

March 31, 1995

RESPONSE TO REGULATORY AGENCY COMMENTS
of
Revised Draft Work Plan
Phase II RI/FS at MCAS El Toro California

M60050.001282
MCAS EL TORO
SSIC # 5090.3

Originator: Joe Zarnoch, Department of Toxic Substances Control
Region 4, Long Beach, California
Date: 17 December 1993

GENERAL COMMENTS

COMMENT 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.

NOTE: Two sets of responses are provided below. The first set was issued in regard to the Draft Work Plan, dated November 1993, and prepared by Navy CLEAN I. The second set was issued in regard to the Revised Draft Work Plan, dated March 1995, and prepared by Navy CLEAN II.

RESPONSE 1: Draft Work Plan

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 (DQOs) 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) DQOs 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

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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.

RESPONSE 1: Revised Draft Work Plan

The assumption of homogeneity is not a basis for the development of the Revised Draft Work Plan. The Work Plan and the Field Sampling Plan use sampling units. These sampling units were created based on the site and strata boundaries defined during the Phase I RI/FS process. Each sampling unit (unit) of a site is to be sampled by an optimized sampling design which will satisfy the Phase II objectives for that site. Appendices A through X of the Work Plan discuss the rationale and DQOs for each site.

COMMENT 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 2: Draft Work Plan

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, decision makers have the option of adding

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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.

RESPONSE 2: Revised Draft Work Plan

Chemicals of Potential Concern (COPCs) are presented in the Revised Draft Work Plan in Section 3, the Appendices with the DQOs, the Field Sampling Plan (FSP), and in the Quality Assurance Project Plan (QAPP). Analytical methods proposed in the Phase II RI/FS detect not only the COPCs, but also other compounds in entire chemical families. Additional chemicals detected during the Phase II investigation will be evaluated for risk and remedial alternatives.

As stated above, some of the sampling units have been changed due to inclusion of new information since the Draft Work Plan was issued. These unit boundaries have been discussed and agreed upon during extensive meetings held with the Navy and its consultants and representatives of regulatory agencies. The Field Sampling Plan explicitly outlines how these areas will be sampled to determine the COPCs present and to estimate their concentrations.

COMMENT 3: Optimization of the Sampling Strategy

Step seven of the 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

RESPONSE 3: Draft Work Plan

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

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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 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.

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,

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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 heterogeneous 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).

RESPONSE 3: Revised Draft Work Plan

Refer to Appendices A through X of the Revised Draft Work Plan for discussion of site-specific sampling plans and analytical methods. The DQOs are based on the seven-step process and are intended to optimize the sampling strategy (Step 7). Field screening analytical methods are emphasized (e.g., immunoassay, portable gas chromatographs, mobile laboratories) to provide rapid turnaround during field investigations. Ten percent of positive field-screened samples and five percent of non-detect field-screen samples will be submitted to a CLP laboratory for confirmation of results (Section 4 of the Work Plan). The consequences of false positive and false negative decision errors are documented in Section 4 of the Work Plan.

COMMENT 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

RESPONSE 4: Draft Work Plan

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

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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.

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.

RESPONSE 4: Revised Draft Work Plan

The Revised Draft Work Plan recognizes that some constituents such as PCBs have a very low mobility and may be concentrated or confined to the uppermost soil horizon. For this reason, collection of samples at sites where such low mobility constituents may be present has been proposed for depths of 0, 2, and 4 (or 5) feet. Samples may also be collected at 10 feet depth if other, more mobile contaminants are also being evaluated, however, samples from all depths down to 10 feet may not be analyzed for all COPCs. Samples would be field screened beginning at the surface and working downward until the results become NDs. The fixed-base laboratory would follow a similar procedure, so that 4 (or 5) and 10 foot samples are only analyzed if the sample interval above is contaminated. This approach should help to limit the number of ND analyses and insure that concentration estimates developed for risk purposes are not unduly affected by numerous.

COMMENT 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

RESPONSE 5: Draft Work Plan

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

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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.

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 5: Revised Draft Work Plan

The Navy is aware of restrictions and ramifications of land use deed restrictions and implementation of presumptive remedies.

COMMENT 6: Correction for Wells with Constant Speed Pumps

RESPONSE 6: Draft Work Plan

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.

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.

RESPONSE 6: Revised Draft Work Plan

Phase II RI monitoring wells will not be equipped with constant speed pumps.

COMMENT 7: Agua Chinon Wash

RESPONSE 7: Draft Work Plan

The work plan should include a proposal to characterize the extent of the petroleum hydrocarbon contamination at Agua Chinon Wash (see joint U.S. EPA, DTSC, and RWQCB letter dated November 1, 1993) in preparation for the requested removal

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.

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action, if additional characterization and/or a removal action is not implemented prior to the Phase II RI field effort.

COMMENT 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 7: Revised Draft Work Plan

A proposal to determine nature and horizontal and vertical extent at Site 25 is presented in Appendix X of the Phase I Revised Draft Work Plan and in Attachment X in the Field Sampling Plan.

RESPONSE 8: Draft Work Plan

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.

RESPONSE 8: Revised Draft Work Plan

The well proposed for installation between Sites 13 and 16 will not be installed. The proposed well is not hydraulically upgradient of Site 13 nor downgradient of Site 16. Groundwater contamination observed beneath Site 13 appears to be associated with the adjacent Tank Farm No. 2. While fuel contamination of soils at Site 16 has been identified to a depth of about 52 feet, no data collected to date suggests that fuels in the soil at 52 feet have impacted groundwater.

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COMMENT 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.

COMMENT 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 9: Draft Work Plan

Ten percent of positive field-screen samples and five percent of non-detect field-screen sampling will be randomly selected for confirmation analyses at a CLP laboratory (Section 4 of the Revised Draft Work Plan).

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.

RESPONSE 9: Revised Draft Work Plan

Ten percent of positive field-screen samples and five percent of non-detect field-screen sampling will be randomly selected for confirmation analyses at a CLP laboratory (Section 4 of the Revised Draft Work Plan).

RESPONSE 10: Draft Work Plan

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.

RESPONSE 10: Revised Draft Work Plan

As discussed in the meeting of October 28, 1994, it was agreed that periodic meetings, or meeting at critical moments or milestones during the investigation, are desired to inform the BRAC Cleanup Team of results.

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COMMENT 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.

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.

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 11a: Draft Work Plan

At the first DQOs 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.

RESPONSE 11a: Revised Draft Work Plan

Every effort has been made to reduce redundancy in all of the Phase II project plans.

RESPONSE 11b: Draft Work Plan

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.

RESPONSE 11b: Revised Draft Work Plan

RBCs have been incorporated into the Phase II Revised Draft RI/FS Work Plan. Updated RBCs however, will be computed after data is compiled for the Phase II work as discussed in the Phase II Risk Assessment Work Plan.

RESPONSE 11c: Draft Work Plan

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

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COMMENT 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.

COMMENT 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 U.S. EPA'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.

RESPONSE 11c: Revised Draft Work Plan

The DQOs presented in Appendices A through X in the plan include Step 1 - "State the Problem" which defines the problem(s) associated with each site.

RESPONSE 12: Draft Work Plan

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 DQOs introduction should be expanded to include the specific information requested here.

RESPONSE 12: Revised Draft Work Plan

Laboratory blanks, field blanks and trip blanks will all be analyzed simultaneously with the samples submitted. If any trace elements are present in these blanks, notations will be made by the laboratory. These sample notations may then be averaged and/or subtracted out of the sample results. The procedures regarding laboratory method blanks, trip blanks, and field blanks are discussed in Sections 5.1.2, 5.2, and 5.3 of the QAPP.

RESPONSE 13: Draft Work Plan

Air SWAT requirements were previously fulfilled at each of the landfills and are reported in *Solid Waste Air Quality Assessment Test Report, U.S. MCAS 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.

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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.

COMMENT 14: Aerial Ground Penetrating Radar (GPR)

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

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.

RESPONSE 13: Revised Draft Work Plan

Federal, State, and Local guidelines/requirements, as appropriate, have been incorporated into the Data Quality Objectives for the landfill sites. A new section has been added to the Data Quality Objectives for the landfill sites summarizing the results of the Air SWAT.

RESPONSE 14: Draft Work Plan

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.

RESPONSE 14: Revised Draft Work Plan

During project planning meetings, the suitability of GPR as a technique for landfill boundary definition was discussed on several occasions. Each discussion generally concluded that GPR would probably not be a successful tool for landfill boundary delineation. Further, use of GPR during the Phase I RI at several landfill sites met with largely negative results. For these reasons, the Phase II Revised Draft Work Plan does not propose to use GPR for landfill boundary delineation.

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COMMENT 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).

COMMENT 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 15: Draft Work Plan

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.

RESPONSE 15: Revised Draft Work Plan

Because the methanol method can raise the detection limit for VOCs and the RBC for TCE is so low, methanol preservation will not be used for Phase II RI/FS sampling activities.

RESPONSE 16: Draft Work Plan

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.

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COMMENT 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.

COMMENT 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 16: Revised Draft Work Plan

To avoid considerable duplication of data, the Revised Work Plan does not include figures or tables which reproduce the Phase I RI sample analytical results again. Rather, the Phase I RI sample locations are identified by their designations and the legend for each sample type includes references to the specific tables in previous studies where the data can be found.

RESPONSE 17: Draft Work Plan

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 modeling 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.

RESPONSE 17: Revised Draft Work Plan

See response to comment #16 above.

RESPONSE 18: Draft Work Plan

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

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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.

RESPONSE 18: Revised Draft Work Plan

In an effort to eliminate redundancy, the Phase I Remedial Investigation Results were not included in the Revised Draft Work Plan Appendices. For this data, the agencies are referred to the Phase I Technical Memorandum or other appropriate documents.

COMMENT 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 19a: Draft Work Plan

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.

RESPONSE 19a: Revised Draft Work Plan

The Revised Draft Work Plan includes statements indicating that the work plan scope is based upon the Phase I RI results and upon these comments.

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

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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 U.S. EPA'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.

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 19b: Draft Work Plan

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.

RESPONSE 19b: Revised Draft Work Plan

Concentrations of lead can be calculated by LEADSPREAD. However, in order to determine actual concentration (soluble fraction) of lead due to contamination by hazardous materials, background levels of lead in the soil will be determined. After this is performed, RBCs will be determined. Discussion of establishing background concentrations, limits of uncertainty - levels of acceptable risk, and risk assessments are provided in Section 4 of the Work Plan.

RESPONSE 19c: Draft Work Plan

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.

RESPONSE 19c: Revised Draft Work Plan

LUFT guidelines will be used when site-specific petroleum hydrocarbons may impact groundwater following the Phase II fieldwork.

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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.

COMMENT 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.

COMMENT 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 19d: Draft Work Plan

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.

RESPONSE 19d: Revised Draft Work Plan

See response to comment #16 above regarding duplication of Phase I RI data.

RESPONSE 20: Draft Work Plan

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.

RESPONSE 20: Revised Draft Work Plan

With the exceptions of Site 2 - The Magazine Road Landfill, and Site 24 - VOC Source Area, a review of data collected during the Phase I RI for the remaining OU-2 sites and the OU-3 sites does not indicate that groundwater appears to be impacted as a result of historic activities conducted at these sites. Groundwater contamination that has been identified beneath many of the sites associated with the regional VOC groundwater contamination or leaking USTs.

RESPONSE 21: Draft Work Plan

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.

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RESPONSE 21: Revised Draft Work Plan

All tables and figures included in the Revised Draft Work Plan have been reviewed in an effort to eliminate mistakes.

COMMENT 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 22: Draft Work Plan

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.

RESPONSE 22: Revised Draft Work Plan

For the DQO documents appearing in the Appendices of the Work Plan and the Attachments of the FSP, the Navy has made efforts to clearly define sample types and analysis methods associated with each sample. All site maps showing locations for any type of sampling should provide a key illustrating which type of sampling or analyses will be performed.

COMMENT 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 23: Draft Work Plan

See the response to No. 22, above.

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COMMENT 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.

COMMENT 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 from 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

RESPONSE 23: Revised Draft Work Plan

Refer to Appendices A through X of this plan.

RESPONSE 24: Draft Work Plan

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

RESPONSE 24: Revised Draft Work Plan

A description including protocols and quality control for Soil Gas, TD/GC/MS Field Screening, and X-Ray Fluorescence are provided in Section 2.2 of the QAPP. Dioxins/Furans are covered under EPA Method 8280 as illustrated in Table 9-1 in the QAPP.

RESPONSE 25: Draft Work Plan

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.

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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.

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 because 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.

RESPONSE 25: Revised Draft Work Plan

When deciding the location of a monitoring well, Phase II work will review available information and will use various technologies to aid in the decision making. The information and technologies as well as proposed monitoring well locations were discussed at length in meetings hosted by the Navy including the regulatory agencies. The proposed locations of monitoring wells and the rationale behind the proposals are provided in the Appendices of this plan.

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

COMMENT 26: Soil Gas Investigation

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;

RESPONSE 26: Draft Work Plan

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.

RESPONSE 26: Revised Draft Work Plan

A draft copy of the soil gas investigation report was distributed on 09/06/94. All comments and direction from the regulating agencies were taken into account for this plan.

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- i) a detailed explanation of on-site mobile 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 contamination. 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.

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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.

COMMENT 27: VLEACH Model

~~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.

COMMENT 28: Tentatively Identified Compounds (TICs)

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.

RESPONSE 27: Draft Work Plan

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.

RESPONSE 27: Revised Draft Work Plan

A variety of computer models have been proposed. The appropriate model will be selected on its merit and the objectives of the site.

If additional modeling is conducted as part of the Phase II RI/FS, several models such as SESOIL may be used. Refer to Section 4 of this plan.

RESPONSE 28: Draft Work Plan

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.

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COMMENT 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.

COMMENT 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 28: Revised Draft Work Plan

No TICs were identified during the Phase I RI that would affect the characterization strategies proposed in the Revised Draft Phase II RI/FS Work Plan.

RESPONSE 29: Draft Work Plan

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

RESPONSE 29: Revised Draft Work Plan

As stated in Section 2.2.1.3 of the QAPP, a possible fixed-based laboratory analyses to be used in the Phase II RI/FS is high-performance liquid chromatography. This instrument is similar to GC methodology in nature, but uses a liquid as a carrier during the analytical process whereas GC uses a gas. The methods using HPLC include EPA 8310. EPA Method 8310 can be used to determine the presence of polyaromatic hydrocarbons at sites with low RBCs specifically in the solid and liquid phases. EPA Method 8310 will be used for this purpose if it is determined that EPA Method 8270 can not result in detection levels corresponding with low RBCs.

RESPONSE 30: Draft Work Plan

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

RESPONSE 30: Revised Draft Work Plan

Soil sample analyses for organolead for the initial tier of sampling at the OU-3 sites.

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COMMENT 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.

COMMENT 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 compiled 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 31: Draft Work Plan

Analytical results will be reviewed for possible matrix interference. Responses to site-specific instances described above will be made at the appropriate location. If DTSC feels that COPC were eliminated due to matrix interference, it should identify specific examples
RESPONSE 31: Revised Draft Work Plan

Measures will be taken during sample analyses to account for and minimize the adverse impacts of matrix interference problems. The goal will be to provide the lowest detection limits that can reasonably be obtained.

RESPONSE 32: Draft Work Plan

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 summarizes all existing data. This report has been provided to the regulatory agencies.

RESPONSE 32: Revised Draft Work Plan

Monthly groundwater level measurements and quarterly sample analyses will be performed at all MCAS El Toro wells under the Quarterly Groundwater Monitoring Program which should commence in 1995.

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COMMENT 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.

COMMENT 34: Holding Times

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

COMMENT 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 33: Draft Work Plan

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.

RESPONSE 33: Revised Draft Work Plan

A figure such as the one described includes information that is not applicable to the RI/FS. Figure 1-3 illustrates MCAS El Toro roads, buildings, borders, and IR Program Sites.

RESPONSE 34: Draft Work Plan

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.

RESPONSE 34: Revised Draft Work Plan

Not applicable to this plan.

RESPONSE 35: Draft Work Plan

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.

RESPONSE 35: Revised Draft Work Plan

Several formal and informal interviews have occurred with employees of MCAS El Toro. The last effort to formally interviewed employees occurred in July 1994. Active

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	<p>and retired personnel from the Fuel Operations Division and Facility Management Department (currently the Installations Department) were interviewed regarding several topics. Information from this interview was distributed to all associated agencies and is discussed in Section 2.2.3 of the Revised Draft Work Plan. The information provided by these interviews, just as all other previous information, was reviewed and considered when developing the Project Plans.</p>
<p>Originator: Joe Zarnoch, Department of Toxic Substances Control Region 4, Long Beach, California</p> <p>Date: 17 December 1993</p>	<p style="text-align: right;">CLEAN II Program Bechtel Job No. 22214 Contract No. N68711-92-D-4670 CTO-059 File Code: 0202</p>
<p>SITE-SPECIFIC COMMENTS</p> <p>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.</p> <p><u>Site I - Explosive Ordnance Disposal (EOD) Range</u></p> <p>COMMENT 1: A1.1.1 Setting and History</p> <p>a) Describe how groundwater flow was determined with two wells present at the site.</p>	
<p style="text-align: right;">RESPONSE 1a: Draft Work Plan</p> <p>As described in the Phase I RI Technical Memorandum, the third (upgradient) well scheduled for construction at Site I 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 I in the main portion of Borrego Canyon. These three wells allowed triangulation and determination of the groundwater flow direction.</p> <p style="text-align: right;">RESPONSE 1a: Revised Draft Work Plan</p> <p>As part of the Phase II RI for this site, three new monitoring wells will be constructed on site. These wells will be monitored in conjunction with the two wells constructed during</p>	

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<p>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.</p> <p>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.</p> <p>COMMENT 2: <u>A1.1.2 Strata</u></p> <p>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 <u>in an area currently exhibiting stressed vegetation</u> [<i>underline denotes change.</i>]"</p>	<p>the Phase I RI to assess groundwater conditions upgradient, downgradient, as well as directly beneath the site. The two wells that were constructed in the Phase I RI are located south of Site 1 in an apparent downgradient groundwater flow direction. Two of the new wells will be located in the northern portion (upgradient) of the Site 1 and the other will be an intermediate well located in the middle of the Site 1 between the 4 other wells. These wells will allow for full coverage of groundwater conditions at Site 1 while the site is still active.</p> <p>RESPONSE 1b: Draft Work Plan</p> <p>Fuels should be added.</p> <p>RESPONSE 1b: Revised Draft Work Plan</p> <p>As part of the Phase II RI for this site, fuels will be considered a suspected contaminant.</p> <p>RESPONSE 1c: Draft Work Plan</p> <p>A brief discussion of demilitarization of munitions should be added.</p> <p>RESPONSE 1c: Revised Draft Work Plan</p> <p>A brief discussion of munitions disposal is contained in Appendix A (Step 1 - State the Problem) of the DQO of the Phase II Work Plan. This Appendix also includes a description of non-military uses of the site.</p> <p>RESPONSE 2a: Draft Work Plan</p> <p>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.</p>
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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.

COMMENT 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 2a: Revised Draft Work Plan

Site 1 is routinely disked to remove vegetation in disposal areas as a fire safety precaution.

RESPONSE 2b: Draft Work Plan

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.

RESPONSE 2b: Revised Draft Work Plan

For the Phase II RI, Site 1 has been divided into 2 sampling units due to the different disposal activities that have been conducted most recently at the site. The Northern EOD Range (Unit 1) where recently most the military disposal has taken place and the Southern EOD Range (Unit 2) where recently Orange County Sheriffs Department and federal agencies' disposal has taken place.

