

11/28/90

**Project:** MCAS El Toro RI/FS **Date:** November 28, 1990  
**Reviewer:** CA RWQCB **Project No.:** LAO28730.18.RF  
**Document:** Work Plan **Response Date:** January 15, 1991

Reference Page/ Sheet No.	Comments	Action
<p>General</p> <p>1.</p>	<p>All sampling locations which are proposed to be sampled at 2.5' and 5.0' should be advanced to a minimum depth of 20 feet with sampling at 2.5', 5.0', 10.0', 15.0', and 20.0'. This modification is requested due to the pressing need for analytical data from these depths at the present time.</p> <p>The potential types, variety, and quantities of chemicals and/or compounds which were discharged/spilled have a significant potential for far-deeper vertical infiltration in the subsurface sediments of the base, given the volumes estimated. This is demonstrated by the deep, primarily vertical plume movement of the JP-5 leakage at the Tank 398 site, a discharge of a substance with a greater viscosity and a greater likelihood of being adsorbed onto soil particles.</p> <p>Also, volatilization of the lighter, more mobile components could have a significant effect on the analytical results from soil samples obtained from the 2.5 and 5.0 foot depths. The mobile and more toxic nature of these compounds does not allow for generation of premature conclusions which are based on an insufficient scope of data collection, even in the first phase of the field effort. The 2.5' and 5.0' sampling plan may be appropriate for Site 11, the Transformer Storage Area.</p>	<p>The following generic soil sampling strategy for the 21 OU2 and OU3 sites will be included in the revised work plan:</p> <ol style="list-style-type: none"> <li>1. Collect vadose zone soil samples every 10 feet at each well location within 30 feet of groundwater, and analyze one based on instrument readings and observations.</li> <li>2. Drill a deep boring close to the suspected source area, collect soil samples every 10 feet down to groundwater, and complete the boring as an additional groundwater well at each site. Four of the soil samples will be analyzed as follows: one sample immediately below the suspected source, plus one within 30 feet of groundwater, and two others based upon observations and instruments. Sites restricted by Health and Safety considerations (e.g., Site 1) will be excluded from this boring within the source area.</li> </ol> <p>Soil samples collected and analyzed for soil vapor headspace during the drilling of monitoring wells and soil borings at the following intervals: every 10 feet up to 60, then every 20 feet to 200 feet, and then every 40 feet to 500 feet.</p>

<p>2.</p>	<p>The groundwater monitoring wells to be installed at the majority of the IRP sites provide an extremely significant opportunity for securing soil data which would generate a greater level of understanding for every site where they are proposed. Should contamination be found at any of these sites in the shallow borings, the data collected from the monitoring wells would be available and would not impose the delay in site understanding until a later phase of fieldwork.</p> <p>It would be more costly in terms of both time and expenditures to approach these sites in a "successive small-step" manner rather than to provide a sufficient initial data set at the earliest date possible. It is our position that the second phase of RI fieldwork will be required to explore the findings of the first phase and it is reasonable to attempt to gather as much data during the first phase as possible. After all, the stated objective of the Remedial Investigation is "to acquire sufficient data to estimate risks to human health and the environment from contaminated sites at MCAS El Toro."</p>	<p>See Response to Comment 1.</p>
	<p>The sampling of the monitoring well boreholes would not require an alteration of the proposed drilling methods. Soil sampling was performed during the Tank 398 investigation while drilling with an air-percussion drilling rig. It would be appropriate to alter the sampling frequency in the monitoring wells to every 10 feet below a depth of 50 feet in order to minimize the number of samples while providing sufficient samples to maintain adequate resolution.</p> <p>Additionally, it is highly recommended that the soil sampling be performed with the use of a 5-foot sampling barrel in order to provide the onsite geologist the greatest amount of sample to observe and monitor for evidence of contaminants. The sampling of the groundwater monitoring well boreholes will allow for the relocating of those soil borings which were proposed in areas adjacent to the monitoring wells.</p>	<p>See Response to Comment 1.</p> <p>A 5-foot sample could only be obtained by coring, which is not compatible with the dual-tube rig. The samples provided by the dual-tube rig, in conjunction with a standard 18-inch California modified soil sampler will provide good coverage for logging lithology and the presence of contaminants.</p>

<p>3.</p>	<p>Given the very low level of existing data on the presence or absence of soil contamination and the potential unrecorded spills and/or waste discharge practices to have occurred in the general area of the suspected sites, the effort to secure credible background samples in the immediate vicinity of the specific sites is inappropriate.</p> <p>With the present level of understanding regarding possible contamination at the sites, the primary goal for the expenditure of resources in this first Remedial Investigation field work effort should be to collect data from within the areas of concern for each site. Inevitably, some, if not most, of the borings will not encounter contaminated soils and thus, while not qualifying as valid background samples in all respects, these samples will provide significant and sufficient data an ambient, local conditions.</p>	<p>The "background" soil samples will be retained and used as "upgradient" samples used for contaminant material balance.</p> <p><i>but no ground to be added offset?</i></p>
	<p>Therefore, it is requested that all borings and groundwater monitoring wells presently proposed as background data collection points be relocated into the areas of concern. There may be specific sites where the securing of background soil or groundwater data may be appropriate and/or necessary at this stage of the investigation and this will be noted in the comments regarding individual sites.</p> <p>The securing of a valid data set of background analyte concentrations is indeed a necessary data need of the Remedial Investigation. However, the pressing need for site data should indicate that this effort should be planned for the second portion of the proposed or anticipated fieldwork. These samples should provide a statistically-valid data set obtained from areas remote from the area where the activities with potential for contaminant discharges occurred. This effort should be approached as a basewide task and not attached to any specific site. Many of the background wells proposed for the regional groundwater investigation of Site 18 may provide suitable sites and activities for securing some of these samples without an overall increase in drilling scope.</p>	<p>The "background" soil samples will be retained and used as "upgradient" samples used for contaminant material balance.</p> <p><i>Heavy metals will help/cross AT data geoposition</i></p>

