were received, regulatory agencies and the Navy have agreed that the single stratum at Site 15 will be subject to a removal action. Further characterization in Phase II is unnecessary. However, field screening sampling as part of the removal action may be appropriate to evaluate the extent of contamination (although little contamination was found during Phase I) for removal, and confirm that remediation was a success after removal.

2. **A15.4.2 SAIC Survey**

a) **Include a discussion of the 1973 aerial photograph relevant to Site 15 (see site 232 in the *SAIC Report*).**

Response

These stains lay west of Building 31, and are not part of Site 15.

b) **Add the following statement to this section: "Sites of potential concern identified in the *SAIC Report* include [list the site numbers as identified in the *SAIC Report* and include 26, 27, 28, 32, 77, 232, 273, 274, and 548]."**

Response

Insert the phrase "*in the vicinity of Site 15*" after the word "concern".

3. **A15.5 Site and Stratum Boundaries for Phase II RI**

Substantial evidence indicates that the currently defined boundaries for Site 15 do not adequately address potential petroleum hydrocarbon contamination in the area of Buildings 27, 29, and 31.

A heavy duty maintenance shop was located in Building 31 prior to moving to Building 245 at Site 14 in 1977. The *IAS* states that waste oil was drained onto the ground behind Building 31 until 1983. The *SAIC Report* identifies open storage areas with possible drums and stains in the area of Site 15; the *SAIC Report* also recommends an expansion of Site 15 to include some of these areas.

Please evaluate the results of the three borings completed at SWMU/AOC 273 and indicate if they were located in the waste oil disposal area. While soil samples from the three borings were analyzed for TRPH and VOCs, analyses for TFH, SVOCs, PCBs, and metals were not performed.

Please make all necessary changes to the site boundaries and characterization strategies.

Response

Once again, these buildings may require further investigation, but not under the RI. The buildings and their activities do not appear to be related to Site 15 activities. DTSC's concerns about possible health risk at these areas should be addressed during the base closure process, or as part of the RCRA program, but not as part of CERCLA.

4. **A15.7 Chemicals to be Investigated During Phase II**

a) **Please evaluate probable hydrocarbon interference that resulted in high detection limits for PAHs in at least one sample.**

Response

Since the site will be subject to a removal action, this activity is probably unnecessary at this time.

b) **This section should discuss the significant Phase I TRPH results, including the following:**

Upgradient Area

TRPH was detected at a concentration of 3,751 ppm at the surface of 15_UGS.

Stratum 1

TRPH was detected at a concentration of 1,233 ppm at the surface of 15_GN1. The *SAP Amendment* states that a 1991 photograph indicates the presence of debris and stains north of Building 29. Was this upgradient boring located within the stain areas? Provide an explanation for the elevated TRPH level.

TRPH was detected at a concentration of 2,694 ppm at the surface of 15_GN3.

TRPH was detected at a concentration of 23,034 ppm at the surface of 15_DBS.

TRPH was detected at a concentration of 1,377 ppm at 5 feet bgs at 15_DBMW51.

Response

TRPH was not evaluated during the DQO process, as per regulatory agency (including DTSC) agreement. Risk, and threat to groundwater, were evaluated based on TFH-gasoline, TFH-diesel, PAH, and BTEX analyses.

5. **A15.9.2 and A15.10.2 Subsurface Soil and A15.9.3 and A15.10.3 Groundwater**

We do not necessarily agree with the conclusions for subsurface soil and groundwater at Site 15.

The conclusions for subsurface soil are based on only one boring sampled at depths greater than 5 feet.

The document hypothesizes that Site 15 is not contributing to groundwater contamination. However, 120 ppb benzene and 3,370 ppb TFH-diesel were detected in well 15_DBMW51. The concentration of TFH-diesel detected in an upgradient will to Site 15, i.e., well 13_DGMW78, was considerably less (436 ppb). Please note that the concentrations of benzene detected in the two wells are similar, i.e., the concentration of benzene detected in 13_DGMW78 was 110 ppb. The work plan, as written, will not identify the source of the TFH-diesel in well 15_DBMW15.