RESPONSE 3: Draft Work Plan

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.

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RESPONSE 3: Revised Draft Work Plan

Discussion of the SAIC results and its influence on the Phase II work is discussed in Appendix A of this plan.

COMMENT 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 4: Draft Work Plan

Agreed.

RESPONSE 4: Revised Draft Work Plan

A discussion of a possible danger to receptors from unexploded ordnances is included in Appendix A Conceptual Site Model for the Revised Draft Work Plan .

COMMENT 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 5a: Draft Work Plan

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 judgmentally 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.

RESPONSE 5a: Revised Draft Work Plan

The FS smoke area like the rest of Site 1 has had munitions disposal activities conducted on it for over 40 years. This area is no more likely to exhibit contamination than any other portion of Unit 1, especially since the exact location of this area is unknown. The plan proposes sampling over Site 1 once munitions and explosives disposal activities cease (Appendix 4).

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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.

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

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

RESPONSE 5b: Draft Work Plan

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

RESPONSE 5b: Revised Draft Work Plan

The investigative activities for Site 1 during the Phase II RI will consist of the construction of 3 additional monitoring wells at the site. For more details please see Appendix A of the Revised Draft Work Plan .

RESPONSE 5c: Draft Work Plan

Agreed.

RESPONSE 5c: Revised Draft Work Plan

Refer to Appendix A of this plan.

RESPONSE 5d: Draft Work Plan

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.

RESPONSE 5d: Revised Draft Work Plan

The Revised Draft Work Plan includes a provision for sampling to assess ecological and human health risks.

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COMMENT 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 6a: Draft Work Plan

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 facilities in the area and ultimately agree on concentration levels that constitute background.

RESPONSE 6a: Revised Draft Work Plan

A monitoring well network will be set up as part of the Phase II RI at Site 1. This network will include two monitoring wells located hydraulically upgradient from Site 1. These wells will provide background groundwater conditions for Site 1.

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 6b: Draft Work Plan

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

RESPONSE 6b: Revised Draft Work Plan

This plan includes analysis for TFH by EPA Method 8015 and for BTEX by EPA Method 8020 in groundwater for the wells at Site 1.

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

RESPONSE 6c: Draft Work Plan

Agreed.

RESPONSE 6c: Revised Draft Work Plan

Explosive compounds and their breakdown products will be evaluated using EPA Method 8330A as recommended.

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COMMENT 7: A1.10.2 Subsurface Soil

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

RESPONSE 7: Draft Work Plan

Agreed.

RESPONSE 7: Revised Draft Work Plan

A monitoring well network will be set up as part of the Phase II RI at Site 1.

SITE 2 - MAGAZINE ROAD LANDFILL

COMMENT 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 1: Draft Work Plan

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. It does not appear to have been related to the landfill.

RESPONSE 1: Revised Draft Work Plan

The area to be included in the field investigations incorporates anomalies identified in both the SAP amendment, and the SAIC Report that were in the proximity of the landfill, employee interviews, Phase I RI data, and previous surface geophysical surveys. Refer to the Revised Draft Work Plan Appendix B for further details.

COMMENT 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 2: Draft Work Plan

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.

RESPONSE 2: Revised Draft Work Plan

The study area for Site 2 Unit 1 (landfill area) incorporated both previously identified Stratum boundaries.

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COMMENT 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 3a: Draft Work Plan

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 3b: Draft Work Plan

Agreed.

RESPONSE 3a: Revised Draft Work Plan

TCE and radionuclides will be evaluated.

RESPONSE 3b: Revised Draft Work Plan

The Revised Draft Work Plan proposes to analyze samples for compounds detected in the Phase I and estimate the risks following the Phase II RI.

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 3c: Draft Work Plan

Agreed.

RESPONSE 3c: Revised Draft Work Plan

This comment is specific to the Draft Work Plan.

d) A2.8.1 Shallow Soil

RESPONSE 3d: Draft Work Plan

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

Agreed.

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<p>Originator: Joe Zarnoch, Department of Toxic Substances Control Region 4, Long Beach, California</p> <p>Date: 17 December 1993</p>	
<p>COMMENT 4: A2.8.2 Subsurface Soil</p> <p>a) After the first sentence of the first paragraph, change the rest of the paragraph to read:</p> <p>"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."</p> <p>b) Change the second and third sentence of the second paragraph to read:</p> <p>"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."</p> <p>COMMENT 5: A2.8.5 Sediment</p> <p>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).</p>	<p>RESPONSE 3d: Revised Draft Work Plan</p> <p>Rerouting and/or lining of washes will be included as possible remedial alternatives.</p> <p>RESPONSE 4a: Draft Work Plan</p> <p>Agreed.</p> <p>RESPONSE 4a: Revised Draft Work Plan</p> <p>The landfill unit will be evaluated for "hot spots" using a soil gas sampling program on a grid. See DQO Appendix B of the Revised Draft Work Plan for the decision criteria to performing additional investigations and possible remedial technologies.</p> <p>RESPONSE 4b: Draft Work Plan</p> <p>Agreed.</p> <p>RESPONSE 4b: Revised Draft Work Plan</p> <p>Discussion of field activities (including a soil gas survey) and possible closure technologies (including capping) are discussed in Appendix B of the plan.</p> <p>RESPONSE 5: Draft Work Plan</p> <p>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.</p>

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Date: 17 December 1993

a) Please provide an enlarged figure of Stratum 2 and indicate aerial photograph anomalies identified by U.S. EPA (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.

b) Judgmental samples will lead to biased 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 5: Revised Draft Work Plan

TRPH is included as a COPC to be investigated during Phase II field activities.

RESPONSE 6a: Draft Work Plan

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.

RESPONSE 6a: Revised Draft Work Plan

Stratum 2 (stained area) has been incorporated in the field investigations for the landfill unit.

RESPONSE 6b: Draft Work Plan

As DTSC is aware, until now the regulatory agencies have urged that a sampling strategy be employed that allows statistical inferences to be made. Judgmental 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 judgmental strategy should be pursued here, then this should be done.

RESPONSE 6b: Revised Draft Work Plan

Stratum 2 (stained area) has been incorporated in the field investigations for the landfill unit.

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COMMENT 7: A2.9.2 and A2.10.3 Subsurface Soil

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

RESPONSE 7: Draft Work Plan

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.

RESPONSE 7: Revised Draft Work Plan

Stratum 2 (stained area) has been incorporated in the field investigations for the landfill unit.

COMMENT 8: A2.10.1 Preliminary Investigation

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

RESPONSE 8: Draft Work Plan

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

RESPONSE 8: Revised Draft Work Plan

The grid spacing for the soil gas survey is 100 feet.

COMMENT 9: A2.10.4 Groundwater

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

RESPONSE 9a: Draft Work Plan

Agreed.

RESPONSE 9a: Revised Draft Work Plan

A discussion of each newly proposed well has been included.

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 9b: Draft Work Plan

Agreed.

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RESPONSE 9b: Revised Draft Work Plan

To confirm the second round of groundwater sampling, existing wells will be sampled prior to installing new wells.

SITE 3/4 -ORIGINAL LANDFILL AND FERROCENE SPILL AREA

COMMENT 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 the 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*);

RESPONSE 1a: Draft Work Plan

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 interpretation of small-scale historical aerial photographs.

RESPONSE 1a: Revised Draft Work Plan

The area to be included in the field investigations incorporates anomalies identified in both the SAP amendment, and the SAIC Report that were in the proximity of the landfill, employee interviews, Phase I RI data, and previous surface geophysical surveys. Please refer to the Revised Draft Work Plan Appendix C for further details.

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- 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;

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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).

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 1b: Draft Work Plan

Agreed.

RESPONSE 1b: Revised Draft Work Plan

Abandoned Well 24-4247 could not be found during the RFA field investigations, and therefore its location has not been added to the Site Layout.

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

RESPONSE 1c: Draft Work Plan

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.

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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 1c: Revised Draft Work Plan

Refer to the Phase II Revised Draft Work Plan Appendix C for further details.

RESPONSE 1d: Draft Work Plan

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.

RESPONSE 1d: Revised Draft Work Plan

SWMU/AOC 300 (solvent spill) has been identified as a separate Unit in the Phase II Revised Draft Work Plan. The boundaries of the units investigations are based on employee interviews, RFA investigations and the Draft Work Plan.

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

RESPONSE 1e: Draft Work Plan

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.

RESPONSE 1e: Revised Draft Work Plan

The location of SWMU/AOC 194 was identified during the RFA.

COMMENT 2: A3/4.1.2 Phase I RI Site 4

RESPONSE 2a: Draft Work Plan

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

Agreed.

RESPONSE 2a: Revised Draft Work Plan

This comment is addressed specifically to a CLEAN I document.

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

RESPONSE 2b: Draft Work Plan

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

RESPONSE 2b: Revised Draft Work Plan

The tank's location is unknown and is not illustrated.

COMMENT 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 3: Draft Work Plan

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 µg/L. This compound has no established regulatory standard.

RESPONSE 3: Revised Draft Work Plan

Figures do not illustrate concentrations. Summaries of COPCs and concentrations is provided in Appendix C of the plan.

COMMENT 4: A3/4.3.2 Subsurface Soil

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

RESPONSE 4: Draft Work Plan

Agreed.

RESPONSE 4: Revised Draft Work Plan

COPCs and their concentrations are summarized in Appendix C of the plan.

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COMMENT 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]."

COMMENT 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.

COMMENT 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

RESPONSE 5: Draft Work Plan

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.

RESPONSE 5: Revised Draft Work Plan

The area to be included in the field investigations incorporates anomalies identified in both the SAP amendment, and the SAIC Report that were in the proximity of the landfill, employee interviews, Phase I RI data, and previous surface geophysical surveys. Refer to the Revised Draft Work Plan Appendix C for further details.

RESPONSE 6: Draft Work Plan

Agreed.

RESPONSE 6: Revised Draft Work Plan

Refer to the Phase II Revised Draft Work Plan Appendix C for further details.

RESPONSE 7a: Draft Work Plan

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.

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were possibly located in fill material overlying landfill disposal areas (based on excavated areas observed in a 1952 photograph)."

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.

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.

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 7a: Revised Draft Work Plan

This comment has been incorporated in the Revised Draft Work Plan. Refer to the Phase II Revised Draft Work Plan Appendix C for further details.

RESPONSE 7b: Draft Work Plan

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.

RESPONSE 7b: Revised Draft Work Plan

Appendix C discusses all COPCs to be evaluated in the Phase II RI/FS.

RESPONSE 7c: Draft Work Plan

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

RESPONSE 7c: Revised Draft Work Plan

Additional sediment samples will be collected and evaluated to establish whether exceedances occur.

RESPONSE 7d: Draft Work Plan

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

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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 7d: Revised Draft Work Plan

The plan proposes to continue assessment of COPCs from the Phase I RI.

RESPONSE 7e: Draft Work Plan

Agreed.

RESPONSE 7e: Revised Draft Work Plan

Additional investigations will further evaluate gross alpha and gross beta.

COMMENT 8: A3/4.8.1 Shallow Soil

RESPONSE 8a: Draft Work Plan

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

Agreed.

RESPONSE 8a: Revised Draft Work Plan

See Response 7d.

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

RESPONSE 8b: Draft Work Plan

Agreed.

RESPONSE 8b: Revised Draft Work Plan

Reported in Appendix C in Step 1.

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

RESPONSE 8c: Draft Work Plan

Agreed.

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

COMMENT 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 8c: Revised Draft Work Plan

Rerouting and/or lining of washes will be included as possible remedial alternatives.

RESPONSE 8d: Draft Work Plan

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.

RESPONSE 8d: Revised Draft Work Plan

The plan does not propose additional surface samples because a Presumptive Remedy of capping is proposed.

RESPONSE 9: Draft Work Plan

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.

RESPONSE 9: Revised Draft Work Plan

This section was substantially revised in the Phase II Revised Draft Work Plan. Discussion of this specific item in this level of detail was not included.

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COMMENT 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:

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

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

RESPONSE 10a: Draft Work Plan

See the response to 7d above.

RESPONSE 10a: Revised Draft Work Plan

See response to 9 above.

RESPONSE 10b: Draft Work Plan

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

RESPONSE 10b: Revised Draft Work Plan

These comments have been incorporated into the Revised Draft Work Plan.

RESPONSE 10c: Draft Work Plan

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.

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- **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.

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.

RESPONSE 10c: Revised Draft Work Plan

The Revised Work Plans have been designed to incorporate both Federal and State requirements for air, soil gas, and groundwater sampling. A section has been added that summarizes Air SWAT results.

These comments have been incorporated in Appendix C of the Revised Draft Work Plan.

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COMMENT 11: A3/4.9.1 and A3.10.2 Shallow Soil

a) **Stratum 2 (Drainage Ditch)**

i) 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.

ii) 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.

b) **SWMU/AOC 194 (Former Incinerator)**

i) 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

RESPONSE 11a(i): Draft Work Plan

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.

RESPONSE 11a(i): Revised Draft Work Plan

The unit (Unit 2) has been designated for early removal. However in the event that the early removal action is rejected three samples will be collected from this Unit in Phase II RI.

RESPONSE 11a(ii): Draft Work Plan

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.

RESPONSE 11a(ii): Revised Draft Work Plan

Sites 3 and 4 are addressed separately in Appendices C and D in the Revised Draft Work Plan. Sampling strategies are applied in the above referenced appendices.

RESPONSE 11b(i): Draft Work Plan

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.

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concentration of 130 ppb in a soil sample collected at 2 feet bgs [underline denotes change]."

ii) 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.

iii) 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.

COMMENT 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 11b(i): Revised Draft Work Plan

VOCs are listed as soil COPCs in Unit 4 (SMWU/AOC194) at Site 3. Refer to Appendix C in the Revised Draft Work Plan.

RESPONSE 11b(ii): Draft Work Plan

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.

RESPONSE 11b(ii): Revised Draft Work Plan

The comment has been incorporated into the text.

RESPONSE 11b(iii): Draft Work Plan

This section should be clarified.

RESPONSE 11b(iii): Revised Draft Work Plan

This comment has been incorporated into the text.

RESPONSE 12a: Draft Work Plan

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.

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RESPONSE 12a: Revised Draft Work Plan

No deep borings are proposed.

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 12b: Draft Work Plan

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

RESPONSE 12b: Revised Draft Work Plan

This comment has been incorporated into the text.

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 12c: Draft Work Plan

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

RESPONSE 12c: Revised Draft Work Plan

The comment is not applicable to this plan.

COMMENT 13: A3/4.9.3 Groundwater

RESPONSE 13a: Draft Work Plan

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

Again, see the response to Comment 10c above.

RESPONSE 13a: Revised Draft Work Plan

Not applicable to this plan.

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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.

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

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

RESPONSE 13b: Draft Work Plan

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.

RESPONSE 13b: Revised Draft Work Plan

The tank farms and not the landfill appears to be the source of fuel and benzene contamination.

RESPONSE 13c: Draft Work Plan

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).

RESPONSE 13c: Revised Draft Work Plan

No wells are proposed.

RESPONSE 13d: Draft Work Plan

Agreed.

RESPONSE 13d: Revised Draft Work Plan

Not applicable to this plan.

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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 13e: Draft Work Plan

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.

RESPONSE 13e: Revised Draft Work Plan

No extraction well is proposed.

COMMENT 14: A3/4.10.1.1 Soil Gas

a) Stratum I (Landfill Area)

RESPONSE 14a(i): Draft Work Plan

The statement should read "VOCs and methane".

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

RESPONSE 14a(i): Revised Draft Work Plan

The comment has been incorporated into the text.

ii) 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 14a(ii): Draft Work Plan

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.

RESPONSE 14a(ii): Revised Draft Work Plan

Soil gas samples will be collected on a 200-foot on center grid. Refer to the Phase II Revised Draft Work Plan Appendix C for further details.

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b) 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 14b: Draft Work Plan

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

RESPONSE 14b: Revised Draft Work Plan

Soil gas samples will be collected on a 10-foot on center grid at SWMU/AOC 194 (or six samples).

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Site 5 - Perimeter Road Landfill

COMMENT 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 1: Draft Work Plan

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 classified 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.).

RESPONSE 1: Revised Draft Work Plan

Discussion of the "burritos" and their general origin has been included.

COMMENT 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.

RESPONSE 2a: Draft Work Plan

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 than a drainage ditch located several hundred feet from the landfill.

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:

RESPONSE 2a: Revised Draft Work Plan

The area to be included in the field investigations incorporates anomalies identified in both the SAP amendment, and the SAIC Report that were in the proximity of the landfill, employee interviews, Phase I RI data, and previous surface geophysical surveys. Refer to the Revised Draft Work Plan Appendix E for further details.

- 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.

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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]."

COMMENT 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.

COMMENT 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.

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 2b: Draft Work Plan

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

RESPONSE 2b: Revised Draft Work Plan

The area to be included in the field investigations incorporates anomalies identified in both the SAP amendment, and the SAIC Report that were in the proximity of the landfill, employee interviews, Phase I RI data, and previous surface geophysical surveys. Refer to the Revised Draft Work Plan Appendix E for further details.

RESPONSE 3: Draft Work Plan

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.

RESPONSE 3: Revised Draft Work Plan

Discussion of the "burritos" and their general origin has been included in the Revised Draft Work Plan.

RESPONSE 4a: Draft Work Plan

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

RESPONSE 4a: Revised Draft Work Plan

The text is correct in the Revised Draft Work Plan.

RESPONSE 4b: Draft Work Plan

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

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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, vadose 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.

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.

COMMENT 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 4b: Revised Draft Work Plan

The results of the second round of groundwater sampling confirming a potential upgradient source has been incorporated in the document.

RESPONSE 4c: Draft Work Plan

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.

RESPONSE 4c: Revised Draft Work Plan

Additional sampling in the vadose zone (assess leakage) has been incorporated into the document.

RESPONSE 4d: Draft Work Plan

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.

RESPONSE 4d: Revised Draft Work Plan

Well 18_BGMW02 discussion should be included in OU-1 RI. See DQO Appendix E of the Revised Draft Work Plan for a discussion on the groundwater investigations proposed for this landfill site.

RESPONSE 5: Draft Work Plan

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

RESPONSE 5: Revised Draft Work Plan

Discussion for potential remedial actions for the Phase I IDW has been incorporated into the document.

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COMMENT 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 6: Draft Work Plan

Agreed.

RESPONSE 6: Revised Draft Work Plan

Discussion of subsurface contamination/remediation has been incorporated into the document.

COMMENT 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 7a: Draft Work Plan

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

RESPONSE 7a: Revised Draft Work Plan

Soil gas samples will be collected at depths of 15 feet within the limits of refuse, and at depths of 10, 25 and 40 feet outside the boundary of the landfill. Soil gas samples will also be collected in the vadose zone. The text has been modified to state this.

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 7b: Draft Work Plan

Agreed. The correct number is 7 locations.

RESPONSE 7b: Revised Draft Work Plan

Due to the revised landfill investigation area and sample collection rationale the number and location of the soil gas samples has been substantially. Refer to the Revised Draft Work Plan, Appendix E for a detailed discussion.

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 7c: Draft Work Plan

Understood.

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RESPONSE 7c: Revised Draft Work Plan

Comment noted.

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: 7d: Draft Work Plan

The existing landfill boundaries have been very well characterized 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.

RESPONSE 7d: Revised Draft Work Plan

Revisions incorporate performing surface geophysics prior to the soil gas survey for the reasons stated in the comment.