Response

See the OU-1 RI Report for a complete discussion of the petroleum hydrocarbon contamination in groundwater in this area, and note that TFH-diesel occurrences may not only signify the presence of diesel, but may also signify the presence of JP-5 and Fuel Oil No. 2. Groundwater beneath Site 15 appears to be part of a larger plume of fuel contamination, but Site 15 itself is downgradient from the likely sources and does not appear to be contributing to the contamination. Although only one deep boring was completed in Site 15, this was sufficient when one considers that the site is only about 625 square feet in size. A total of 8 soil samples were collected at or below 10 feeet bgs (the subsurface soil cutoff point). These samples did not provide any evidence that Site 15 contributed to regional groundwater contamination.

Site 16–Crash Crew Pit No. 2

1. **A16.1.1 Setting and History**

   a) **Figures, including Figures A16-6a and A16-6b, should indicate the locations of the former secondary pit, the drain line from the main pit to the secondary pit, the former fire extinguisher training pit, the current burn pits, and SWMUs/AOCs 288, 289, and 290.**

   Response

   Agreed. The secondary pit, drain line, and former fire extinguisher training pit were left off of the figures because they are no longer visible at Site 16. However, their former location should be marked on the figures.

   b) **Describe how fuel was/is supplied to the former and current burn pits; describe and indicate the location of all former and current tanks, both above ground and underground, used to store fuel for both the former and current burn pits.**

Response

Since these comments were received, regulatory agencies and the Navy have agreed that Stratum 1 and 2, which include the former pits and disturbed ground around the pits, will be investigated by soil gas survey and by field screening soil samples. This, together with other investigations proposed in the DQO document (two deep borings, two additional monitoring wells, etc.) should be adequate to evaluate the site.

The current, active pits are outside the scope of the CERCLA investigation. Similarly, SWMU/AOCs 288, 289, and 290, which are active underground storage tanks, are monitored under a separate, compliance program at the Station.

c) **Indicate that the current burn pits will potentially be investigated under the *Base Closure Plan*.**

Response

Agreed.

2. **A16.4.2 SAIC Survey**

a) **Please evaluate sites 71 and 87 in the *SAIC Report*.**

Response

Site 71, a "graded area" in 1952, and site 87, construction activity in 1958, are not relevant to the RI.

b) **Please see sites 171, 259, 276, and 418 in the *SAIC Report*. What were the contents of all the identified vertical tanks?**

Reports

These sites, all vertical tanks located hundreds of feet away from Site 16, should not be evaluated under the RI program.

c) **Add the following statement to this section: "Sites of potential concern identified in the *SAIC Report* include [list the site numbers as identified in the *SAIC Report* and include 71, 87, 171, 259, 276, 318, and 418]."**

Response

Insert the phrase "*in the vicinity of Site 16*" after the word "concern".

3. **A16.7 Chemicals to be Investigated During Phase II**

Generally discuss and evaluate the Phase I TFH-gasoline and TFH-diesel results, including the results for deep boring 16_AB213. This section should include and discuss the significance of the Phase I TRPH results, including the following:

Stratum 1

TRPH was detected at a concentration of 17,486 ppm at the surface of 18_GN3.

Stratum 2

TRPH was detected at concentrations 8,404, 6,956, and 17,190 ppm at 0, 2, and 4 feet bgs, respectively, at 16_PT1.

TRPH was detected at 7,636, 28,859, and 18,933 ppm at 0, 2, and 4 feet bgs, respectively, at 16_PT2.

TRPH was detected at 2,844, 23,766, and 39,101 ppm at 0, 2, and 4 feet bgs at 16_PT3.

Response

The discussion of Phase I TFH-gasoline and TFH-diesel results may be expanded, but the bottom line is that the present discussion concludes that the pits leaked, and that the fuel hydrocarbons present in the soil column pose a threat to groundwater quality. as previously mentioned, TRPH was not addressed during the DQO process. Regulatory agencies agreed with this strategy.

4. **A16.9.1 and A16.10.1 Shallow Soil**

Add analyses for dioxins/furans in surficial soils at Strata 1 and 2–locate samples in the secondary pit and the fire-extinguisher training pit below fill.

Response

Dioxin/furan samples were collected during the Phase I RI at depths of 0-6 inches, 18-24 inches, and 4 feet beneath the bottom of the main pit. No dioxins/furans were detected, even though the main pit was where ignition and fire-training exercises actually took place. Due to the expense of these samples and the unlikelihood of finding dioxin/furan contamination, it does not seem to be necessary to collect more samples during Phase II.