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: 7e: Draft Work Plan

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.

RESPONSE 7e: Revised Draft Work Plan

Agreed. See response above.

SITE 6-DROP TANK DRAINAGE AREA NO. 1

COMMENT 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 1a: Draft Work Plan

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.

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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).

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

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.

RESPONSE 1a: Revised Draft Work Plan

Previous investigations have not found evidence that these tanks are a concern. Thus, these tanks have not been addressed in this plan.

RESPONSE 1b: Draft Work Plan

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.

RESPONSE 1b: Revised Draft Work Plan

During the RFA for MCAS El Toro, a concrete pad (vehicle wash rack) located north of Site 6 was investigated as SWMU/AOC 204. The drainage area leading away from the concrete pad area has been included for the Phase II RI as part of Unit 2. Please see Data Quality Objectives Appendix F of the Revised Draft Work Plan and Attachment F of the Field Sampling Plan for further details.

RESPONSE 1c: Draft Work Plan

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

RESPONSE 1c: Revised Draft Work Plan

Refer to Appendix F of the Revised Draft Work Plan for a summary of COPCs and their concentrations.

RESPONSE 1d: Draft Work Plan

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.

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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).

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).

COMMENT 2: A6.3

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

COMMENT 3: A6.4.1 EPA Survey

Please make all necessary changes based on Comment 1 above.

RESPONSE 1d: Revised Draft Work Plan

Both the stained area and the triangular-shaped impoundment area near Site 6 will be investigated during the Phase II RI as part of Unit 3. See Data Quality Objectives Appendix F of the Revised Draft Work Plan for further details.

RESPONSE 1e: Draft Work Plan

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.

RESPONSE 1e: Revised Draft Work Plan

Please see response to d.

RESPONSE 2: Draft Work Plan

Agreed.

RESPONSE 2: Revised Draft Work Plan

Refer to Appendix F of the Revised Draft Work Plan for a summary of COPCs and their concentrations.

RESPONSE 3: Draft Work Plan

See the response to Comment No. 1 above.

RESPONSE 3: Revised Draft Work Plan

See the response to Comment No. 1 above.

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COMMENT 4: A6.4.2 SAIC Survey

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

RESPONSE 4a: Draft Work Plan

See the response to Comment No. 1 above.

RESPONSE 4a: Revised Draft Work Plan

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 4b: Draft Work Plan

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

RESPONSE 4b: Revised Draft Work Plan

Not applicable to this plan.

COMMENT 5: A6.5 Site and Stratum Boundaries

Please make all necessary changes based on Comment 1 above.

RESPONSE 5: Draft Work Plan

See the response to Comment No. 1, above.

RESPONSE 5: Revised Draft Work Plan

See the response to Comment No. 1 above.

COMMENT 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 6a: Draft Work Plan

Agreed.

RESPONSE 6a: Revised Draft Work Plan

Not applicable to this plan.

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

RESPONSE 6b: Draft Work Plan

See the response to Site 2, comment #6.

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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.

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."

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 6b: Revised Draft Work Plan

The location of the referenced sample is the middle of an asphalt paved parking lot southeast of Site 6. This sample and the analytical result have nothing to do with the drainage of drop tanks which formerly occurred at Site 6. Being a surficial sample, it was most likely collected directly beneath the pavement of the parking lot. Asphalt binder incorporates petroleum products which may gradually leach out into the underlying soil, so detection of TRPH in soil directly beneath asphalt would not be unusual. TRPH was not identified in the 2-foot and 5-foot depth samples from the same location, at an instrument detection limit of 20 ppm.

RESPONSE 6c: Draft Work Plan

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.

RESPONSE 6c: Revised Draft Work Plan

Phenol will be included in the list of COPCs presented in the Revised Draft Work Plan and will be identified in the discussion of groundwater presented as part of the background section for Site 6 DQO, which is included in Appendix F to the Revised Draft Work Plan.

RESPONSE 6d: Draft Work Plan

Agreed.

RESPONSE 6d: Revised Draft Work Plan

Not applicable to this plan.

RESPONSE 6e: Draft Work Plan

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

RESPONSE 6e: Revised Draft Work Plan

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The Phase II RI/FS will analyze soil samples collected in Units 2 and 3 for TFH EPA Method 8015m. See Data Quality Objectives Appendix F of the Revised Draft Work Plan for further details.

COMMENT 7: A6.9 Problem Definition

a) 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 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 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 from 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 7a: Draft Work Plan

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.

RESPONSE 7a: Revised Draft Work Plan

Please see comments A6.1.1b, d, and e above.

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b) 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.

SITE 7 - DROP TANK DRAINAGE AREA NO. 2

COMMENT 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 7b: Draft Work Plan

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.

RESPONSE 7b: Revised Draft Work Plan

Please see comments A6.1b, d, and e above.

RESPONSE 1a: Draft Work Plan

Agreed.

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RESPONSE 1a: Revised Draft Work Plan

The well designated 07_DGMW91 is not included on the Site 7 maps presented in the Revised Draft Work Plan or on maps or figures in associated documents prepared by the Navy. The subject well is located approximately 1600 feet northwest of Site 7, just outside the western boundary for Unit 3 of Site 10. The Navy believes that despite its designation, this well is located too far from Site 7 to be a representative monitoring well for that site. Impacts from the VOC source areas around Buildings 296 and 297, Site 8, and Site 10 all impact the intervening area between Site 7 and this well. One suggestion is renumbering of the well, followed by its designation as a downgradient well for Site 10.

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 1b: Draft Work Plan

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.

RESPONSE 1b: Revised Draft Work Plan

It is believed that this comment refers to abandoned well No. 1, located west northwest of Site 7 rather than north northeast as indicated in the comment. As stated in the response, the information requested in the comment is summarized in the Site 24 DQO, presented in Section A24 of Appendix A to the Draft Work Plan. At this time, the well is not identified in Site 7 figures or maps included in the Revised Draft Work Plan for the following reasons. The well is located approximately 400 feet beyond the limits of Site 7 and was not associated with historic operations at Site 7 based upon available information. Further, it was connected by pipeline to a water reservoir located near Site 9. Because the well was used as a water supply source for MCAS El Toro, it is very unlikely that downhole waste disposal of any kind would be allowed at this location.

COMMENT 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 2: Draft Work Plan

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.

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RESPONSE 2: Revised Draft Work Plan

As indicated in the response to this same question from the U.S. EPA, the two SWMUs will be incorporated into the proposed Phase II RI investigations for Units 1 and 3 (not Unit 2 as stated in the comment) at Site 7. Investigation of SWMU/AOCs 71 and 72 is discussed in the site specific DQO for Site 7, presented as Appendix G to the Revised Draft Work Plan.

The investigations will consist of an initial RCRA-style site inspection. If no evidence of leaks or stains, or cracked concrete (if present) are observed, no further investigation will be conducted. Collection of samples will only take place if historic or ongoing releases of chemicals are determined to have occurred.

COMMENT 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).

COMMENT 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 SAIC Report and include 49, 131, 138, 247, 406, 407, and 507]*."

RESPONSE 3: Draft Work Plan

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 I, 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.

RESPONSE 3: Revised Draft Work Plan

The "probable tanks" are contained within the boundaries of Unit 1. No record of these "probable tanks" is available nor any information on the contents or any releases. TFH was not detected during the Phase I RI in Stratum I. If the concern over these "probable tanks" is so great additional analyses for TFH may be added, however, because of the lack of any hard evidence and the nature of the information no additional sampling locations are being proposed for the Phase II RI.

RESPONSE 4: Draft Work Plan

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.

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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.

RESPONSE 4: Revised Draft Work Plan

The sampling and description of the units in Site 7 are discussed in Appendix G of this plan.

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.

COMMENT 5: A7.7 Chemicals to be Investigated During Phase II

RESPONSE 5a: Draft Work Plan

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.

Agreed.

RESPONSE 5a: Revised Draft Work Plan

Lead is included as both a COPC and a site specific COPC that will be evaluated during the Phase II RI at Site 7. The background information in the site specific DQO for Site 7, presented as Appendix G to the Revised Draft Work Plan prepared by the Navy cites the detection of lead at 931 ppm and indicates it exceeded the RBC.

b) This section should discuss the TFH-diesel detected in well 07_DBMW70 at a concentration of 2,660 ppb.

RESPONSE 5b: Draft Work Plan

Agreed.

RESPONSE 5b: Revised Draft Work Plan

The presence of TFH-diesel in groundwater at the subject well is noted in the Site 7 DQO, presented as Appendix G to the Phase II RI/FS Revised Draft Work Plan prepared by the Navy. A review of groundwater quality data from the second round of sampling at this well, conducted on June 29, 1993, suggests the possibility that the reported result for the sample cited in this comment may have been erroneous. TFH-diesel was not identified, at an instrument detection limit of 20 ppb, in the second round groundwater sample collected from the subject well on June 29, 1993. With only two rounds of sampling it is not yet possible to make a conclusive statement regarding the reported result for the initial sampling round. However, substantial indirect data suggests that the concentration reported for the first round of sampling was not valid. First, none of the existing data collected at Site 7 suggests that aircraft drop tank drainage activities have contributed to a groundwater problem at the subject well. Further, historic records and employee interviews do not provide any information pointing to a potential source upgradient from Site 7.

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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.

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.

COMMENT 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 5c: Draft Work Plan

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.

RESPONSE 5c: Revised Draft Work Plan

The Phase II RI/FS has not planned any TRPH analysis for Site 7.

RESPONSE 5d: Draft Work Plan

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 write-up does include discussion of the results of the RFA investigation.

RESPONSE 5d: Revised Draft Work Plan

The issue of TCE in soil samples collected during drilling of Site 7 well 07_DGMW71 is discussed in the site specific DQO for Site 24, presented in Appendix W to the Revised Draft Work Plan. The Navy agrees with the comment that the cited soil sample TCE concentrations are more reflective of groundwater conditions than soil conditions because one sample was taken in the "smear zone" within which groundwater levels fluctuate and the second sample was taken at the water table. The Site 24 DQO also discuss the RFA investigation data including borings and samples where TCE was detected.

RESPONSE 6: Draft Work Plan

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.

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RESPONSE 6: Revised Draft Work Plan

See response to comment 5b. The Navy also agrees with the response doubting the likelihood of the hypothesis a possible former tank northeast of Building 295 was the source of TFH in groundwater. Any hypothesis regarding a source is doubtful because as the response to comment 5b suggests, the reported detection of TFH in groundwater at well 07_DGMW70 itself is doubtful. The clamor over this one sample result, which will most likely be classified as an anomaly when more data become available, points up the need to base any suppositions or conclusions on more than a single piece of data.

COMMENT 7: A7.9.1 Shallow Soil

a) 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 7a: Draft Work Plan

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.

RESPONSE 7a: Revised Draft Work Plan

Unit 1 at Site 7 has been designated for early removal action. If the early removal action is rejected 2 soil samples will be collected from the shallow soil in the unit. Please see Appendix G of the Phase II Revised Draft Work Plan for sampling details.

As noted in comments 5b and 6, the presence of TFH-diesel in groundwater at well 07_DGMW70 is most likely an anomaly and no TFH is actually present in groundwater beneath the site as the soil, soil gas, and the second round groundwater analytical data suggest.

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b) Stratum 3 (New East Pavement Edge)

RESPONSE 7b(i): Draft Work Plan

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).

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

RESPONSE 7b(i): Revised Draft Work Plan

The proposed field screening for Unit 3 during the Phase II RI will include PAHs with immunoassay kits and TFH (EPA Method 8015m) and VOCs (EPA Method 8010) analysis by on-site mobile laboratory. See Appendix G of the Phase II Revised Draft Work Plan and Attachment G to the Draft Field Sampling Plan for details.

ii) Provide a figure of Stratum 3 indicating aerial photograph anomalies identified by U.S. EPA (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 8b(ii): Draft Work Plan

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.

RESPONSE 8b(ii): Revised Draft Work Plan

The proposed Phase II RI sampling locations for Site 7 Unit 3 are presented on the maps that have been included in both the Draft Field Sampling Plan Attachment G and the Work Plan Appendix G. These maps are intended to illustrate the type of sampling strategy proposed for the unit. Such considerations as a randomly selected starting points, underground utilities/pipelines, or overhead obstacles could result in adjustments to sampling locations. The actual locations sampled in the field will be accurately recorded by field personnel.

c) Stratum 5 (Open Dirt Area)

RESPONSE 7c: Draft Work Plan

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.

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.

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RESPONSE 7c: Revised Draft Work Plan

The proposed initial sampling strategy for Unit 5 at Site 7 will consist of two stratified random sampling locations for the purpose of estimating risk. The proposed field screening for Unit 5 during the Phase II RI will include PAHs with immunoassay kits and TFH (EPA Method 8015m) and VOCs (EPA Method 8010) analysis by on-site mobile laboratory. See Appendix G of the Revised Draft Work Plan and Attachment G to the Draft Field Sampling Plan for details.

COMMENT 8: A7.9.3 Groundwater

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

RESPONSE 8: Draft Work Plan

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.

RESPONSE 8: Revised Draft Work Plan

Groundwater monitoring will not be conducted as part of this Phase II RI/FS effort on OU-2 and OU-3 unless site contaminants are discovered that may have reached groundwater.

COMMENT 9: A7.10 Phase II Remedial Investigation Design

Revise this section based on the above comments.

RESPONSE 9: Draft Work Plan

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

RESPONSE 9: Revised Draft Work Plan

See comments above.

SITE 8 - DRMO STORAGE YARD

COMMENT 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 1a: Draft Work Plan

Agreed.

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b) Stratum 3 (New East Pavement Edge)

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

ii) Provide a figure of Stratum 3 indicating aerial photograph anomalies identified by U.S. EPA (see Plate II 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.

c) 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 7b(i): Draft Work Plan

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).

RESPONSE 7b(i): Revised Draft Work Plan

The proposed field screening for Unit 3 during the Phase II RI will include PAHs with immunoassay kits and TFI (EPA Method 8015m) and VOCs (EPA Method 8010) analysis by on-site mobile laboratory. See Appendix G of the Phase II Revised Draft Work Plan and Attachment G to the Draft Field Sampling Plan for details.

RESPONSE 8b(ii): Draft Work Plan

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.

RESPONSE 8b(ii): Revised Draft Work Plan

The proposed Phase II RI sampling locations for Site 7 Unit 3 are presented on the maps that have been included in both the Draft Field Sampling Plan Attachment G and the Work Plan Appendix G. These maps are intended to illustrate the type of sampling strategy proposed for the unit. Such considerations as a randomly selected starting points, underground utilities/pipelines, or overhead obstacles could result in adjustments to sampling locations. The actual locations sampled in the field will be accurately recorded by field personnel.

RESPONSE 7c: Draft Work Plan

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.

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

RESPONSE 2b: Draft Work Plan

Agreed.

RESPONSE 2b: Revised Draft Work Plan

The three SWMU/AOCs were located within the fenced boundary of the current storage yard. Because their actual locations within the yard have not been documented, it is not possible to include their locations on figures and maps presented in the Revised Draft Work Plan. Further, these drum storage areas were not isolated from or substantially different than the general storage practices which took place in the yard.

COMMENT 3: A8.3.3 Groundwater

RESPONSE 3: Draft Work Plan

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

Agreed.

RESPONSE 3: Revised Draft Work Plan

Not applicable to this document.

COMMENT 4: A8.4.1 EPA Survey

RESPONSE 4: Draft Work Plan

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..."

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.

RESPONSE 4: Revised Draft Work Plan

The Revised Draft Work Plan has not confirmed the EPA Survey results.

COMMENT 5: A8.4.2 SAIC Survey

RESPONSE 5a: Draft Work Plan

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,

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.

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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."

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 IAS, 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.

COMMENT 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 1a: Revised Draft Work Plan

Not applicable to this plan.

RESPONSE 1b: Draft Work Plan

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

RESPONSE 1b: Revised Draft Work Plan

Not applicable to this plan.

RESPONSE 1c: Draft Work Plan

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.

RESPONSE 1c: Revised Draft Work Plan

Not included in this plan. If warranted, an enlarged figure will be provided after sampling and analyses are completed for the Phase II RI/FS.

RESPONSE 2a: Draft Work Plan

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

RESPONSE 2a: Revised Draft Work Plan

Not applicable to this document.

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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]."

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

Please make all necessary changes based on Comment 5 above.

COMMENT 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.

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

RESPONSE 5e: Revised Draft Work Plan

Figure 1-3 of this plan has all buildings numbered.

RESPONSE 5f: Draft Work Plan

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.

RESPONSE 5f: Revised Draft Work Plan

Not applicable to this document.

RESPONSE 6: Draft Work Plan

See the response to Comment No. 5, above.

RESPONSE 6: Revised Draft Work Plan

See the response to Comments under No. 5 above.

RESPONSE 7a: Draft Work Plan

Agreed.

RESPONSE 7a: Revised Draft Work Plan

Appendix H to the Revised Draft Work Plan prepared by the Navy identifies lead as exceeding the RBC.

RESPONSE 7b: Draft Work Plan

Agreed.

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<p>including plan diagrams, for MCAS El Toro should be reviewed. Please make all necessary changes.</p>	<p>RESPONSE 5a: Revised Draft Work Plan</p> <p>This plan does not include this area, based on the above response.</p>
<p>b) In a figure(s), indicate the location of the stain identified as site 132 in the SAIC Report.</p>	<p>RESPONSE 5b: Draft Work Plan</p> <p>This stain is not part of Site 8 and should not be included on a figure.</p> <p>RESPONSE 5b: Revised Draft Work Plan</p> <p>This plan does not include this area, based on the above response.</p>
<p>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.</p>	<p>RESPONSE 5c: Draft Work Plan</p> <p>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.</p> <p>RESPONSE 5c: Revised Draft Work Plan</p> <p>This plan does not include this area, based on the above response.</p>
<p>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?</p>	<p>RESPONSE 5d: Draft Work Plan</p> <p>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.</p> <p>RESPONSE 5d: Revised Draft Work Plan</p> <p>The sampling design is not changed, based on the above response.</p>
<p>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.</p>	<p>RESPONSE 5e: Draft Work Plan</p> <p>These buildings and features are clearly outside the boundaries of Site 8.</p>

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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.

COMMENT 9: A8.9.1 Shallow Soil

a) 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 8: Revised Draft Work Plan

Based upon Phase I RI data and results of the Site 24 Soil Gas Survey, TFH-diesel does not appear to pose a threat to groundwater at this site.

RESPONSE 9a: Draft Work Plan

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.

RESPONSE 9a: Revised Draft Work Plan

The Revised Draft Work Plan has incorporated the above comments. In addition, Unit 1 at Site 7 in the Phase II RI, soil samples will be collected at 0, 2, 4, and 10 feet bgs at 6 areal systematic random sample locations based on a grid with spacing of 150 x 200 feet. All soil samples will be field screened for PAHs and PCBs with immunoassay kits (EPA Method 4035 and 4020). In addition, these samples will also be analyzed by a mobile laboratory for VOCs (EPA Method 8010). Please see Appendix H of the Revised Draft Work Plan.

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RESPONSE 7b: Revised Draft Work Plan

This comment may no longer be applicable because Unit (Stratum) 3 was handled as an early removal action by the Navy in mid-1994 and no longer exists at Site 8. The Revised Draft Work Plan proposes sampling for PCBs of this unit to confirm results of the removal action and estimate risk.

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

RESPONSE 7c: Draft Work Plan

Upgradient

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

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

RESPONSE 7c: Revised Draft Work Plan

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.