5. **A16.9.2 and A16.10.2 Subsurface Soil**

a) **Are the proposed samples CLP samples? Please make the necessary changes.**

Response

All deep boring samples are CLP samples, because of the expense of their collection. It should not be necessary to explicitly state this fact for each site for subsurface soil samples.

b) **Please indicate that the secondary pit can also be located by the drain line.**

Response

Agreed.

6. **A16.9.3 and A16.10.3 Groundwater**

Please indicate that a former and/or current aviation gasoline UST(s) located near the Aero Club could also be contributing to the benzene contamination.

One of the two newly proposed wells may not be necessary.

Response

The UST mentioned here may be contributing to the benzene contamination. However, the monitoring well in question (located midway between Sites 16 and 13) will still be valuable in monitoring drawdown from the Desalter extraction system. If it is true that the entire benzene plume is downgradient from the Aero Club, then drawdown in this well will indicate that the plume has been completely captured by the Desalter system. If the plume is being contributed to by Site 16, then the well should reveal this fact.

Site 17–Communication Station Landfill

1. **A17.4.2 SAIC Survey**

Add the following statement to this section: "Sites of potential concern identified in the *SAIC Report* include [list the site numbers as identified in the *SAIC Report* and include 192, 315, and 398]."

Response

Insert the phrase "*in the vicinity of Site 17*" after the word "concern".

2. **A17.7 Chemicals to be Investigated During Phase II**

Indicate that TRPH was detected at a concentration of 1,831 ppm at the surface of 17_SA1.

Response

TRPH was not part of the DQO process, as previously agreed to by DTSC.

3. **A17.9.1 and A17.10.2 Shallow Soil and A17.9.2 and A17.10.3 Subsurface Soil**

Stratum 2 (Stained Area)

Please note that other figures delineating Stratum 2 are inconsistent with Figure A17-6; apparently Figure A17-6 is the correct figure. Please make all necessary changes.

Response

Agreed.

Consider that it may be unnecessary to collect soil samples or drill a deep boring if Stratum 2 will be capped in addition to the landfill proper under a containment approach as the presumptive remedy (see *Presumptive Remedy for CERCLA Municipal Landfill Sites, USEPA,* September 1993).

Response

Agreed. Since these comments were received, regulatory agencies and the Navy have agreed that Stratum 2 will be eliminated as a separate area of investigation, and merged with Stratum 1 (the landfill). Therefore, the ultimate remedy imposed on the landfill will include Stratum 2.

4. **A17.9.3 and A17.10.4 Groundwater**

The installation of new well 3 should be contingent on the analysis results for the other three downgradient wells at this site.

Response

Section A17.10.4 states that the location of "New 3" will be contingent on the groundwater flow direction after it has been refined by the installation of the other wells. In other words, the strategy is to locate the well directly downgradient from the landfill to allow long-term monitoring of potential releases. If DTSC is suggesting that analyses should be used to locate the well, it is agreed that analyses could be a part of the decision. If DTSC is suggesting that the well may not be needed, then this is also agreed, but the decision will be contingent on both the analyses results and the groundwater flow direction.

Site 19–Aircraft Expeditionary Refueling (ACER) Site

1. **A19.1.1 Setting and History**

   a) **This section should describe the fuel farm (Tank Farm 101?) located at Site 19. Indicate the number of USTs, the capacity of each UST, and the current as well as historic contents. Indicate if the USTs have been integrity tested, and if so, in what year(s) and the results. Indicate the location of the tank farm (and individual tanks) in figures.**

Response

These USTs are not part of the CERCLA program or Site 19, and being monitored under a separate program at MCAS El Toro.

   b) **SWMU/AOC 20 is dismissed based on a recommendation of No Further Action in the *Draft RFA Report*. However, in our comments on the *Draft RFA Report*, we indicated that SMU/AOC 10 could be potentially contaminated with petroleum hydrocarbons; THF-diesel was found at a concentration of 463 ppm at 5 feet bgs, but deeper samples were not collected. Please make all necessary changes. Indicate the locations of SWMUs/AOCs 20 and 107 in figures.**

Response

If SWMU/AOC 20 is considered to be a problem by DTSC based on the RCRA Facility Assessment, then the appropriate place to address it is under the RCRA program. These other sites should be addressed under other programs such as RCRA, base closure, Station compliance activities.

2. **A19.3 Chemicals of Potential Concern**

a) **In Figure A19-2c, the COPCs for 19_AB218 are shown for 19_2FB1. The COPCs for 19_2FB1 are not shown. Please make all necessary changes.**

Response

Agreed.

b) **Add well 19_DGMW86 to Figure A19-3. It appears that manganese, selenium, and aluminum are missing as COPCs in groundwater for some of the wells in Figure A19-3; please make all necessary changes.**

Response

Well 19_DGMW86 was left off of the figure because it was not on the path of the cross section. However, this well may be added. Manganese and aluminum are missing on the figure because concentrations in groundwater exceed only secondary MCLs, as stated on the legend for the figure. Selenium was inadvertently left off of the results for Well 19_DGMW85, and should be added.

3. **A19.4.1 EPA Survey**

In figures, indicate the locations of Buildings 404 and 414.

Response

These building numbers were taken from previous reports, and appear to be incorrect. The correct building numbers are currently shown on the figures.

4. **A19.4.2 SAIC Survey**

a) **Identify the contents of the vertical tank observed in the 1967 and 1973 aerial photographs. This section indicates that the tank is Building 608; please explain. Indicate the location of the tank in figures and make all necessary changes, including changes to characterization strategies.**

Response

Please see the response to Comment 1.b for Site 19 above. The vertical tank is outside site boundaries. In addition, there is no evidence that a release ever took place from the tank.

b) **Add the following statement to this section: "Sites of potential concern identified in the *SAIC Report* include [list the site numbers as identified in the *SAIC Report* and include 166, 184, 200, 253, 328, 365, 489, and 533]."**

Response

Insert the phrase "*in the vicinity of Site 19*" after the word "concern".

5. **A19.9.1 and A19.10.1 Shallow Soil**

Stratum 1

In figures, indicate the locations of all fuel bladder revetments, including those identified in 1965 and 1970 aerial photographs.

Immunoassay and/or the TD/GC/MS field screening techniques can be used to analyze for PAHs. If proposed, initial immunoassay samples can be located 0.1-0.5 feet bgs. If the immunoassay results are negative, then TD/GC/MS field screening is not necessary. If the immunoassay results are positive, use the TD/GC/MS field screening method to further characterize extent, if needed; TD/GC/MS analyses should include PAHs.

To characterize the human risk with Level 3 or 4 data and, if needed, to confirm the TD/GC/MS results with Level 3 or 4 data, please propose the CLP samples in former fuel bladder revetment areas. Most of the Phase I surface/near surface soil samples were collected at 0 and 2 feet bgs. CLP samples at 10 feet bgs may not be necessary, however, Phase I results doe indicate PAH contamination at a depth to at least 2 feet.

Response

Since these comments were received, the regulatory agencies and the Navy have agreed that Stratum 1 will be investigated further during the Phase II RI with a soil gas survey and the collection of the field screening soil samples. Immunoassay samples for PAHs would be a good idea, as the Phase I results indicate that PAHs constitute the risk in shallow soil at the stratum. Once the extent of contamination is confirmed, then CLP samples may be taken on a random basis within the revised stratum boundaries for risk assessment, and to allow statistical conclusions to be made.

Site 20–Hobby Shop

1. **A20.1.1 Setting and History**

In figures, indicate the locations of the following: 1) the 600 gallon waste oil UST (SWMU/AOC 156) and the three oil/water separators, 2) areas "stained black with oil" (perhaps use shading), and 3) SWMUs/AOCs 157, 158, and 159. Please also indicate paved vs. unpaved areas.

Response

Agreed. Since these comments were received, the regulatory agencies and the Navy have agreed that Stratum 4 (Courtyard and Front Slope) will be further investigated during Phase II by a soil gas survey and the collection of field screening soil samples. The oil/water separators and SWMU/AOCs are all in this stratum, and will be covered in the investigation. The "stained" areas are in Strata 2 (South Drainage Ditch) and 3 (Stained Area). These areas will be subject to a removal action. The UST is being monitored under a separate UST compliance program at MCAS El Toro.

2. **A20.3 Chemicals of Potential Concern**

a) **Provide a figure indicating the COPCs for the four SWMUs/AOCs.**

Response

Agreed.

b) **It appears that manganese is missing as a COPC in groundwater for some of the wells in Figure A20-3; please make all necessary changes.**

Response

As stated in the legend to the figure, only compounds that exceeded primary MCLs are listed on the figures.