TRPH is not a COPC in the Revised Draft Work Plan. TFH-gasoline and diesel will be evaluated rather than TRPH.

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.

COMMENT 8: A8.8.2 Surface Soil

RESPONSE 8: Draft Work Plan

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

Agreed.

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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 contamination 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.

e) Stratum 5

Provide a figure of Stratum 5 indicating aerial photograph anomalies identified by U.S. EPA (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.

SITE 9 - CRASH CREW PIT NO. 1

COMMENT 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?

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).

RESPONSE 9d: Revised Draft Work Plan

PCBs are the COPCs at this stratum. Please see Data Quality Objectives Appendix H of the Revised Draft Work Plan for further details of the proposed sampling plan for this Unit.

RESPONSE 9e: Draft Work Plan

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.

RESPONSE 9e: Revised Draft Work Plan

See Data Quality Objectives Appendix H of the Revised Draft Work Plan for further details of the proposed sampling plan for this Unit.

RESPONSE 1a: Draft Work Plan

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.

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b) Stratum 2 (West Storage Yard)

Provide a figure of Stratum 2 indicating aerial photograph anomalies identified by U.S. EPA (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.

c) 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.

d) 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.

RESPONSE 9b: Draft Work Plan

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 judgmental sampling.

RESPONSE 9b: Revised Draft Work Plan

Based on Phase I RI results and data obtained from soil gas survey, No Further Response Action Planned (NFRAP) is recommended at this unit. See Data Quality Objectives Appendix H of the Revised Draft Work Plan.

RESPONSE 9c: Draft Work Plan

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.

RESPONSE 9c: Revised Draft Work Plan

See response to Comment 7b. However, field screening methods do not detect PCBs at the levels of RBCs.

RESPONSE 9d: Draft Work Plan

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.

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<p>COMMENT 4: <u>A9.9.3 Groundwater</u></p> <p>Consider changing the hypothesis to "Site 9 does not appear to be contributing to groundwater contamination; the actual source may be upgradient."</p>	<p>RESPONSE 3: Revised Draft Work Plan</p> <p>The soil gas survey completed in June 1994, did include Site 9 and results influencing Site 9 sampling are discussed in Appendix I of the Revised Draft Work Plan.</p> <p>RESPONSE 4: Draft Work Plan</p> <p>Agreed, although this weakens the hypothesis somewhat.</p> <p>RESPONSE 4: Revised Draft Work Plan</p> <p>Not applicable to this document.</p>

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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]."

COMMENT 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).

COMMENT 3: A9.9.2 Subsurface Soil

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

RESPONSE 1a: Revised Draft Work Plan

Flammable liquids were delivered to the site by tank trucks prior to each training exercise.

RESPONSE 1b: Draft Work Plan

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

RESPONSE 1b: Revised Draft Work Plan

Not applicable to this document.

RESPONSE 2: Draft Work Plan

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.

RESPONSE 2: Revised Draft Work Plan

See Data Quality Objectives Appendix I of the Revised Draft Work Plan for further details of the proposed sampling plan for this Unit.

RESPONSE 3: Draft Work Plan

Agreed.

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RESPONSE 1a: Revised Draft Work Plan

In the Phase II RI as part of Unit 4 of Site 10, two borings will be located adjacent to Building 1589. The borings will be sampled at 0, 5, and 10 feet bgs. Soil samples will be field screened for PAHs using immunoassay kits analyzed for TAL Metals by a on-site mobile laboratory. See Data Quality Objectives Appendix J of the Revised Draft Work Plan and for further details of the proposed sampling plan for this Unit.

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 1b: Draft Work Plan

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

RESPONSE 1b: Revised Draft Work Plan

Abandoned well No. 2 was apparently connected to a water reservoir by the same buried pipeline connecting abandoned well No. 1 (located west of Site 7) to the reservoir. Because these reservoirs provided water for operations at the base, it is very unlikely that the well was used for any type of waste disposal activity, particularly the type of activity which resulted in Site 10. Because all six abandoned wells have been identified and discussed as part of Site 24, abandoned well No. 2 is not identified in relationship to Site 10.

COMMENT 2: A10.4.1 EPA Survey

a) Discuss the trenches that were observed 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 2a: Draft Work Plan

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.

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SITE 10 -- PETROLEUM DISPOSAL AREA

COMMENT 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 1a: Draft Work Plan

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 solvent 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].
- 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)].

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RESPONSE 3b: Revised Draft Work Plan

Not applicable to this document.

COMMENT 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 4: Draft Work Plan

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

RESPONSE 4: Revised Draft Work Plan

See response to comment A10.1.1.

COMMENT 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 immunoassay 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.

RESPONSE 5: Draft Work Plan

See the response to General Comment #3. If the team decides to use judgmentally-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 0 and 2 foot samples are adequate for both characterization and risk assessment.

RESPONSE 5: Revised Draft Work Plan

This plan has proposed sampling for this area at Site 10 for the Phase II RI. See Data Quality Objectives Appendix J of the Revised Draft Work Plan for further details of the proposed sampling plan for this Unit.

Make all necessary changes, including figures and tables.

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RESPONSE 2a: Revised Draft Work Plan

The above response has been incorporated in this plan.

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 2b: Draft Work Plan

"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.

RESPONSE 2b: Revised Draft Work Plan

The above response has been incorporated in this plan.

COMMENT 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 3a: Draft Work Plan

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.

RESPONSE 3a: Revised Draft Work Plan

This plan has added this area to Site 10 for the Phase II RI as Unit 3. Please see Data Quality Objectives Appendix J of the Revised Draft Work Plan and for further details of the proposed sampling plan for this Unit.

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

RESPONSE 3b: Draft Work Plan

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

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COMMENT 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.

COMMENT 3: A11.4.1 EPA Survey

a) Indicate the location of the possible vertical tank in a figure(s); please note that apparently 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 1c: Revised Draft Work Plan

The proposed Phase II RI sampling strategy for Unit 3 will be sufficient to address this issue. If asphalt is encountered at the deepest proposed sampling depth a sample will be collected below the asphalt.

RESPONSE 2: Draft Work Plan

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.

RESPONSE 2: Revised Draft Work Plan

The above response has been incorporated in this plan.

RESPONSE 3a: Draft Work Plan

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.

RESPONSE 3a: Revised Draft Work Plan

The above response has been incorporated in this plan.

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SITE 11 - TRANSFORMER STORAGE AREA

COMMENT 1: ALL.1.1 Setting and History

a) A UST is located at Site 11 just outside the east fence line. 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.

b) Add a description of the PCB spill (approximately 50 gallons) that occurred 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.

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 1a: Draft Work Plan

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

RESPONSE 1a: Revised Draft Work Plan

Sampling the contents of this tank has been included as part of the Data Quality Objectives Appendix K of the Revised Draft Work Plan for further details of the proposed sampling plan for this Unit.

RESPONSE 1b: Draft Work Plan

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.

RESPONSE 1b: Revised Draft Work Plan

The above response has been incorporated in this plan.

RESPONSE 1c: Draft Work Plan

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

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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.

b) 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.

SITE 12 – SLUDGE DRYING BEDS

COMMENT 1: A12.1.1 Setting and History

a) The document dismisses the two former impoundments located southeast of Stratum 2 (East Sludge Drying Beds); these units were apparently 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 identified an impoundment and six

contamination. Then, after the horizontal and vertical extent of contamination has been characterized, Level III samples may be randomly allocated within the contaminated areas.

RESPONSE 4a: Revised Draft Work Plan

This plan has added this area to Site 11 for the Phase II RI as Unit 3. Please see Data Quality Objectives Appendix K of the Revised Draft Work Plan for further details of the proposed sampling plan for this Unit.

RESPONSE 4b: Draft Work Plan

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.

RESPONSE 4b: Revised Draft Work Plan

In the Phase II RI soil samples will be collected at 0, 2, and 4 feet below the bgs in sampling locations at Unit 2. All samples will be field screened and verified by CLP analyses. See Data Quality Objectives Appendix K of the Revised Draft Work Plan for further details of the proposed sampling plan for this Unit.

RESPONSE 1a: Draft Work Plan

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

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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 3b: Draft Work Plan

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.

RESPONSE 3b: Revised Draft Work Plan

This area will be investigated as part of Unit 3 of Site 11 in the Phase II RI. See Data Quality Objectives Appendix K of the Revised Draft Work Plan for further details of the proposed sampling plan for this Unit.

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 3c: Draft Work Plan

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

RESPONSE 3c: Revised Draft Work Plan

Not applicable to this document.

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

a) Stratum I (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

RESPONSE 4a: Draft Work Plan

The original 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

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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 presence 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 location 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 necessary changes.

COMMENT 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 1c: Draft Work Plan

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.

RESPONSE 1c: Revised Draft Work Plan

Currently, SWMU/AOC 7 (PCB Transformer Storage Area) will be further investigated by the Confirmation Sampling Investigation for Final Approval of the RCRA Facility Assessment.

RESPONSE 2: Draft Work Plan

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.

RESPONSE 2: Revised Draft Work Plan

A discussion of the RFA sampling activities and analytical results are included in the site specific DQO for Site 12, presented as Appendix L to the Revised Draft Work Plan.

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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 appears to be sufficient evidence to warrant adding this area to an existing or new stratum. Please make all necessary changes.

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.

RESPONSE 1a: Revised Draft Work Plan

The location of the two former impoundments will be sampled as part of Unit 2 in the Phase II RI. In addition, Site 12 has been expanded to include SWMU/AOC 90 former wastewater treatment plant(WWTP) and the former location of the industrial wastewater treatment plant (IWWTP). They will be sampled as Unit 4. See Data Quality Objectives Appendix L of the Revised Draft Work Plan for further details of the proposed sampling plan for this Unit.

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 1b: Draft Work Plan

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.

RESPONSE 1b: Revised Draft Work Plan

The sampling design and analysis are presented in Appendix L of the Revised Draft Work Plan.

RESPONSE TO REGULATORY AGENCY COMMENTS
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Phase II RI/FS at MCAS El Toro, California

Originator: Joe Zarnoch, Department of Toxic Substances Control
Region 4, Long Beach, California
Date: 17 December 1993

COMMENT 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 4: Draft Work Plan

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

RESPONSE 4: Revised Draft Work Plan

Not applicable to this plan.

COMMENT 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 5a: Draft Work Plan

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.

RESPONSE 5a: Revised Draft Work Plan

All Units in Site 12 Phase II RI sampled will include analyses for metals and cyanide. Please see Data Quality Objectives Appendix L of the Revised Draft Work Plan for further details of the proposed sampling plan for this Site.

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

RESPONSE 5b: Draft Work Plan

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

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Originator: Joe Zarnoch, Department of Toxic Substances Control
Region 4, Long Beach, California
Date: 17 December 1993

COMMENT 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 3a: Draft Work Plan

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

RESPONSE 3a: Revised Draft Work Plan

The COPCs and their concentrations have been summarized in this plan. Locations of SWMU/AOC 90 and borings are illustrated in Appendix L of the Revised Draft Work Plan.

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

RESPONSE 3b: Draft Work Plan

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

RESPONSE 3b: Revised Draft Work Plan

See Draft Work Plan Response to this comment.

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 3c: Draft Work Plan

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

RESPONSE 3c: Revised Draft Work Plan

The above response is applicable to this plan.

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<p>Originator: Joe Zarnoch, Department of Toxic Substances Control Region 4, Long Beach, California</p> <p>Date: 17 December 1993</p>	
<p>COMMENT 7: <u>A12.9.1 and A12.10.1 Shallow Soil</u></p> <p><u>Stratum 3 (Drainage Ditch)</u></p> <p>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.</p> <p>Indicate the percentage of the estimated risk ratio for metals that is due to lead.</p> <p>COMMENT 8: <u>A12.9.3 and A12.10.3 Groundwater</u></p> <p>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.</p>	<p>However, the threat to groundwater of the tar-like substance is unknown. The Revised Draft Work Plan includes provision for analysis of TFH-gasoline and diesel of deeper subsurface soil to assess potential impact to groundwater.</p> <p>RESPONSE 7: Draft Work Plan</p> <p>The DQO document specified field-screening samples for the compounds 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.</p> <p>RESPONSE 7: Revised Draft Work Plan</p> <p>Immunoassay will be used for field screen PAHs. Pesticides/PCBs will be analyzed by CLP laboratories so results can be compared to RBCs. See Data Quality Objectives Appendix L of the Phase II Revised Draft Work Plan for further details of the proposed sampling plan for Site 12.</p> <p>RESPONSE 8: Draft Work Plan</p> <p>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.</p> <p>The new upgradient well <u>is</u> indicated, on Figure A12-6b.</p>

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Region 4, Long Beach, California
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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.

COMMENT 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 5b: Revised Draft Work Plan

Site-specific COPCs are discussed in Appendix L of this plan

RESPONSE 5c: Draft Work Plan

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

RESPONSE 5c: Revised Draft Work Plan

The Phase I RI analytical results for TRPH are included in the Appendix L to the RI/FS Revised Draft Work Plan.

The location of sample 12_UGS suggests that the TRPH reported in this sample probably represents leaching of petroleum hydrocarbons (used to make asphalt binder material) into the soil underlying pavement at that location. Like other sample locations where this phenomenon was observed, TRPH was not identified in the sample collected at 2 feet depth.

For sample 12_DDX from Stratum 3 Draft Work Plan (Section A12.8.1) states that this was a surface sample judgmentally-placed where a tar-like substance was observed within the drainage ditch.

RESPONSE 6: Draft Work Plan

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

RESPONSE 6: Revised Draft Work Plan

The issue relates to the results of a surficial sample judgmentally placed in a tar-like substance observed in the drainage ditch at this site. The DQO for Site 12, presented as Appendix L to the Revised Draft Work Plan, discuss sampling of the tar-like substance.

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Originator: Joe Zarnoch, Department of Toxic Substances Control
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Date: 17 December 1993

RESPONSE 1a: Revised Draft Work Plan

Tank Farm No. 2, although located immediately adjacent to Site 13, is not a part of Site 13 and was not associated with drainage of waste heavy equipment engine and/or transmission oil onto the ground. Whether any of the tanks may or may not have contained waste oil at some point in the past, or whether they were leak tested in 1990 is not pertinent to surface soil impacted by waste oil within the confines of Site 13. Former fuel storage areas with multiple USTs such as Tank Farm No. 2 are designated for investigation and remediation under a separate UST program that will be conducted by the Navy at MCAS El Toro. While Phase I RI groundwater data suggests that some of these tanks have leaked fuels, leaking USTs are not associated with the activities that led to the definition of Site 13.

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

RESPONSE 1b: Draft Work Plan

This is not shown in this plan.

RESPONSE 1b: Revised Draft Work Plan

The location of SWMU 67, a covered former drum storage area, is shown in figures and maps for Site 13. According to the RFA, SWMU 67 has a curbed, concrete pad in good condition without evidence of cracking. There is no observable evidence nor were any reports located which suggest historic leaks or releases associated with this SWMU. As such, investigation of the SWMU itself is not included as part of the proposed Site 13 investigation. However, because the concrete pad is surrounded by native soil which may have been adversely affected by oil change activities, soil surrounding this SWMU will be sampled as part of the Site 13 investigations. The other two SWMUs, Nos. 217 and 218 are a UST and an oil/water separator. These are not identified specifically in the figures and maps because they will be investigated under a Navy UST program rather than the Phase II RI/FS. However, these two SWMUs are located within the boundaries of Unit 1 and because areal systematic sampling using a grid has been proposed for this site, sampling of soils adjacent to these structures will occur.

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Region 4, Long Beach, California
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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.

SITE 13 - OIL CHANGE AREA

COMMENT 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 8: Revised Draft Work Plan

Groundwater monitoring wells at Site 12 will be constructed on an as needed basis. Wells will only be constructed if it appears that the site is contributing to groundwater contamination. Please see Data Quality Objectives Appendix L of the Revised Draft Work Plan for further details of the proposed sampling plan for this Site.

RESPONSE 1a: Draft Work Plan

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.

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Originator: Joe Zarnoch, Department of Toxic Substances Control
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Date: 17 December 1993

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 3b: Draft Work Plan

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

RESPONSE 3b: Revised Draft Work Plan

Same response to comment 3a. Although all units at Site 13 are designated for early removal action, the Revised Draft Work Plan specifies that samples will be collected for metals if this site should revert to RI/FS status from removal action.

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

RESPONSE 3c: Draft Work Plan

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

Upgradient Area

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

RESPONSE 3c: Revised Draft Work Plan

Stratum 1

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

The TRPH results are discussed in the DQO for Site 13, (Appendix M to the Revised Draft Work Plan). As is the case for several other upgradient surficial samples, 13_UGS was collected beneath the pavement of a parking lot. Some leaching into the underlying soil of petroleum hydrocarbons that comprise asphalt binder material would not be unexpected. TRPH was not identified in the sample at 2 feet depth. The presence of TRPH in the surficial soil may be due to asphalt paving materials. As for the surficial and 5 foot depth samples at 13_DBMW49, the TRPH mostly likely resulted from the long term drainage of oil and associated lubricants from the heavy equipment serviced in the area that encompasses the sample location.

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Originator: Joe Zarnoch, Department of Toxic Substances Control
Region 4, Long Beach, California
Date: 17 December 1993

COMMENT 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.

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]."

COMMENT 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 2a: Draft Work Plan

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.

RESPONSE 2a: Revised Draft Work Plan

The above response is applicable to this plan.

RESPONSE 2b: Draft Work Plan

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

RESPONSE 2b: Revised Draft Work Plan

Not applicable to this plan.

RESPONSE 3a: Draft Work Plan

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

RESPONSE 3a: Revised Draft Work Plan

The reason for the elevated PAH detection limit cannot be given in the Revised Draft Work Plan. Tentatively, this site has been designated for a removal action.

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Region 4, Long Beach, California
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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.

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.

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.

RESPONSE 5a: Revised Draft Work Plan

The presence of fuel hydrocarbons in groundwater beneath Site 13 is noted in the DQO for Site 13, (Appendix M to the Revised Draft Work Plan). However, neither the Aero Club at Building 240 nor USTs (240-A or 797) located near that building appear to be associated with historic heavy equipment oil changing operations at Site 13. Further, possible leakage of the tanks is to be addressed under the MCAS El Toro UST investigations.

The Phase I RI data suggests that contamination resulting from historic oil change activities is limited to the upper 5-10 feet of soil within both units at this site. The Revised Draft Work Plan does not include construction of the new wells that were proposed in the Phase II RI/FS Draft Work Plan.

RESPONSE 5b: Draft Work Plan

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

RESPONSE 5b: Revised Draft Work Plan

Metals appear to be naturally occurring. Following the Phase II RI, risk and remedial analyses will be completed.

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Originator: Joe Zarnoch, Department of Toxic Substances Control
Region 4, Long Beach, California
Date: 17 December 1993

COMMENT 4: A13.9.1 and A13.10.1 Shallow Soil

a) 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 4a: Draft Work Plan

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

RESPONSE 4a: Revised Draft Work Plan

The Draft Work Plan response to this comment is applicable.

b) 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 4b: Draft Work Plan

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

RESPONSE 4b: Revised Draft Work Plan

The Draft Work Plan response to this comment is applicable.

COMMENT 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.

RESPONSE 5a: Draft Work Plan

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.

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Date: 17 December 1993

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 2b: Draft Work Plan

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 it should be remediated along with the rest of the site. However, areas not contiguous with the current site should be evaluated separately.

RESPONSE 2b: Revised Draft Work Plan

The above response is applicable to this plan.

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

RESPONSE 2c: Draft Work Plan

See the response to Comment #1 above.

RESPONSE 2c: Revised Draft Work Plan

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 2d: Draft Work Plan

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

RESPONSE 2d: Revised Draft Work Plan

The above response is applicable to this plan.

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 2e: Draft Work Plan

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

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of
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Originator: Joe Zarnoch, Department of Toxic Substances Control
Region 4, Long Beach, California
Date: 17 December 1993

SITE 14 - BATTERY ACID DISPOSAL AREA

COMMENT 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).

COMMENT 2: A14.4.2 SAIC Survey

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

RESPONSE 1: Draft Work Plan

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.

RESPONSE 1: Revised Draft Work Plan

A removal action is proposed for this site. However, the Revised Draft Work Plan does include sampling of both units if the removal action is considered not an appropriate response action.

RESPONSE 2a: Draft Work Plan

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

RESPONSE 2a: Revised Draft Work Plan

The above response is applicable to this plan.

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Originator: Joe Zarnoch, Department of Toxic Substances Control
Region 4, Long Beach, California
Date: 17 December 1993

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.

COMMENT 4: A14.9.1 and A14.10.1 Shallow Soil

a) Add analysis for soil pH at both strata.

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 3d: Draft Work Plan

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

RESPONSE 3d: Revised Draft Work Plan

While the comment is only applicable to a specific section in the Draft Work Plan, the TRPH results from the Phase I RI are included in the discussion of DQO for Site 14, presented as Appendix N to the Revised Draft Work Plan.

RESPONSE 4a: Draft Work Plan

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

RESPONSE 4a: Revised Draft Work Plan

Soil pH analysis is part of the Site 14 sampling.

RESPONSE 4b: Draft Work Plan

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

RESPONSE 4b: Revised Draft Work Plan

Appendix N of the plan samples are to be taken at 0, 2, 5, and 10 feet bgs and field screened for PAHs by immunoassay and metals in a mobile laboratory.

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Originator: Joe Zarnoch, Department of Toxic Substances Control
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RESPONSE 2c: Revised Draft Work Plan

Not applicable to this plan.

COMMENT 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 3a: Draft Work Plan

Agreed. This must have been a mistake.

RESPONSE 3a: Revised Draft Work Plan

This comment has been incorporated in to Appendix N of this plan.

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 3b: Draft Work Plan

Agreed. See comment above.

RESPONSE 3b: Revised Draft Work Plan

Not applicable to this plan.

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 3c: Draft Work Plan

Agreed.

RESPONSE 3c: Revised Draft Work Plan

The Revised Draft Work Plan includes provision for metals analyses at Site 14. In this plan, the two Phase I RI/FS strata have been combined into a single investigative unit that includes the pavement edge, the drainage ditch and the zone between these two areas.

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

RESPONSE 5b: Draft Work Plan

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

RESPONSE 5b: Revised Draft Work Plan

Well 18_TIC055 is screened over a depth interval of 300 to 496 feet depth. As such, pumping of nearby wells screened in deeper parts of the aquifer could induce a local downward gradient that would allow contaminants in a shallower horizon to migrate downward into deeper zones. However, pumping of 18_TIC055 would limit its potential as a conduit.

SITE 15 - SUSPENDED FUEL TANKS

COMMENT 1: A15.1.1 Setting and History

Indicate the location of SWMU/AOC 31 in figures.

RESPONSE 1: Draft Work Plan

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.

RESPONSE 1: Revised Draft Work Plan

The location of SWMU 31 is included in the smaller subarea of Unit 1 at Site 15, so separate designation is not necessary. Further, while additional sampling at this location has been proposed as part of the Revised Draft Work Plan, no historical evidence or documentation has been found which indicates that a release of any type ever occurred at this SWMU.

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COMMENT 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 5a: Draft Work Plan

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.

RESPONSE 5a: Revised Draft Work Plan

The distribution of carbon tetrachloride on a larger, basewide scale such as that presented in Figure 4-11 of the Draft Operable Unit 1 Remedial Investigation Report (Jacobs Engineering 1994) indicates the presence of an upgradient source in the vicinity of Bldgs. 296 and 297.

Site 14 is also not a source of the petroleum hydrocarbons detected in groundwater at well 18_DW350. First, the records do not identify this site in any context relating to fuels. Further, the well in question is slightly upgradient to cross-gradient from Site 14 based upon the current understanding of groundwater flow patterns, but not downgradient or semi-downgradient as suggested.

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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.

COMMENT 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 4a: Draft Work Plan

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

RESPONSE 4a: Revised Draft Work Plan

The Phase II QAPP discusses quality assurance procedures and how interferences are addressed.

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

RESPONSE 4b: Draft Work Plan

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.

Upgradient Area

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

RESPONSE 4b: Revised Draft Work Plan

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.

Discussion of TRPH results are included in the DQO for Site 15, presented as Appendix O to the Revised Draft Work Plan. Boring 15_GN1 is not an upgradient boring. As the figures and maps of this site indicate, it is located within the confines of the stained areas designated as Unit 1 in the Revised Draft Work Plan. The most plausible explanation for elevated TRPH in the surficial sample is residual petroleum hydrocarbons remaining from the documented leakage of diesel fuel at this location.

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COMMENT 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 2a: Draft Work Plan

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

RESPONSE 2a: Revised Draft Work Plan

This area is used for storage of camouflage-painted military hardware (enclosed equipment trailers, trailer and portable generators) and tarp-covered machine parts/equipment on pallets. Such staining is not evident today

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 2b: Draft Work Plan

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

RESPONSE 2b: Revised Draft Work Plan

Not applicable to this plan.

COMMENT 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.

RESPONSE 3: Draft Work Plan

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.

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.

RESPONSE 3: Revised Draft Work Plan

This plan has added the area of SWMU/AOC 273 and the drainage ditch to Site 15 for the Phase II RI as Unit 2. Please see Data Quality Objectives Appendix O of the Revised Draft Work Plan for further details of the proposed sampling plan for this Unit.

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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.

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

RESPONSE 1a: Revised Draft Work Plan

The locations of the secondary pit and the extinguisher training pit are identified in the Site Plan Map for Site 16 included in both the Data Quality Objectives Appendix P of the Revised Draft Work Plan.

RESPONSE 1b: Draft Work Plan

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.

RESPONSE 1b: Revised Draft Work Plan

No fuels are stored in tanks at the site. Flammable liquids used for fire training exercises were delivered to the site by a tanker truck.

RESPONSE 1c: Draft Work Plan

Agreed.

RESPONSE 1c: Revised Draft Work Plan

A statement has been included in the DQO for Site 16, presented as Appendix P to the Revised Draft Work Plan, indicating that the current crash crew pits will be evaluated under the Base Closure Plan.

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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.

COMMENT 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 well 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.

SITE 16 - CRASH CREW PIT NO. 2

COMMENT 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.

Another potential source is leakage of motor oil or transmission fluid onto the ground from automobiles that have parked at this location since the suspended fuel tanks were removed.

RESPONSE 5: Draft Work Plan

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 feet bgs (the subsurface soil cutoff point). These samples did not provide any evidence that Site 15 contributed to regional groundwater contamination.

RESPONSE 5: Revised Draft Work Plan

The above response is applicable to this plan.

RESPONSE 1a: Draft Work Plan

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.

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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.

COMMENT 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.

COMMENT 5: A16.9.2 and A16.10.2 Subsurface Soil

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

RESPONSE 3: Revised Draft Work Plan

The TRPH, TFH-gasoline, and TFH-diesel results, including those for deep boring 16_AB213 are discussed as part of the DQO for Site 16, presented as Appendix P to the Revised Draft Work Plan. Further, the Revised Draft Work Plan proposes to analyze samples for TFH-gasoline and -diesel as well as BTEX in both shallow soils and deeper soils. Because it is evident that deeper soils are impacted at this site, new deep borings will be drilled to assess the horizontal and vertical extent of fuel contamination in the subsurface.

RESPONSE 4: Draft Work Plan

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.

RESPONSE 4: Revised Draft Work Plan

During the Phase II RI selected soil samples will be analyzed for dioxins and dibenzofurans. Please see Data Quality Objectives Appendix P of the Revised Draft Work Plan for further details of the proposed sampling plan for this Site 16.

RESPONSE 5a: Draft Work Plan

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.

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COMMENT 2: A16.4.2 SAIC Survey

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

RESPONSE 2a: Draft Work Plan

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

RESPONSE 2a: Revised Draft Work Plan

The above response is applicable to this plan.

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

RESPONSE 2b: Draft Work Plan

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

RESPONSE 2b: Revised Draft Work Plan

Based on a field review of this site, what is being called a vertical tank in all of these photographs is an aircraft control tower that is still present today.

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 2c: Draft Work Plan

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

RESPONSE 2c: Revised Draft Work Plan

Not applicable to this plan.

COMMENT 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:

RESPONSE 3: Draft Work Plan

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.

Stratum 1

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SITE 17 - COMMUNICATION STATION LANDFILL

COMMENT 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 1: Draft Work Plan

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

RESPONSE 1: Revised Draft Work Plan

The area to be included in the field investigations incorporates anomalies identified in both the SAP amendment, and the SAIC Report that were in the proximity of the landfill, employee interviews, Phase I RI data, and previous surface geophysical surveys. Please refer to the Revised Draft Work Plan Appendix C for further details.

COMMENT 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 2: Draft Work Plan

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

RESPONSE 2: Revised Draft Work Plan

TRPH is included as a COPC to be investigated during Phase II field activities.

COMMENT 3: A17.9.1 and A17.10.2 Shallow Soil and A17.9.2 and A17.10.3 Subsurface Soil

Stratum 2 (Stained Area)

a) 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 3a: Draft Work Plan

Agreed.

RESPONSE 3a: Revised Draft Work Plan

Figure Q-2 in this plan illustrates the sampling locations.

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RESPONSE 5a: Revised Draft Work Plan

This plan proposes field screening of all samples, with selected samples sent off-base for fixed-base CLP analyses.

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

RESPONSE 5b: Draft Work Plan

Agreed.

RESPONSE 5b: Revised Draft Work Plan

This drain line is mentioned in the DQO for Site 16, presented as Appendix P to the Phase II RI/FS Revised Draft Work Plan. In addition, figures and maps for Site 16 included in the Revised Draft Work Plan and the Revised Draft SAP illustrate the locations of the secondary pit (the residual fluids pit) and the third pit used for fire training with hand-held equipment.

COMMENT 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 6: Draft Work Plan

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.

RESPONSE 6: Revised Draft Work Plan

The former and/or current UST(s) located near the Aero Club may be contributing to the benzene plume identified in the vicinity of Site 13 and Tank Farm No. 2, but (they) are approximately a half mile west of Site 16 in an oblique direction (roughly 45° to that the local groundwater flow) and these UST(s) have no relationship to the historic training activities conducted at Site 16. As a result, the Aero Club UST(s) is(are) not discussed in relation to Site 16. Neither of the wells is considered necessary at this time.

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year(s) and the results. Indicate the location of the tank farm (and individual tanks) in figures.

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 SMWU/AOC 10 could be potentially contaminated with petroleum hydrocarbons; TFH-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 1b: Draft Work Plan

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.

RESPONSE 1b: Revised Draft Work Plan

This area has been designated Unit 4 at Site 19 and a single judgmentally placed boring will be used to collect confirmation samples.

COMMENT 2: A19.3 Chemicals of Potential Concern

a) In Figure A19-2c, the COPCs for 19_AB218 are shown for 19_2FBI. The COPCs for 19_2FBI are not shown. Please make all necessary changes.

RESPONSE 2a: Draft Work Plan

Agreed.

RESPONSE 2a: Revised Draft Work Plan

COPCs for Site 19 are included in the Revised Draft Work Plan.

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 2b: Draft Work Plan

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.

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b) 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, U.S. EPA, September 1993*).

COMMENT 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.

Site 19 - Aircraft Expeditionary Refueling (ACER) Site

COMMENT 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

RESPONSE 3b: Draft Work Plan

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.

RESPONSE 3b: Revised Draft Work Plan

This comment has been included in the Revised Draft Work Plan Appendix Q. Stratum 2 (Stained Area) has been included in the field investigations for the landfill unit.

RESPONSE 4: Draft Work Plan

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.

RESPONSE 4: Revised Draft Work Plan

This comment has been incorporated in the discussion of the proposed groundwater monitoring well layout contained in the Revised Draft Work Plan.

RESPONSE 1a: Draft Work Plan

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

RESPONSE 1a: Revised Draft Work Plan

The above response is applicable to this plan.

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COMMENT 3: A19.4.1 EPA Survey

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

COMMENT 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.

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 2b: Revised Draft Work Plan

The specified metals are included as COPCs in the Revised Draft Work Plan.

RESPONSE 3: Draft Work Plan

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

RESPONSE 3: Revised Draft Work Plan

Correct Building numbers are shown on Figure 1-3 of this plan.

RESPONSE 4a: Draft Work Plan

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.

RESPONSE 4a: Revised Draft Work Plan

The above response is applicable to this plan.

RESPONSE 4b: Draft Work Plan

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

RESPONSE 4b: Revised Draft Work Plan

Not applicable to this plan.

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areas of the drainage ditch formerly "stained black with oil" are no longer visible at the site and vegetation growing in the ditch exhibits signs distress. Therefore, these formerly stained areas are not delineated on the figures for Site 20. Data from the Phase I RI sample locations, combined with data from sample locations proposed in the Revised Draft Work Plan, will provide coverage of the drainage ditch including these formerly stained areas.

COMMENT 2: A20.3 Chemicals of Potential Concern

RESPONSE 2a: Draft Work Plan

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

Agreed.

RESPONSE 2a: Revised Draft Work Plan

SWMU 156, the 600-gallon waste oil UST is not being investigated as part of the RI/FS, it will be addressed by the Navy under a separate UST program. COPCs for the stained soil (Unit 3) overlying the UST are identified in the Revised Draft Work Plan. COPCs for the remaining SWMUs, which are all located within the boundaries of Unit 4, are those identified for Unit 4 in the Revised Draft Work Plan. Separate lists for the SWMUs are not provided because the SWMUs are not being investigated individually.

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 2b: Draft Work Plan

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

RESPONSE 2b: Revised Draft Work Plan

The above response is applicable to this plan.

COMMENT 3: A20.4.2 SAIC Survey

RESPONSE 3: Draft Work Plan

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]."

Insert the phrase "in the vicinity of Site 20" after the word "concern".

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COMMENT 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 do indicate PAH contamination at a depth to at least 2 feet.

Site 20 - Hobby Shop

COMMENT 1: A20.L1 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 5: Draft Work Plan

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.

RESPONSE 5: Revised Draft Work Plan

Appendix R of this plan explains the rationale of sampling and analysis for this site.

RESPONSE 1: Draft Work Plan

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.

RESPONSE 1: Revised Draft Work Plan

The locations of the 600-gallon waste oil UST, the oil/water separators, and the drum storage SWMU/AOCs are indicated on figures for Site 20 included in the Revised Draft Work Plan. The paved entry driveway and courtyard area are also designated. The

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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.

c) 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.

Site 21 - Materials Management Group, Building 320

COMMENT 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 5b: Revised Draft Work Plan

Although sampling strategies for Units 2 and 3 at Site 20 is presented in the Revised Draft Work Plan, both units have already been designated for early removal action. Handling of the waste oil UST will be addressed by the Navy under a separate UST program, not as part of this RI/FS.

RESPONSE 5c: Draft Work Plan

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).

RESPONSE 5c: Revised Draft Work Plan

The DQO for Site 20, presented as Appendix S to the Revised Draft Work Plan, include provision for sampling and analysis of metals and PAHs as wells as PCBs, TFH-gasoline and -diesel plus volatile organic compounds (VOCs) at Unit 4. Further, the presence of lead at a concentration exceeding the RBC at the catch basin is also discussed in the DQO.

RESPONSE 1: Draft Work Plan

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.

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RESPONSE 1: Revised Draft Work Plan

The above response is applicable to this plan.

COMMENT 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 2: Draft Work Plan

Insert the phrase "in the vicinity of Site 21" after the word "concern".

RESPONSE 2: Revised Draft Work Plan

Not applicable to this plan.

COMMENT 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 3: Draft Work Plan

TRPH was not evaluated during the DQO process, as agreed by the team.

RESPONSE 3: Revised Draft Work Plan

The TRPH was detected in a surficial sample collected beneath the asphalt pavement of a parking lot across the street from Site 21. The TRPH most likely represents natural leaching of hydrocarbons to soil from the asphalt binder material which is composed to petroleum hydrocarbons. As a result, it does not appear to be associated with historic Site 21 activities.

COMMENT 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 4: Draft Work Plan

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.

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Site 22 - Tactical Air Fuel Dispensing System

COMMENT 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 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 "liquefied" 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.

COMMENT 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 4: Revised Draft Work Plan

The above response is applicable to this plan.

RESPONSE 1: Draft Work Plan

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.

RESPONSE 1: Revised Draft Work Plan

These documented releases in Unit 1 were discussed and evaluated as part of the DQO for Site 22, presented in Appendix U to the Revised Draft Work Plan. The Soil Gas Survey results did not identify TFH or BTEX in soil gas samples collected from throughout the impacted area located south southwest of Unit 1. These data, and interview comments describing collection of petroleum hydrocarbons in Bee Canyon Wash, suggest that most of the identified fuel releases flowed into the storm sewer system and then into Bee Canyon Wash rather than soaking through pavement into the underlying soils south southwest of Unit 1.

Additional sampling in this area will be conducted as part of the Site 24 VOC Source Investigation. These additional data will be assessed along with the existing soil gas survey data.

RESPONSE 2: Draft Work Plan

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.

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RESPONSE 3: Revised Draft Work Plan

Not applicable to this plan.

COMMENT 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 4: Draft Work Plan

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.

RESPONSE 4: Revised Draft Work Plan

Lead is identified as exceeding the RBC at Unit 4 in the DQO discussion for Site 20, presented as part of Appendix S to the Revised Draft Work Plan.

COMMENT 5: A20.9.1 and A20.10.1 Shallow Soil

a) 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 5a: Draft Work Plan

Agreed. As mentioned above, this stratum is planned for removal action.

RESPONSE 5a: Revised Draft Work Plan

Matrix interference, in this case from petroleum hydrocarbons, is the most likely cause.

b) 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

RESPONSE 5b: Draft Work Plan

Agreed. Please note that this stratum is planned for a removal action.

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shallow soil located beneath 14-inches of high-strength concrete aircraft apron. While No Further Response Action Planned is recommended for the area (Unit 2) based upon evaluation of all the soil and soil gas data evaluated to date, additional sampling in the immediate area of Site 22, Unit 2, will take place as part of the proposed scopes of work for Sites 10 and 24.

COMMENT 5: A22.10 Phase II Remedial Investigation Design

RESPONSE 5: Draft Work Plan

Strata 1 and 2

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.

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 5: Revised Draft Work Plan

No Further Response Action Planned is proposed for Unit 2. At Unit 1, samples have and/or will be collected from the former fuel bladder revetment areas.

The issue of a road east of Unit 2 has not been raised previously and despite staining, would seem to have little in common with Site 22. The addition of such a road to Site 10, where waste oils were spread for dust control, would seem more appropriate. In either case, road stains that are now over 40 years old and if still present, under 14-inches of concrete, would seem to be a non-issue.

Site 24 - Potential VOC Source Area and Site 25 - Major Drainages

RESPONSE : Draft Work Plan

These sites will be evaluated in the soil gas survey work plan.

Agreed.