3. **A20.4.2 SAIC Survey**

Add the following statement to this section: "Sites of potential concern identified in the *SAIC Report* include [list the site numbers as identified in the *SAIC Report*]."

Response

Insert the phrase "*in the vicinity of Site 20*" after the word "concern".

4. **A20.7 Chemicals to be Investigated During Phase II**

Indicate that lead did exceed the RBC at Stratum 4; please make all necessary changes, including tables.

Response

Lead exceeded the RBC in a sample collected from the catch basin that is located in Stratum 4, but not in any Stratum 4 shallow soil samples. As a catch basin sample, it was not included in the statistical calculations that the shallow soil samples were, and thus should not be included in the tables. However, the lead occurrence is certainly noteworthy and should be mentioned in the text.

5. **A20.9.1 and A20.10.1 Shallow Soil**

Stratum 2

The document should evaluate the reason for the elevated detection limits (up to 22,000 ppb) for PAHs in the surface soil samples at 20_DD5 and 20_DD6. The interference was probably due to high concentrations of petroleum hydrocarbons; please discuss the TRPH detected in surface soil samples at 20_DD5 (7,046 ppm) and 20_DD6 (84,590 ppm). The risk estimates, as presented for Stratum 2, are probably not truly representative. Consider remediation rather than additional characterization for Stratum 2.

Response

Agreed. As mentioned above, this stratum is planned for a removal action.

Stratum 3

Stratum 3 is contaminated. Rather than further defining risk, propose a sampling strategy that will delineate the extent of the contamination or if the extent can be determined, consider remediation. Please note that TRPH, most likely indicating oil contamination in this case, was detected at 20_SA1 at concentrations of 12,572, 2,861, and 2,963 ppm at 0, 22, and 4 feet bgs, respectively.

The current waste oil collection system at the Hobby Shop should be evaluated and redesigned, if necessary, to preclude further releases. The waste oil UST should be removed, if necessary.

Response

Agreed. Please note that this stratum is planned for a removal action.

Stratum 4

The sampling strategy for this stratum fails to consider the detection of lead up to 900 ppm. Samples should be analyzed for metals and SVOCs.

Response

See the response to comment #4 for Site 20, above. The lead sample was collected in a catch basin. This stratum will be analyzed further using soil gas and field screening soil samples. The field screening analyses should include lead (possibly by X-ray fluorescence). PAHs were not found to be a problem during Phase I, although fuel hydrocarbons were detected above LUFT limits. The team should collect samples for TFH-gasoline and TFH-diesel, and should evaluate whether to collect field-screening samples for PAHs (possibly by immunoassay).

Site 21–Materials Management Group, Building 320

1. **A21.1.1 Setting and History**

The *IAS* indicates that chemical supply drums were also stored next to a parking lot across the street from Building 320. Consider adding this area as a stratum.

Response

Considering the fact that no contaminants were found to pose a threat to health or to groundwater quality during Phase I, and that no known releases have occurred at Site 21, it seems unnecessary to add a stratum from a former drum storage area located across the street, where no releases are known to have occurred, to an existing CERCLA site.

2. **A21.4.2 SAIC Survey**

Add the following statement to this section: "Sites of potential concern identified in the *SAIC Report* include [list the site numbers as identified in the *SAIC Report*]."

Response

Insert the phrase "*in the vicinity of Site 21*" after the word "concern".

3. **A21.7 Chemicals to be Investigated During Phase II**

Evaluate the detection of TRPH at a concentration of 2,556 ppm in the Phase I upgradient surface soil sample at 21_UGS.

Response

TRPH was not evaluated during the DQO process, as agreed by the team.

4. **A21.9.2 Subsurface Soil**

Please evaluate the Phase I boring log for 21_DGMW90; visible contamination was noted at 30 and 80 feet bgs. Apparently the 30 foot depth sample was not analyzed.

Response

The only vadose zone samples that were collected and analyzed in downgradient wells during Phase I were taken within 30 feet of the water table. Other samples were not specified in the SAP. The 80-foot sample in this well was one of these samples, and only trace levels of methoxychlor and TFH-gasoline were found. In addition, the groundwater samples collected from this well have contained very low levels of contaminants, and none that appear to related to releases from Site 21.