RESPONSE : Revised Draft Work Plan

Portions of these sites were investigated during a soil gas survey. The results and influences on the Phase II work are discussed in Appendix W of this plan.

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DRAFT SAMPLING AND ANALYSIS PLAN

The Draft SAP contains information that is not referred to in the rest of the document, inferring that the Draft SAP was not completely tailored for this particular work plan. Any information included in the Draft SAP that is not applicable to the rest of the document should be omitted. There are numerous sections that have no relevance to the proposed investigation; these include, but are not limited to, sections on packer installation, video logging, and procedures for multiple-port well installation. The Draft SAP and the rest of the document must be reconciled so that they are consistent with one another.

NOTE: The following comments were prepared by Navy CLEAN II to provide information on the Phase II RI/FS Draft Field Sampling Plan.

COMMENT 1: Section 4.3 Quality Control

For groundwater samples, we recommend the use of field blanks as a check on ambient airborne contamination for those wells located at or near tarmacs with significant jet traffic during sampling. Field blanks should consist of purified water that is taken into the field (during sampling and at the specific well location) and transferred from the water container to the individual sample vial (s).

RESPONSE 1: Draft Field Sampling Plan

The Draft Field Sampling Plan will include provision for collection of a blank intended to provide data on ambient airborne contamination when groundwater samples will be collected from wells located adjacent to runways, taxiways, etc. with significant jet traffic.

COMMENT 2. Section 4.3.1 Field Duplicate Samples

a) Please explain the second sentence "For soil samples, duplicate samples will be collected by splitting samples, provided that sufficient sample volume can be collected". See comments below.

RESPONSE 2a: Draft Field Sampling Plan

Section 4.4.1 in the Draft Field Sampling Plan indicates that owing to the heterogeneity of soil samples, duplicate samples will be prepared by the laboratory. Soil samples will be submitted to the laboratory in 2-inch by 6-inch stainless steel sleeves.

b) It does not appear that a bailer will be used to collect water samples in Phase II, however, it is included in the discussion. If used, please indicate that volatile organic analysis (VOA) bottles will be filled with water from the same bailer volume.

RESPONSE 2b: Draft Field Sampling Plan

Groundwater samples proposed in the Draft Field Sampling Plan will not be collected using bailers and no discussion of bailer sampling procedures is included.

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COMMENT 3. Section 4.3.2 Rinsates and Equipment Blanks

Please indicate that all preservatives used in the field will be included in the rinsate and equipment blanks.

COMMENT 4. 4.3.3 Trip Blanks

A trip blank should be included in each cooler shipped to the laboratory to account for any contamination which may occur from handling.

COMMENT 5. Table 5-0 Sample Containers, Preservatives and Holding Times

a) Indicate that water samples for ammonia will be cooled to 4°C and that the holding time is < 28 days. Indicate that water samples for nitrate/nitrite will be cooled to 4°C and that the holding time is < 48 hours.

b) Indicate that polyethylene containers will be provided with polypropylene closures. Indicate that glass containers (except VOA vials) will be provided with Teflon-lined closures.

RESPONSE 3: Draft Field Sampling Plan

As specified in Section 4.4.2 of the Draft Field Sampling Plan, all preservatives used in the field will be included in the equipment rinsate blanks submitted to the laboratory.

RESPONSE 4: Draft Field Sampling Plan

As specified in Section 4.4.3 of the Draft Field Sampling Plan, one trip blank will be included in each cooler shipped to the laboratory whenever the samples include analyses for VOCs.

RESPONSE 5a: Draft Field Sampling Plan

Table 9-4 in the QAPP indicates that groundwater and surface water samples for analysis of ammonia will be cooled to 4°C and the holding time is 28 days.

As Table 9-4 in the QAPP indicates, groundwater and surface water samples for analysis of nitrate/nitrite will be cooled to 4°C and the holding time is 28 days. The issue of holding time is apparently a point of confusion and is based upon the method used for analysis of nitrate/nitrite. For the aforementioned QAPP, nitrate/nitrite is proposed as a single analysis using EPA Test Method 353.2, which specifies a 28-day holding period. If the nitrate and nitrite analyses were performed separately using other EPA analytical methods, the allowable maximum holding time is then only 48 hours as suggested in this comment.

RESPONSE 5b: Draft Field Sampling Plan

The QAPP indicates that all sample containers will be provided by the laboratory which will follow the prescribed CLP Sample Bottle Repository Program procedures. Further, it states that all glass containers (except VOAs) will be provided with Teflon-lined closures. Stating that a polyethylene bottle will be provided with a polypropylene cap is a statement of the obvious and is unnecessary. Polypropylene caps are standard for polyethylene bottles.

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COMMENT 6. Section 6.0 Field Methods and Procedures

a) In an appropriate section, please indicate that: 1) regulatory representatives will be notified at least two weeks in advance of the date for the initiation of fieldwork and 2) base passes will be issued in advance to regulatory representatives for the duration of the fieldwork.

b) In an appropriate section, indicate that soil samples will be discrete samples and not composite samples, except for immunoassay samples. If immunoassay techniques are used, collect composite samples for immunoassay analysis from 0.1 to 0.5 feet bgs.

COMMENT 7. Section 6 2.4.3 Procedure - Downhole Geophysical and Video Logging

Please indicate that at a minimum, the following borehole geophysical methods shall be used: spontaneous potential, guard resistivity, natural gamma and caliper.

COMMENT 8. 6.2.5 Surface-Water Quality Sampling

a) It is stated that surface water samples will be collected when there is adequate stream flow. Explain the definition of "adequate stream flow". How much water must be flowing before a sample is collected? Indicate that sampling will occur during a "first storm" event, if possible.

RESPONSE 6a: Draft Field Sampling Plan

The issues raised here have been addressed during meetings held over the last several months. First, advance regulatory agency notification of project activities, whether they are meetings or field operations is already in place as a standard procedure. And once the Phase II RI/FS actually commences, regular memoranda and meetings will be held as frequently as twice monthly to discuss project status and summarize planned upcoming activities. Second, the base passes and vehicle permits must be obtained by each agency or subcontractor; individual written requests to obtain long-term vehicle passes and/or base access badges are needed.

RESPONSE 6b: Draft Field Sampling Plan

All proposed soil samples designated for collection in the Draft Field Sampling Plan, including immunoassay samples, will be discrete samples and not composite samples, based upon the assumption that a 2-inch by 6-inch stainless steel sleeve represents a discrete sample interval (i.e., 0-0.5 feet or 5-5.5 feet).

RESPONSE 7: Draft Field Sampling Plan

Section 6.8.1 of the Draft Field Sampling Plan describes the proposed borehole geophysical methods, which are spontaneous potential, induction logging, natural gamma, and caliper. These correspond to the methods specified in the comment, with induction logging run in place of conventional resistivity logging.

RESPONSE 8a: Draft Field Sampling Plan

This comment is only applicable to text in the Phase II Draft Field Sampling Plan. The section covering surface water sampling states that surface water samples will be collected when there is stream flow. A minimum flow rate is not specified because

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b) Although it is understood that ephemeral and intermittent streams require special consideration because of rapid changing stage, discharge, concentration and loads, samples should) if possible, be collected using a standard multi-vertical, depth-integrated method to obtain the most representative sample. Single-vertical, dip, and other types of point sampling methods are not recommended except during extreme flow conditions.

c) It is recommended that a churn splitter be used to subsample a composite sample. Organic samples should not be composited in a plastic churn splitter because of possible contamination from or adsorption to the plastic. Although it may not be possible to decontaminate collection containers in the field because of adverse weather conditions it is still possible to thoroughly rinse containers with sample water or use disposable containers or the actual sample container.

samples will be collected if any flow is observed. Samples will be collected during a "first storm" event, if possible.

RESPONSE 8b: Draft Field Sampling Plan

The section covering surface water sampling procedures in the Phase II Draft Field Sampling Plan states that a multi-vertical, depth integrated sampling method will be used where feasible and as appropriate. Exceptions to this sampling procedure would include peak or near peak storm flow and low flow conditions. During very high flows (storm peak or near peak conditions), when turbulent flow conditions and high velocities are likely to occur, it may not be feasible physically or appropriate from a health and safety viewpoint to conduct sampling as specified. Under such conditions, the field personnel performing the work will use their professional judgment to implement a sampling approach that reflects the flow conditions within the constraints of any safety limitations. When surface water cross-section depths are less than one foot (i.e., during low-flow conditions), the dip sampling method will be used. Further, when the surface water cross-section width is also less than one foot, a single vertical sampling location will be considered representative and therefore acceptable.

RESPONSE 8c: Draft Field Sampling Plan

When a multi-vertical, depth integrated sampling method is used for surface water sampling at MCAS El Toro, the sample water will be composited in a churn splitter, then distributed to individual sample containers as appropriate. VOC samples will not be composited because mixing in the churn splitter could lead to volatilization of constituents. Sampling equipment such as collection bottles or the churn splitter will be decontaminated in the field between sampling locations using the wash and rinse method described in the Draft Field Sampling Plan. If field conditions are such that decontaminated sampling equipment does not completely dry during the interval between samples, the equipment will be rinsed with sample water from the next location before sample collection begins there.

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d) This section states that "Dedicated supplies will be stored at the field administration office and will not be used for other sampling efforts". Does this include field instruments such as pH and specific conductance meters? If not, will these meters be readily available and will there be sufficient personnel to calibrate all field meters at the sampling site?

COMMENT 9: Section 6.3 Soil Sampling and Drilling and Subsections

a) Use a decontaminated shovel to clear the surface soil sample location to 0. 1 feet bgs and instead of using a trowel to collect the sample, use a coring sampler with a non-plastic liner to collect an undisturbed soil sample. This method can be used for all surface soil sample types, including VOCs. A plastic liner may be used if the sample is not analyzed for organics. Describe how the liner will be sealed for sample storage and transport. If recovery is a problem, use the proposed method. After the surface soil sample has been collected, a trowel can be used to collect enough soil within or below the coring sampler depth for a field determination of headspace vapor. Please make all necessary changes in Section 6.3.4.3 (Procedure Sampling with a Hand Auger).

b) Although it is acceptable to collect soil samples at predetermined depths, in addition, surface/subsurface samples should also be collected where VOC field monitoring devices register possible contamination and subsurface samples should be collected at changes in lithology.

RESPONSE 8d: Draft Field Sampling Plan

Specific pH and conductivity meters will not be dedicated solely to surface water sampling. Field calibration is a standard protocol at all surface or groundwater sampling locations and will be performed as part of the setup procedure in preparation for sample collection. As Section 6.5 in the Draft Field Sampling Plan indicates, collection of surface water samples, owing to the intermittent nature and short duration of runoff events, will take priority over other activities (i.e., "other work will stop during the period of sampling.") so the necessary pH and conductivity monitoring instruments and personnel to collect the samples will always be available.

RESPONSE 9a: Draft Field Sampling Plan

Surficial samples will be collected using a drill rig mounted modified California sampler or a hand-held core sampler equipped with a 2-inch by 6-inch sleeve. Stainless steel sleeves will be used for sample collection. A trowel will only be used if the condition of the surficial soil is such that it cannot be retained in the stainless steel sleeve (i.e., such as loose, dry sand).

RESPONSE 9b: Draft Field Sampling Plan

The Phase II Draft Field Sampling Plan proposes sampling both at 5-foot intervals and in some cases continuous soil coring. While field VOC monitoring will be conducted, once the augers have penetrated below about 5 feet depth, reliable VOC field readings will only be obtainable when subsurface soil samples are recovered. Whether the sampling is continuous coring or 5-foot spaced drive samples, recover will only be at 5-foot intervals. While field VOC monitoring of a 5-foot core would allow determination of depth specific VOC concentrations (and therefore delineation of contaminated intervals, exposure of the soil to obtain the VOC readings and handling

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of the soil core to extract a sample for laboratory analysis would probably result in a significant loss of VOC's from the sample. Such losses would certainly represent a much higher percentage of the actual undisturbed sample concentration than any losses from samples collected and sealed in 2-inch by 6-inch stainless steel sleeves. As with many decisions, collection of drive samples at 5-foot intervals represents the best compromise between complete lithologic characterization and/or a complete field VOC monitoring profile versus obtaining representative sample analytical results.

While some continuous coring will be conducted during the Phase II RI/FS field investigations, most samples will be collected at 5-foot intervals during auger drilling. Using this standard method, defining the specific depths at which lithologic changes occur may not always be possible based on the 1.5 foot samples recovered from every 5 foot interval. In many cases, it may depend instead upon the auger drilling rig operator's ability to sense a change in drilling conditions. In discussions with the regulatory agency representatives between July and October 1994, a proposal was put forward to conduct a preliminary stratigraphic investigation in an attempt to define subsurface changes in lithology beneath each site and to possibly correlate this information across MCAS El Toro. The investigation as proposed would have involved drilling and geophysical logging of a series of mud rotary boreholes (the mud rotary method necessary for the subsequent geophysical logging), performing a series of cone penetrometer test borings, and correlating these data with that collected previously during the Phase I RI. The result of such an investigation provides advance knowledge of the depths where lithologic changes occurred, providing the ability to tailor the Phase II RI/FS soil sampling program to better document subsurface conditions and to target intervals where contamination would likely be observed.

c) The draft SAP states that the modified California or split-spoon sampler will be fitted with up to six individual sleeves. Indicate the length of the sampler that will be used as well as the diameter of the sleeves.

Please indicate that at least a 2 foot sampler (with four sleeves) will be used to collect soil samples when hollow-stem auger, air-assisted or mud rotary drilling methods are used (please make the necessary changes to Section 6.3.6.3 (Procedure - Mud-Rotary). Indicate that the next-to-the-deepest sleeve will be used for VOC analysis, when applicable.

RESPONSE 9c: Draft Field Sampling Plan

Draft Field Sampling Plan addressing hollow-stem auger, air-rotary, and mud-rotary drilling methods will state that 24-inch long modified California or split-spoon samplers, equipped with four 2-inch diameter by 6-inch long stainless steel sleeves will be used for collection of soil samples during borehole drilling. However, if it becomes impossible to drive the sampler a full 24-inches, the field geologist may elect to allow the driller to use the shorter 18-inch modified California sampler. The Plan specifies that the bottom sleeve is to be used for field screening (portable instruments and/or

March 31, 1995

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of

*Revised Work Plan, Draft Field Sampling Plan and Quality Assurance Project Plan
Phase II RI/FS at MCAS El Toro, California*

Originator: Joe Zarnoch, Department of Toxic Substances Control
Region 4, Long Beach, California
Date: 17 December 1993

d) The document proposes mud rotary drilling for the installation of monitoring wells. The problems associated with mud rotary drilled boreholes for the purpose of environmental groundwater monitoring can often outweigh the benefits. If elevated concentrations of contamination are encountered, the drilling fluid may become contaminated. If this occurs, contamination can be transported throughout the entire section of the borehole, in addition, large amounts of drilling fluids would have to be properly disposed. Monitoring wells constructed in mud rotary drilled boreholes can also be difficult to develop properly. If a monitoring well is converted into an extraction well, proper well development can be a significant factor to the efficiency of an extraction well.

In addition, it is often not possible to identify depth to groundwater using a mud rotary rig while drilling the borehole. It is recommended to implement either hollow-stem auger or air drilling techniques for as many monitoring wells as possible. The Draft SAP indicates that hollow-stem augers have been used for holes as deep as 180 feet bgs. Although it is acknowledged that depth to groundwater can be depicted using borehole geophysical logs, it is preferred to continuously core the borehole using one of the above recommended drilling methods. If collecting continuous cores is not feasible, then it is strongly recommended to collect drive samples at a minimum of every ten feet, at obvious lithology changes, and at least one at the screened interval. Collecting soil samples will supplement the limited stratigraphic data, aid in later modeling efforts, and provide valuable information to evaluate the hydrogeology beneath the Station.

e) A screen slot size of 0.02 inch and #3 Monterey sand may not always be the appropriate choice for a monitoring well filter pack. An on-site sieve analysis should be performed prior to well installation and before choosing a slot/filter pack size.

mobile laboratory) and lithology. The next-to-the-deepest sleeve will be used for VOC and other laboratory analyses, while the third from the bottom sleeve will be used for lithologic description. The top sleeve, which often contains sloughed material, will also be examined for lithology.

RESPONSE 9d: Draft Field Sampling Plan

While Draft Field Sampling Plan includes provision to use the mud rotary drilling method for selected boreholes, they would be drilled using the mud rotary method to maintain stability of the open borehole and to provide a suitable drilling fluid for running downhole geophysical logs. The ability to geophysically log selected boreholes is the primary reason for selection of this drilling method. These boreholes are not proposed for conversion to groundwater monitoring wells. The Plan proposes to use hollow-stem auger and/or air-rotary drilling methods at locations where groundwater wells are to be installed. However, if these drilling methods prove ineffective at some sites owing to potential problems such as heaving sands, it could become necessary to use the less-satisfactory mud rotary method.

RESPONSE 9e: Draft Field Sampling Plan

Use of on-site sieve analysis for determining well screen slot size and filter pack gradation is incorporated.

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Originator: Joe Zarnoch, Department of Toxic Substances Control
Region 4, Long Beach, California
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f) Provide detailed figures showing the construction of a typical auger, air drilled, and mud rotary drilled monitoring well.

RESPONSE 9f: Revised Draft Work Plan

Construction details of a typical monitoring well proposed for installation under the Draft Field Sampling Plan are presented in Section 6.

g) Provide a figure showing all methods that may be used for surface completing of well heads.

RESPONSE 9g: Draft Field Sampling Plan

The Plan in Section 6 presents details for above ground and below ground (flush-grade) well completion methods.

h) The proposal for well annular concrete grout seals (with an optional 5 percent bentonite additive) from the top of the bentonite transition seal to land surface is not acceptable. It is strongly recommended to use a pure bentonite grout for the entire seal (top of filter pack to land surface). Concrete seals have a tendency to shrink and crack, possibly creating a conduit to the water table.

RESPONSE 9h: Draft Field Sampling Plan

The use of a bentonite seal to ground surface rather than a cement grout seal is not acceptable to the Navy, particularly where the well will be installed through asphalt or concrete roadways and aircraft parking aprons or taxiways. Such completions will not provide the necessary structural support for the traffic box and/or well casing, which could result in a well casing failure or worse, damage to an aircraft, if a plane were to run over such a well completion. While cement grout may shrink and crack, particularly at the surface or in the shallow subsurface, it is difficult to visualize the propagation of a continuous crack or fracture through cement grout extending from ground surface to the water table. Confined at depth and under pressure (from the weight of the overlying cement grout), the grout sets in a more consistent manner that largely precludes development of the cracks or fractures commonly observed at ground surface.

COMMENT 10. Section 6.4.11.3 Procedure - Field Filtration of Groundwater Samples

RESPONSE 10: Draft Field Sampling Plan

Groundwater should be sampled and analyzed for total (unfiltered) and dissolved (filtered) metals.

The Draft Field Sampling Plan proposes to collect groundwater samples for both total (unfiltered) and dissolved (filtered) metals. The proposed pre-washing procedure for the sample filters will be incorporated if manufacturer's guidelines are not available. Precautions will be taken to minimize turbidity during groundwater sampling events. These precautions will include maintenance of low pumping rates during purging and sampling as well as monitoring for turbidity throughout.

For filtered samples, indicate that the manufacturer's guidelines for the discard volume for the type of filter to be used will be followed. Indicate that if manufacturer's guidelines are not available, the filter will be pre-washed with

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Region 4, Long Beach, California
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distilled water and a volume of groundwater equal to two times the capacity of the filtering device must be passed through the filter and discarded before samples are collected.

For unfiltered samples, indicate that extra precautions will be taken to minimize sample turbidity, including the use of very low-flow pumps for purging and sampling. Turbidity should be carefully monitored and reported along with the sample results. If necessary, filtered particles can then be analyzed by electron microscopy and/or x-ray spectroscopy to further aid in the evaluation of whether or not the particles are actually mobile in the aquifer.

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Originator: Joe Broderick, California Regional Water Quality Control Board
Santa Ana Region, Riverside, California
Date: 17 December 1993

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

General Comment:

The work plans are designed to take the results of the Phase I investigation and apply the resultant risk (or appropriate factor) to determine the level and media for Phase II effort at individual sites. Our problem with application of a health based risk approach at this site is that the principle demonstrated threat is to an environmental receptor; groundwater. If you apply the Phase I data using the Marine Corps/Navy's modeling (or approach), it will not predict or explain the groundwater VOC plume as presently defined. Therefore, sources of the plume and possible other significant soil contamination, at depth associated with various sites are yet undiscovered. We are not certain and do not basically agree with the application that the resultant risk and Phase I data should be such integral factors in determining sampling locations (or depth) for the Phase II investigation.

Draft Work Plan Specific Comments:

4.9.2.3 Considerations on Physical tests and Vadose Zone Modeling

Model boundary parameter sensitivity requires extensive known data/information to base engineering/modeling assumptions on to predict site characteristics through modeling. This normally requires an extensive data gathering effort in order to input proper model boundary parameters. The Phase I Remedial Investigation data was collected prior to the proposal of using vadose zone modeling to predict site conditions Phase II does not propose to collect data for modeling specifically necessary for the establishment of proper model boundary parameters.

RESPONSE: Revised Draft Work Plan

The basis for the Revised Draft Work Plan included the Phase I RI data, RCRA Facility Assessment, Soil Gas Survey, aerial photographs, and employee interviews. Four sampling designs are proposed which will allow flexibility in determining sampling location, depending on site conditions.

RESPONSE: Revised Draft Work Plan

Soil samples will be analyzed for additional geotechnical parameters such as permeability and grain-size distribution at sites where modeling may be used.

RESPONSE TO REGULATORY AGENCY COMMENTS
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Originator: Joe Broderick, California Regional Water Quality Control Board
Santa Ana Region, Riverside, California
Date: 17 December 1993

4.10.2.3 Boundary Conditions

Gas Exchange Between the Lowest Cell and the Groundwater

We disagree with your assumption that the water table is impervious to gaseous diffusion. It is commonly held the opposite is true, VOCs move from groundwater into the unsaturated soils and/or from the unsaturated soils into the groundwater. As an example we understand that a groundwater VOC plume has been mapped at a Superfund site in Arizona using this phenomenon and near surface gas collection sampling.

4.10.2.4 VLEACH Assumptions

Preferred Pathways to Flow

It is known that preferred flow pathways exist in soils and that under MCAS El Toro soils in the unsaturated zone are not homogeneous; therefore, assuming these facts are not true, would not appear to us to be a reasonable approach.

Presence of Free Product

We strongly disagree with the assumption that no free product exists. Based on the compounds of interest, the size of the groundwater contaminant plume, and the fact that the Phase I drilling failed to identify the source of the groundwater plume (except Site 2), we can not agree with the assumption or the statement of Phase I supporting your assumption that no free product exists.

4.10.2.5 Input Parameters (reference: 4.10.4.5 Surface Recharge)

The surface recharge rate appears to us as perhaps the most critical input parameter. In your limited discussion on the estimation of this value, which you vary from site to site, only annual rainfall is identified as the source of recharge. We believe that depending on where you are on the station, surface recharge is affected by other sources in addition to annual rainfall, such as: watering

RESPONSE: Revised Draft Work Plan

The exchange between vapor phase and dissolved is dependent on several factors, including the Henry's Constant and solubility. In general, most VOCs, such as TCE, will transfer more readily from groundwater to soil gas.

RESPONSE: Revised Draft Work Plan

Continuous borings, downhole geophysical logging, and CPT sampling will be conducted to develop a more refined understanding of stratigraphic controls on contain___migration. These stratigraphic controls will be incorporated as appropriate in computer modeling. Current data does not indicate that free product exists in groundwater. Investigations in the Phase II RI were developed to assess this situation.

RESPONSE: Revised Draft Work Plan

Local changes to surface recharge will be estimated, especially where irrigation (e.g., golf course) or stream flow may alter recharge. In areas open to the environment and do not receive additional surface water (e.g., grasslands between or surrounding runways), rainfall will be the only estimated recharge to be used.

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Santa Ana Region, Riverside, California
Date: 17 December 1993

grasses and plants to maintain landscaping, watering for dust suppression, irrigation to support agricultural operations (on and off base), and proximity to intermittent streams which often contain surface flows not resulting from rainfall which provide recharge. If this input parameter is one of the most sensitive, then reasonable data input is necessary, not an estimated recharge based only on one possible component; annual rainfall.

Draft Sampling and Analysis Plan (SAP) Specific Comments:

4.2 Sampling and Analysis Plan by Site

The Remedial Project Manages (RPM) agreed when the Phase I work plans were approved that the first phase of investigation was not sufficient to determine no further action at any site. Therefore we expected the Phase I investigation would be used as a guide for the Phase II investigation in economic and strategic placement of additional sampling. Later modification of the rationale determined including the RPMs into a site by site development of the work plan using data quality objectives to have consensus as the plans were developed. In fact, we have had several lengthy meetings in which various issues were settled, except only 2 sites were actually discussed for Phase II sampling. Although this SAP contains various components we believe are reasonable objectives and approaches, it also contains numerous sites in which strata will not have further investigation because you believe the Phase I investigation provided sufficient characterization. We are not convinced that sufficient borings or other appropriate investigative techniques have been completed at all sites for remedial design or to characterized the nature and extent of contamination, especially for deeper soils at numerous of the sites (example Site 6), which have no further sampling proposed in this-SAP. Therefore, we can not concur that the SAP will complete the investigation necessary to support remedial decisions and complete characterize the nature and extent of contamination.

Procedurally we are surprised that site maps are not located within each site discussion. Additionally, we believe that maps which summarize the previous investigations data, followed by maps showing locations for proposed work

RESPONSE: Draft Field Sampling Plan

The plan includes a discussion of sampling activities for each site in the plan attachments. These attachments include previous sampling locations with references to where the supporting information can be found. Most sites are proposed for additional sampling to either characterize risk or develop more information on extent. However, several sites have been designated for removal actions and the Phase II RI/FS may not be implemented at those sites.

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RESPONSE TO REGULATORY AGENCY COMMENTS

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Santa Ana Region, Riverside, California
Date: 17 December 1993

would be useful within site discussions in visualizing the approach and whether completion of objectives will be achieved

4.2.24.2 Phase 11 Remedial Investigation Design Groundwater

No borings are proposed for stratigraphic investigation or for enhancement of your understanding of the aquifer and relationships of water bearing zones to one another. Is your understanding of this system sufficient to warrant no additional investigation?

RESPONSE: Draft Field Sampling Plan

Additional stratigraphic investigations are proposed, especially at Site 24. These investigations include mud rotary borings logged by downhole geophysical methods, CPT borings, and continuous cored hollow-stem auger borings.

6.4.8 Pump and Packer Installation

If submersible electric motor driven pumps are installed as dedicated or used for purging only, we prefer the use of variable speed pump so that moderate low purging rates and very low sampling rates can be used when sampling for parameters which are sensitive to purging rates.

RESPONSE: Draft Field Sampling Plan

Many wells have dedicated constant rate pumps. Flow from these wells will be controlled by a discharge valve at the surface. If air-entrapment occurs, bailing may be used to sample. Variable speed pumps will be used to purge and sample from other wells.

6.4.10.3 Procedure - Groundwater Sampling

No discussion of purging rates is included. We feel this is appropriate and should be an important component of the sampling plan. Several parameters commonly tested for are sensitive to purging rates and sampling rates. Rates must be considered to enable you to collect representative samples for the parameters which are sensitive.

RESPONSE: Draft Field Sampling Plan

Purging is discussed in Section 6.4.10 of this plan.



BECHTEL NATIONAL INC.

CLEAN II TRANSMITTAL/DELIVERABLE RECEIPT

Contract No. N-68711-92-D-4670

Document Control No. CTO-0059/000199

File Code: 0210

TO: Jason Ashman, RPM (3 copies)
Code 1831.JA
Naval Facilities Engineering Command
Southwest Division
1220 Pacific Highway
San Diego, CA. 92132-5187

DATE: August 1, 1995

CTO #: 0059

FROM:
J. W. Kluesener, Operations Manager

D. K. Cowser, Project Manager

DESCRIPTION: Response to Comments, Draft Quality Assurance Project Plan,
Phase II Remedial Investigation/Feasibility Study
MCAS El Toro, California, CTO-0059

TYPE: Contract Deliverable CTO Deliverable Request for Change/Project Note

CATEGORY: Preliminary Final Preliminary Final Draft Final

SCHEDULED DELIVERY DATE: 07/28/95

ACTUAL DELIVERY DATE: 8/1/95

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Bechtel

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CLEAN II Program
Bechtel Job No. 22214
Contract No. N68711-92-D-4670
File Code: 0210

IN REPLY REFERENCE: CTO-0059/000199

August 1, 1995

Department of the Navy
Southwest Division
Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, CA 92131-5187

Attention: Jason Ashman, RPM
Code 1831.JA

Subject: Response to Comments, Draft Quality Assurance Project Plan (QAPP)
Phase II Remedial Investigation/Feasibility Study,
MCAS El Toro California, CTO-059

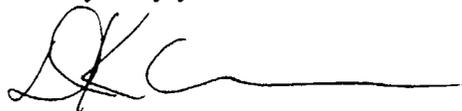
Dear Mr. Ashman:

Enclosed are three (3) copies of the Response to Comments made on the Draft Quality Assurance Project Plan (QAPP), Phase II RI/FS, MCAS El Toro California, prepared for CTO-059 under Contract No. N68711-92-D-4670.

We have submitted the appropriate number of copies of this plan to individuals on the attached transmittal. This document was prepared to respond to comments on the Draft Quality Assurance Project Plan. The Final Quality Assurance Project Plan incorporates these responses, as appropriate, and is being delivered at the same time as the Response to Comments document but each will be delivered with separate transmittals.

If you have any questions, please contact Timothy Latas at (619) 687-8848, or me at (619) 687-8802.

Very truly yours,



David K. Cowser
Project Manager

DC/sp

Attachment: Response to Comments, Draft Quality Assurance Project Plan (QAPP) for CTO-059



Bechtel National, Inc. Systems Engineers—Constructors

RESPONSE TO COMMENTS
Draft Quality Assurance Project Plan (QAPP)
MCAS El Toro, California

<p>Originator: Lisa Hanusiak, Chemist Quality Assurance Management Section (P-3-2)</p> <p>To: Bonnie Arthur, Remedial Project Manager Navy Section (H-9-2)</p> <p>Date: May 5, 1995</p>	<p>CLEAN II Program Contract No. N68-711-92-D-4670 CTO-0059 File Code: 0210</p>
<p><u>MAJOR CONCERNS</u></p> <p>1A. Section 3.2.1.2, Field Screening. Detection limits should be specified for the various field screening instrumentation/techniques (e.g., portable gas chromatograph, portable scintillometer, x-ray fluorescence, immunoassay test kits) discussed in Section 3.2.1.2 of the QAPjP. It is further recommended that these detection limits be discussed in relation to the limits for on-site mobile laboratory and fixed-based laboratory analyses and the applicable regulatory limits.</p>	<p><u>RESPONSES TO MAJOR CONCERNS</u></p> <p>RESPONSE 1A: Comments incorporated into Appendix A of QAPP in Table A-1. Field Screening devices will only be used if PRGs can be met for residential land use. A diagram has been added (Figure 3-1) to Section 3 to describe field screening and CLP confirmation protocol.</p>
<p>1B. It is unclear whether the analytical scheme described in Section 3.2.1.2 will be applied to all or to only a fraction of the planned analyses for the proposed investigation. The discussion in Section 3.2.1.2 should be expanded to specify the field screening techniques that will be used for each analytical parameter. If field screening will not be performed for certain analytical parameters and samples will be submitted directly to an on-site mobile laboratory or a fixed-based laboratory, these parameters should be specified in the QAPjP.</p>	<p>RESPONSE 1B: The field screening scheme is site-specific and is discussed in WP/DQO for each site. An overview of field screening scheme can be seen in Figure 3-1. A statement has been added to Section 3.2.1.2 referencing the specific DQOs for each site in WP.</p>
<p>1C. The text in Section 3.2.1.2 states that 5% of samples determined to be free of contamination by preliminary field screening will be submitted to an on-site mobile laboratory for analysis, and that 10% of the samples with positive results and 5% of samples determined to be free of contamination by mobile laboratory analyses will be submitted to a fixed-based laboratory. The QAPjP should state how the samples submitted for mobile laboratory and fixed-based laboratory analyses will be selected.</p>	<p>RESPONSE 1C: Random selection of samples for CLP confirmation will be used as described in WP and has been incorporated in QAPP in Section 3.2.1.4. The actual number of samples submitted to fixed-based laboratory for CLP confirmation has been determined as of the meeting on June 6 and has been incorporated into Table 3-2 in QAPP.</p>
<p>2A. Table 3-2, Quality Assurance Objectives; Appendix B, Table B-1, Project Required Detection Limit. Precision and accuracy goals should be added to Table 3-2 of the QAPjP for the following analytical parameters:</p> <ul style="list-style-type: none"> • total petroleum hydrocarbons [TPH] (SW8015M; aqueous/solid samples) 	<p>RESPONSE 2A: CLEAN II contract lab QA manual limits have been added to Table B-1 for methods that do not provide these parameters within the method.</p> <p>Additionally, hexavalent chromium will be analyzed by EPA Method 7196 to satisfy lower PRG levels.</p>

RESPONSE TO COMMENTS
Draft Quality Assurance Project Plan (QAPP)
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<p>Originator: Lisa Hanusiak, Chemist Quality Assurance Management Section (P-3-2)</p> <p>To: Bonnie Arthur, Remedial Project Manager Navy Section (H-9-2)</p> <p>Date: May 5, 1995</p>	<p style="text-align: right;">CLEAN II Program Contract No. N68-711-92-D-4670 CTO-0059 File Code: 0210</p>
<p>3. <u>Appendix B, Table B-1, Project Required Detection Limits.</u> The analytical methods specified for several of the chemicals of potential concern (COPC) do not provide sufficient sensitivity to detect these chemicals at concentrations below the risk-based concentrations (RBCs) specified in Table B-1 of the QAPjP. This issue is a concern for the following analytes: carbon tetrachloride, chloroform, dibromochloromethane, 1,2-dichloroethane, 1,2-dichloropropane, and 1,2,2-tetrachloroethane (SW8010); vinyl chloride (SW8240); heptachlor epoxide (SW8080); n-nitrosodipropylamine (SW8270); and arsenic and beryllium (SW6010).</p> <p>In order to reliably quantitate these analytes at concentrations less than RBCs, it may be necessary to use alternative methods or to modify the specified methods. For example, for SW-846 Method 8010 analyses, it may be sufficient to analyze a low level standard daily to demonstrate the ability of the laboratory to detect these analytes at the RBCs.</p> <p>For the analysis of arsenic and beryllium, the use of an atomic absorption spectroscopic method, rather than the specified inductively coupled plasma (ICP) emission spectroscopic method, may be necessary.</p> <p>All method modifications and alternative methods should be specified in the QAPjP.</p>	<p>RESPONSE 3: (See next page)</p> <p>The detection limits listed are those within the specific methods. The CLEAN II laboratory will provide the lowest possible detection limits with the best technology and methods available to satisfy the residential PRGs.</p> <p>A statement was added to Section 3.2.1 regarding a low level standard to be analyzed by the laboratory to demonstrate these low analyte RBCs/PRGs can be reached.</p> <p>ICP-MS will be used for analysis of arsenic, antimony beryllium, and thallium to satisfy the PRGs.</p> <p>No method modifications are necessary; but if for some reason it becomes necessary, appropriate regulatory concurrence will be obtained. The alternative methods that may be used have been included into Section 3.</p>
<p>4. <u>Section 6.3, Laboratory Quality Control Checks.</u> The discussion of laboratory quality control (QC) checks in Section 6.3 of the QAPjP should be expanded considerably. This is particularly important for procedures not covered under any of the Contract Laboratory Program (CLP) Statement of Work (SOW) documents. The</p>	<p>RESPONSE 4: This section is generic because the CLEAN II contract laboratory QA manual is required to address these issues and to comply with NAFESC 20.2-047B requirements. The QA manual then gets reviewed and approved by the Navy. A more detailed presentation was added to Section 6 for guidance purposes.</p>

RESPONSE TO COMMENTS
Draft Quality Assurance Project Plan (QAPP)
MCAS El Toro, California

<p>Originator: Lisa Hanusiak, Chemist Quality Assurance Management Section (P-3-2)</p> <p>To: Bonnie Arthur, Remedial Project Manager Navy Section (H-9-2)</p> <p>Date: May 5, 1995</p>	<p style="text-align: right;">CLEAN II Program Contract No. N68-711-92-D-4670 CTO-0059 File Code: 0210</p>
<ul style="list-style-type: none"> • It is not necessary to collect 4 liters of aqueous sample for both SVOC and pesticide/PCB analyses (8 liters total) or for explosive analyses. It is sufficient to collect a total of 4 liters of aqueous sample for both SVOC and pesticide/PCB analyses. For explosive analyses following SW-846 8330, a 5 milliliter sample is required; a volume significantly smaller than 4 liters is necessary. • Samples for total recoverable petroleum hydrocarbon (TRPH) analyses should be analyzed within 28 days. • Soil samples for PCDD/PCDF analyses should be collected in an 8 ounce wide mouth glass jar. 	
<p>2. <u>Section 6.1.1, Field Analytical Quality Control Procedures, Duplicates.</u> The text in Section 6.1.1 of the QAPjP states that the laboratory will prepare duplicate soil samples, rather than duplicates being collected in the field. It is recommended that duplicates be prepared in the field, from a single core, and submitted "blind" to the laboratory. The analysis of field duplicate soil samples will provide additional information regarding the variability of contaminant concentrations.</p> <p>It should be noted that field duplicate analyses <i>cannot</i> be used as a means for assessing laboratory accuracy. Accuracy can be determined only if the true concentration of a target analyte is known.</p>	<p>RESPONSE 2: As per the recent decision by the BCT, one soil duplicate sample will be collected per site and will be analyzed for the same analysis as samples, excluding the landfill sites.</p> <p>Accuracy was incorrectly defined here and has been eliminated from the statement.</p>
<p>3. <u>Section 7.2, Data Validation and Verification.</u> The text in Section 7.2 of the QAPjP states that 10% of the data generated will be validated. It is recommended that the QAPjP indicate how the 10% of the data slated for validation will be selected.</p>	<p>RESPONSE 3: 100% of data attained from field-base laboratory will be validated and has been corrected in Section 7.2.</p>

RESPONSE TO COMMENTS
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MCAS El Toro, California