Site 22–Tactical Air Fuel Dispensing System

1. **A22.1 Setting and History**

Include the following information as well as information on other fuel spills in the area of Site 22; make all necessary changes to strata definition and characterization strategies:

- **On April 18, 1978, approximately 2,700 to 4,000 gallons of JP-5 was released from a ruptured fuel bladder east of Building 369. The fuel flowed across a fuel truck,m unloading area, across a parking lot on the east side of Building 369, and into the storm drain located at the southeast corner of Building 369. The fuel on the parking lot was washed into the storm drain that leads to Bee Canyon Wash.**

- **On March 23, 1979, an unspecified volume of JP-5 was released from a ruptured fuel bladder and in transferring fuel from one bladder to another, a valve was inadvertently left open resulting in**

an additional release of fuel. Fuel on the parking area next to Building 369 was washed into the storm drain leading to Bee Canyon Wash.

- **On April 13, 1979, approximately one to several thousand gallons of JP-5 spilled out of a TAFDS fuel bladder and "liquified" the asphalt in the parking lot by Building 369. The JP-5 also entered the storm drain at Building 369 and flowed into Bee Canyon Wash.**

Response

Adding this information to the text would be unnecessary unless DTSC intends that this area should be added to Site 22. If so, then the entire MCAS El Toro team should participate in the decision. The area described above is about 300 feet west of the current site boundaries. These spills all took place 15 years ago, and that fuels have likely biodegraded to a point that they no longer pose a risk. It is recommended that this area, if addressed at all, be addressed outside the CERCLA program.

2. **A22.4 Surveys of Historical Aerial Photographs**

Indicate that the trenches observed in the 1952 aerial photograph will be evaluated as part of Site 10.

Response

Stratum 1 of Site 10 (Aircraft Matting Area) and Stratum 1 of Site 22 (Western Area) will be evaluated during the Phase II RI by field screening soil samples. In addition, the area will be included in the Site 24 soil gas survey. These samples should also serve to evaluate any risk remaining from the 43-year-old trench.

3. **A22.4.2 SAIC Survey**

Add the following statement to this section: "Sites of potential concern identified in the *SAIC Report* include [list the site numbers as identified in the *SAIC Report*]."

Response

Insert the phrase "*in the vicinity of Site 22*" after the word "concern".

4. **A22.9.2 Subsurface Soil**

The conclusions presented in this section apparently failed to consider the results from 22_2FB3. TFH-gasoline, TFH-diesel, and TRPH concentrations increase with depth; SVOCs appear to indicate a similar trend. This is a good example of needing TFH-gasoline and TFH-diesel COPCs in figures for evaluation purposes. Please make all necessary changes. The soil gas survey should investigate the area of 22_2FB3.

Response

Nevertheless, concentrations are still quite low, even at the 2-foot depth. The only SVOC detected (2-methylnaphthalene) went from non-detect to detected below the CRDL, not a definitive "trend" for SVOCs. The deepest sample at 22_2FB3 was taken at the 2-foot depth, while the cutoff for the subsurface has been defined to be the 10-foot depth. This shallow sample has no impact on the conclusions drawn on the subsurface. In addition, the soil gas survey will investigate this area. Further, the area is currently under 14 inches of concrete, and poses no risk. Finally, the subsurface figures do include TFH COPCs, no matter their concentrations, while the surface figures include TFH COPCs if they exceed LUFT levels.

5. **A22.10 Phase II Remedial Investigation Design**

Strata 1 and 2

Generally, Phase I soil samples were not located in stained areas identified in aerial photographs nor in former fuel bladder revetment areas. In addition, Phase I soil samples were apparently not located along the former road, east of Stratum 2, observed with stains from a 1952 aerial photograph. Conclusions drawn from limited Phase I information is questionable. Immunoassay and/or TD/GC/MS methods with CLP confirmation could be used to further characterize both strata.

Response

Phase I soil samples were located within former revetment areas. The stains were observed to have migrated from place to place within the revetment areas on various historical photographs; therefore, samples collected within the boundaries of the revetments were considered to have a greater probability of being more similar than samples collected outside the stratum. The former road east of Stratum 2 was not part of the site, and still is not. Field screening may be suitable for Stratum 1 (Western Area), where there is no pavement. However, it is definitely not suited for Stratum 2 (Eastern Area), which lies under the tarmac, and where calculated risk on Phase I samples was almost nonexistent.

Site 24–Potential VOC Source Area and Site 25–Major Drainages

These sites will be evaluated in the soil gas survey work plan.

Response

Agreed.