<p>Originator: Lisa Hanusiak, Chemist Quality Assurance Management Section (P-3-2)</p> <p>To: Bonnie Arthur, Remedial Project Manager Navy Section (H-9-2)</p> <p>Date: May 5, 1995</p>	<p>CLEAN II Program Contract No. N68-711-92-D-4670 CTO-0059 File Code: 0210</p>
<p>Pages 2-1, 3-3. The CLEAN Organization text and flow chart (Figure 2-1) do not include the Laboratory Coordinator. The coordinator is responsible for the execution and oversight of all laboratory work and therefore should be included in this section.</p>	<p>RESPONSE: Correction made to Section 2.1.</p>
<p>Page 2-2. The acronym BEC represents Base Realignment and Closure (BRAC) Environmental Coordinator, not Base Environmental Coordinator. The acronym BCP represents Base Realignment and Closure (BRAC) Cleanup Plan, not Base Closure Plan.</p>	<p>RESPONSE: Correction made to Section 2.2.</p>
<p>Page 2-2. Section 2.3 should include a description of the role and authority of the Navy Remedial Technology Manager (RTM).</p>	<p>RESPONSE: A description of Navy RTM was incorporated into Section 2.3.</p>
<p>Page 3-3. 1st para., 2nd sentence. “. . . lowest possible detection limit of accurate precision will be implemented.” Is the intent to state accurate precision (sic)? Please clarify.</p>	<p>RESPONSE: A revision of Section 3.2.1 has been made to clarify.</p>
<p>Page 3-3. The descriptions and definitions under Field Measurements are not consistent with the descriptions elsewhere within this document and the Work Plan. For example, 2nd para. describes FID and PID instrument use as field measurements. However, on the following page these units are described as field screening devices.</p>	<p>RESPONSE: A handheld FID and PID will be used for field measurements to observe methane or organic compounds level and for qualitative field screening for VOCs, TPH.</p>
<p>Page 3-4. See previous comment. In addition, there are two definitions used interchangeably: 1) preliminary field screening and 2) on-site mobile laboratory or field-based laboratory. Later, the definitions change to qualitative and quantitative. Please use consistent terminology throughout and clarify what methods and analyses fall under each type.</p>	<p>RESPONSE: Corrections incorporated throughout QAPP with additional tables incorporated into Section 3 and Appendix A to clarify the field screening schemes.</p>
<p>Page 3-4. 3rd full para. The QAPP should include a detailed discussion of how confirmation would be measured. This information is only briefly discussed in the Work Plan.</p>	<p>RESPONSE: Confirmation is described in W/P but will incorporate into QAPP in Section 3.2.1.4.</p>

RESPONSE TO COMMENTS
Draft Quality Assurance Project Plan (QAPP)
MCAS El Toro, California

<p>Originator: Lisa Hanusiak, Chemist Quality Assurance Management Section (P-3-2)</p> <p>To: Bonnie Arthur, Remedial Project Manager Navy Section (H-9-2)</p> <p>Date: May 5, 1995</p>	<p>CLEAN II Program Contract No. N68-711-92-D-4670 CTO-0059 File Code: 0210</p>
<p>Page 6-1. Section 6.1.2. Last sentence. Trip blanks cannot be used "... to detect any problems caused by sample handling and shipment." Suggest revision as follows, "Trip blanks will be used to detect contamination introduced during sample handling and shipment."</p>	<p>RESPONSE: Correction made to Section 6.1.2.</p>
<p>Page 6-2. 1st, 2nd, and 3rd paragraphs. The discussion of preservatives used in the field should be clarified. Clarify that all preservatives used will be included in the blanks; however, a separate blank for each class of analyses will be used. Thus, an HCl blank would be supplied for the VOCs and an H2SO4 blank would be supplied for TRPH.</p>	<p>RESPONSE: Preservative lots are QC checked by the CLEAN II laboratory prior to their addition to sample containers for the required methods.</p>
<p>Page 6-6. SOP 15 is listed on page 6-4. The summary of SOP 15 is absent and should be provided.</p>	<p>RESPONSE: SOP is deleted.</p>
<p>Page 7-2. The discussion related to precision and accuracy should not include the 3rd and 4th bullet items. Blanks are not used in the assessment of precision and accuracy. They are however, an integral part of the QA/QC program.</p>	<p>RESPONSE: Correction made to Section 7.3 with bullets #3 and #4 deleted. Blanks are discussed in Section 6.</p>
<p>Page 7-2. Section 7.3. The 2nd bullet item should include the words "... matrix spike ..." between "... results from laboratory [insert] duplicates,"</p>	<p>RESPONSE: Correction made in Section 7.3.</p>
<p>Page 7-2. Replace the first sentence as follows, "Accuracy and precision of analytical techniques will be assessed through MS and MSD samples (respectively) prepared by the laboratory from field samples."</p>	<p>RESPONSE: Correction made in Section 7.3.</p>
<p>Page A1-2. 1st para. The current investigatory approach proposes to use residential risk values only. Therefore, it appears that XRF will not be suitable and would not be used at all. Is this correct?</p>	<p>RESPONSE: XRF has been deleted and ICP will be used by the on-site mobile laboratory. An ICP description was added to Appendix A.</p> <p>-</p>

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<p>Originator: Lisa Hanusiak, Chemist Quality Assurance Management Section (P-3-2)</p> <p>To: Bonnie Arthur, Remedial Project Manager Navy Section (H-9-2)</p> <p>Date: May 5, 1995</p>	<p style="text-align: right;">CLEAN II Program Contract No. N68-711-92-D-4670 CTO-0059 File Code: 0210</p>
<p>Page A1-6. For the discussion of TTLC and STLC delete the 1st sentence. This sentence is incorrect in that it presupposes that hazardous constituents are leaching into groundwater and TTLC does not provide indications of leachability potential, only STLC can be used for that purpose. Suggestion for the combination of sentences 2 and 3 is, "The soluble threshold leachate concentration measurement determines those minerals/metals that are soluble under the Waste Extraction Test conditions and simulates the leaching process that can occur in a landfill."</p>	<p>RESPONSE: The suggestions have been incorporated into Appendix A.</p>
<p>Table B-1. Page B-10. Analysis of chromium hexavalent by SM17 3500 is a colorimetric procedure not by ICP. SM 3500 does not specify a detection limit and it is unclear where the 500 mg/lg and 500 mg/L detection limits were obtained. These detection limits are above the CAL-modified PRG of 200 mg/kg and 160 mg/L. EPA 218.6 analysis of chromium hexavalent by ion chromatography can achieve a detection limit of 0.3 mg/L. EPA 218.5 analysis of chromium hexavalent by GFAA can achieve a detection limit of 2 mg/L.</p>	<p>RESPONSE: Corrected. However, the CLEAN II Contract Laboratory to perform this analysis uses SW 846 Method 7196 with detection limits as: 0.2 mg/kg for soils and 0.02 mg/L for waters.</p>

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<p>Originator: Juan M. Jimenez Department of Toxic Substances Control</p> <p>To: Joseph Joyce U.S. Marine Corps Air Station - El Toro</p> <p>Date: May 5, 1995</p>	<p>CLEAN II Program Contract No. N68-711-92-D-4670 CTO-0059 File Code: 0210</p>
<p><u>SPECIFIC COMMENTS</u></p> <p>Page 3-3, para 1, lines 1-4. The DTSC requests that the Navy utilize the high-performance liquid chromatography (HPLC) method (U.S. EPA Method 8310) whenever Polynuclear Aromatics Hydrocarbons are the COPC. There is approximately a two order of magnitude difference in the detection limit as compared to the CLP gas chromatography/mass spectroscopy (GC/MS). See General Comment No. 4.</p>	<p><u>RESPONSES TO SPECIFIC COMMENTS</u></p> <p>RESPONSE: See Response No. 4.</p>
<p>Page 3-3, para 1. What are the requirements set up by the RBCs to achieve the specified limits? This particular sentence could use some clarification.</p>	<p>RESPONSE: The statement has been corrected to address PRGs.</p>
<p>Page 3-2, para 1, lines 10-11. The reference to Table 3-1 in this paragraph is incorrect. Table 3-1, on page 3-4, delineates Tolerance Limits for Field Measurements. Please revise the reference and include such a table.</p>	<p>RESPONSE: Table B-1 is the appropriate table to reference and has been changed in this paragraph.</p>
<p>Page 3-4, para 4, line 5. How will the percentage of samples submitted to the fixed based laboratory vary? Specify the criteria which will be used such that the individual in the field can make the decision.</p>	<p>RESPONSE: The percentage of samples submitted to fixed-based laboratory has been predetermined (June 6th meeting) and all decisions made regarding this issue have been incorporated into Section 3 and Appendix A.</p>
<p>Page 3-8, Table 3-2. Acceptance limits for the relative percent difference and percent recovery for the following parameters should be provided:</p> <p><u>Aqueous Samples:</u></p> <p>TPH (8015M), PCBs screening (4020), Gross Alpha/Gross Beta (9310, Total Kjeldahl Nitrogen (353.3), Total Phosphate (365.2), Total Cyanide (335.2), and Total Organic Carbon (415.1).</p> <p><u>Solid Samples:</u></p> <p>TPH (8015M), Chromium Hexavalent (SM17-3500D), Total Cyanide (335.1/335.2), Total Phosphate (365.2) and Total Organic Carbon (9060).</p>	<p>RESPONSE: CLEAN II laboratory QA manual limits have been added for these parameters as the methods do not include these parameters.</p> <p>Additionally, PCB screening will not be included in field screening scheme due to the method's inability to satisfy residential PRG levels.</p>

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<p>Originator: Juan M. Jimenez Department of Toxic Substances Control</p> <p>To: Joseph Joyce U.S. Marine Corps Air Station - El Toro</p> <p>Date: May 5, 1995</p>	<p style="text-align: right;">CLEAN II Program Contract No. N68-711-92-D-4670 CTO-0059 File Code: 0210</p>
<p>The appropriate method to obtain the proposed detection limit listed for antimony, arsenic, beryllium, and thallium in water is ICP-MS (200.8). ICP-MS has the lower detection limit for these metals as compared to ICP and GFAA.</p>	

RESPONSE TO COMMENTS
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<p>Originator: Nars Ancog (Code 1852.NA) Southwest Division</p> <p>To: Jason Ashman Southwest Division</p> <p>Date: March 20, 1995</p>	<p style="text-align: right;">CLEAN II Program Contract No. N68-711-92-D-4670 CTO-0059 File Code: 0210</p>
<p>e. Section 3.2.1.3, Fixed-Based Laboratory Analysis: Specify the 1988 NEESA document where recommended detection limits for each parameter is listed.</p>	<p>RESPONSE e: Detection limits are not listed by parameters in the NEESA document (see Response A); however, CLP methods are provided. Methods were chosen based on detection limits that would satisfy RBCs/PRGs for the chemical of potential concern at MCAS El Toro.</p>
<p>f. Section 7.2., Data Verification and Validation: There are different levels of data validation. While data generated from CLP methods are automatically validated at level D, non CLP methods are not. Please specify the level of data validation proposed for non CLP methods.</p>	<p>RESPONSE f. Data validation for non CLP methods will follow the Level D requirements.</p>
<p>g. Appendix A - Laboratory Analytical Methods: (i) Portable Gas Chromatograph: A portable GC equipped with only a PID to screen TPH is not recommended. Low levels of TPH can easily be missed. Recommend employing a portable GC with dual detectors consisting of PID for cyclic or aromatic compounds and FID for the presence of TPH.</p>	<p>RESPONSE g (i): Portable gas chromatograph will be equipped with either a FID, PID or an ECD (or a combination) for TPH, aromatic and halogenated compounds, respectively. An accidental deletion was done regards to this.</p>
<p>(ii) Thermal Desorption GC/MS: TD GC/MS is not recommended for quantifying PCBs because of its very high detection limits. Please explore other options.</p>	<p>RESPONSE g (ii): TD GC/MS was one of several options considered for PCB screening with detection limits at 100 ppb. However, if the field screening devices cannot satisfy the residential PRGs for certain COPCs then, all samples will be submitted directly to the fixed-based laboratory for analysis by the appropriate CLP analytical methods.</p>
<p>(iii) Fixed-Based Laboratory Analysis: Level D can either be an analytical quality control level or a level of data validation. Please clarify. Additionally, not all analyses employ CLP methods. Will NFESC level D data packages still be used? If not, specify.</p>	<p>RESPONSE g (iii): Level D will be applied to both analytical quality control level and the data validation since MCAS El Toro is an NPL site.</p>



BECHTEL NATIONAL INC.

CLEAN II TRANSMITTAL/DELIVERABLE RECEIPT

Contract No. N-68711-92-D-4670

Document Control No.: CTO-0059/000255

File Code: 210

TO: Commanding Officer
Naval Facilities Engineering Command
Southwest Division
Mr. Paul Kennedy, Code 0233.PK (*)
Building 128
1220 Pacific Highway
San Diego, CA. 92132-5187

DATE: November 06, 1995
CTO #: 0059
LOCATION: San Diego, California

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

DESCRIPTION: Response to Comments, Final Quality Assurance Project Plan
Phase II Remedial Investigation/Feasibility Study
MCAS El Toro, California, CTO-059

TYPE: Contract Deliverable [X] CTO Deliverable Change Notice/Project Note
Other

VERSION: Final REVISION #:

ADMIN RECORD: Yes+ No [X] Category Confidential

SCHEDULED DELIVERY DATE: None ACTUAL DELIVERY DATE: 11/06/95

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**RESPONSE TO COMMENTS
FINAL QUALITY ASSURANCE PROJECT PLAN
MCAS EL TORO, CALIFORNIA**

<p>Originator: Bonnie Arthur, Remedial Project Manager US EPA</p> <p>To: Joseph Joyce, BRAC Environmental Coordinator MCAS El Toro</p> <p>Date: 5 September 1995</p>	<p style="text-align: right;">CLEAN II Program Contract No. N68-711-92-D-4670 CTO-0059/000255 File Code: 0306</p>
<p><u>MAJOR CONCERNS</u></p> <p>1. Comment #2A: Precision and accuracy objectives in terms of RPD and percent recovery were included for all analytes with the exception of hexavalent chromium.</p>	<p><u>RESPONSES TO MAJOR CONCERNS</u></p> <p>RESPONSE 1: Precision and accuracy objectives for hexavalent chromium is listed under Solid Samples in Table 3-3.</p>
<p>2. Comment #4: This item was partially addressed. Section 6.3 has been expanded to discuss a number of laboratory QC checks; however, the discussion is of a general nature, and many laboratory QC checks, such as surrogate spiking and laboratory control samples are not addressed. Additionally, the response to this comment refers to “[a] laboratory specific QA manual” for this information. As soon as the laboratories have been identified, the laboratory QA manuals should be evaluated in terms of project quality assurance objectives.</p>	<p>RESPONSE 2: As discussed in the BCT meeting, April 24, 1995, the actual laboratory assigned to perform the analytical work had not been selected prior to the generation of the CTO-0059 QAPP. These issues are addressed in the individual CLEAN II Contract Laboratory QA manuals which are reviewed and evaluated. CLEAN II is currently working with the laboratories to standardize many of these QA objectives so it can be incorporated in future QAPPs.</p>
<p><u>OTHER CONCERNS</u></p> <p>3. Comment #4: This item was not satisfactorily addressed. The response to this comment indicates that the topics cited in EPA’s comment are discussed in the Work Plan, Field Sampling Plan, Data Management Plan and Quality Control Management Plan. EPA guidance requires that these topics be addressed in the QAPP. Since these topics are addressed in other documents, it is permissible to provide a brief summary of these topics in the QAPP. It is important that a rationale for the choice of analytical parameters be included in the QAPP. EPA guidance also requires that a discussion is included concerning reconciliation of results obtained from the project with DQOs.</p>	<p><u>RESPONSES TO OTHER CONCERNS</u></p> <p>RESPONSE 3: Due to the complexity of multiple sites, variety of media to be sampled, and efforts to reduce redundancy of the 7 plans prepared for the Phase II RI/FS, references were made to the sections of the various plans which provide detailed discussion of these issues. Brief summaries of these are presented in the QAPP (which is permissible). Rationale for selection of analytical parameters is discussed in detail in the WP and FSP because of the multiple site work plan. Reconciliation of results is discussed in Section 7.5 of the QAPP.</p>
<p><u>ENCLOSURE A</u></p> <p>1. Table 4-2, Sample Containers, Preservatives, and Holding Times for Inorganics; Samples collected for sulfate analysis should not be preserved with acid, especially sulfuric. Sulfate should not be</p>	<p><u>RESPONSES TO ENCLOSURE A</u></p> <p>RESPONSE 1: This has been corrected and the field team have been advised of this discrepancy. Sample analysis is correctly coordinated with the CLEAN II Contract Laboratory. A Field Change Request has been submitted to address</p>

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<p>analyzed from the same container as chemical oxygen demand (COD).</p>	<p>this error.</p>
<p>2. Appendix A: Laboratory Analytical Methods. All analyses planned for the project should be discussed in the relevant sections of the QAPjP. A number of laboratory analytical methods are discussed in Appendix A that are not addressed in the appropriate sections of the QAPjP.</p>	<p>RESPONSE 2: Appendix A was designed to highlight the various analytical methods that may be used by three different CTOs in the field. Having the methods listed in the appendix was a recommendation of the BCT to eliminate confusion when trying to determine what each CTO would actually be using.</p>
<p>3. Methods Field Screening. This section indicates that some metals may be analyzed utilizing ion-selective electrodes (ISE). ISE is not addressed in Section 3.2.1.2, Field Screening, of the QAPjP or included in Table A-1, Field Screening Instruments and Sensitivity Levels. If ISE will be utilized, these areas of the QAPjP should incorporate the appropriate information including QA objectives.</p>	<p>RESPONSE 3: At the date of issue, ISE was a consideration, however, field screening of metals has since been abandoned. All metal samples will be sent directly to the CLEAN II Contract Laboratory for analysis using CLP methodology.</p>
<p>4. Mineralogical and Grain-Size Analyses. This section states that background concentrations for metals at MCAS El Toro must be established; however, Section 6.2, Field Quality Control Checks, indicates that no background samples are envisioned in this sampling effort. This discrepancy should be clarified. This section also states that mineralogical analysis using X-ray diffraction, differential thermal analysis and petrographic techniques will be used. These analytical techniques are not addressed in other sections of the QAPjP. It is recommended that this section be expanded to discuss specific details such as the number of samples required for these analyses.</p>	<p>RESPONSE 4: For screening purposes, the Phase I RI background concentrations will be used. The BCT has requested additional discussion to consider more comprehensive background concentrations using the Phase II RI data. The use of mineralogical analyses will be discussed in this background effort.</p>
<p>5. Table B-1, Project Required Detection Limits by Method. It is unclear how the proposed detection limits for metals in soil were established. For example, Table B-1 specifies a 7 µg/L detection limit for chromium in water, and a 7 µg/kg detection limit in soil. If one gram of soil sample is digested into a final volume of 100 mL, the resultant detection limit equivalent to the response of a 7 µg/L water sample is 0.7 µg/g, or 700 µg/kg. The detection limits specifies for</p>	<p>RESPONSE 5: This was an error and it has been corrected to CLEAN II Contract Laboratory Detection Limits of 260 µg/kg for soil and 1.3 µg/L for water.</p>

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<p>metals in soil should be proportionally consistent with achievable detection limits in water.</p>	<p style="text-align: center;">.</p>
<p>6. The 5 µg/L detection limit specified for sulfate by EPA Method 375.4 is significantly lower than the one mg/L minimum detectable limit stated in the method. If this detection limit is necessary, a rationale should be provided and the method modification necessary to achieve the detection limit discussed.</p>	<p>RESPONSE 6: The CLEAN II Contract Laboratory Detection Limits are as follows: 5 mg/kg for soil and 5 mg/L for water. The table is in error.</p>