<p>4.</p>	<p>It is inappropriate to have "detailed" site maps which are not scalable, do not indicate topography, offer insufficient details in regard to physical structures or other improvements, or are of suspect overall accuracy, as shown during the recent site tour. While it is recognized that resources could be conserved by the utilization of existing diagrams, an investigation such as this with the given need for proper understanding of the physical land surface, possible areas of discharges and the appropriate locating of exploratory efforts requires site maps based on a more complete data set. At a minimum, given the time-frame of the Work Plan, field checking and distance measurements are needed.</p> <p>In the effort to provide specific geographic data for all upcoming field efforts, a necessary, and ultimately resource-saving task should be performing a comprehensive aerial photograph survey and interpretation of the entire base. This task should be accomplished in the early stages of the initial phase of fieldwork for use in interpreting the findings of these field efforts. The survey should encompass all available photographs and not be limited to the presently-listed sites. This aerial photograph survey would provide a greater factual level of understanding of the specific site details and an indication of possible undocumented contaminant spill/discharge areas.</p>	<p>A proposal to develop GIS based maps from aerial photographs was included in the RCRA Facility Assessment (RFA), which is a vehicle for identifying sites for inclusion under RI/FS OU4.</p> <p>Present and historical aerial photographs will be reviewed and interpreted to identify past site activities and assess the location and extent of potential soil contamination.</p>
<p>Exec Sum</p>	<p>While "It is generally not possible to identify all data needs at the offset of the RI/FS process;..." it is possible to plan to obtain a sufficient amount of data to provide a good and adequate foundation of knowledge for the planning of subsequent phases. It is agreed that there is a strong possibility that additional data will be needed after the first portion of the RI fieldwork is completed. However, this should not suggest that the first phase of fieldwork should be cursory or limited to a small number of points or to shallow depths. The second phase is intended to be the last phase of RI fieldwork, and should address the data deficiencies of the first phase.</p>	<p>There will be 2 phases of RI fieldwork and the modified work plan will include the overall RI objectives and RI Phase I work plan rationale. The Phase I field investigation should provide a good foundation for the planning of subsequent phases.</p>

	<p>Regarding the statement that "...thus a phased approach to the RI/FS is proposed.", it is fully understood that this Remedial Investigation will be an iterative process and that, presently, two phases of the RI activities are proposed, separated by the issuance of a technical memorandum. The second phase of the RI fieldwork on OU-1, -2, and -3 should be preceded by a work plan for review by the FFA members. Modification of the text should be made to indicate the phasing of both the RI and the FS.</p> <p>Regarding the statement that "22 potential hazardous waste sites (and) possible contaminants were identified based on information obtained from a records search and onsite surveys.", it should be acknowledged that some discharges were real and are not to be considered "potential" sites of contamination. Also, it should be acknowledged that there are additional sites/areas where discharges of contaminants probably have occurred which were not documented in base records.</p>	<ul style="list-style-type: none"> <li>• The text will be modified as requested.</li>   <li>• These acknowledgements will be made as requested.</li> </ul>
<p>4/5/04          2/24/04          1/15/04</p>	<p>In regard to the statement that "Suspect contaminants...are mostly petroleum products and municipal wastes in landfills." and that "Suspected VOC source areas onstation include...", why are not VOCs called out specifically as "suspected" contaminants, especially when there is an Operable Unit designated for suspected VOC source areas?</p> <p>In agreement with the statements that "The conceptual site model...indicates that the major environmental medium of concern is the groundwater..." and "A second medium of concern is contaminated soil or sludge.", we acknowledge that there is a real need to give attention toward the soils below 5.0', at the soils encountered during the drilling of the groundwater monitoring wells, and at the groundwater in the downgradient direction from the sites. While these areas of attention may seem obvious, the point is to show that there are areas where data collection is not the main need of the investigation, at this time.</p>	<ul style="list-style-type: none"> <li>• VOCs are contaminants of concern and will be called out specifically as suspected contaminants (and known contaminants at some sites).</li>   <li>• See Response to Comment 1.</li> </ul>

	<p>The statement "The schedule (of the draft document submittal dates) may be revised as more information becomes available during the investigative process." is an acknowledgement of the pressing need to replace the existing void of knowledge regarding the nature and extent of the discharges which have occurred on-base.</p> <p>Similarly, the statement "The purpose of the field investigations will be to satisfy data deficiencies to permit evaluation of potential remedial alternatives." is an acknowledgement of the need for extensive data collection efforts, not the need to "go slow" in data collection activities.</p>	<p>See Response to Comment 1.</p>
<p>1.0 1.2</p>	<p><b>Introduction</b>  <b>Purpose and Scope -</b> Regarding the statement "This document, therefore, describes the procedures and programs necessary to characterize the nature and extent of contamination at the sites, and presents the preliminary baseline risk assessment, and the proposed methodology to develop, screen and evaluate remedial action alternatives.", we offer the following.</p> <p>It is our position that, this document does not "describes all the procedures and programs necessary to characterize the nature and extent of contamination at the sites...". While the Work Plan does outline some investigative steps in this direction, additional fieldwork and other activities, which can either be included at this stage or can only be described after the findings of this stage are acquired, are needed for the fulfillment of the statement. For example, where is the methodology to develop, screen and evaluate remedial action alternatives in this document?</p>	<p>Chapter 3 of the revised work plan will include a preliminary consideration of risk assessment, <del>Arabs</del> and screening of remedial alternatives. The preliminary risk assessment will include a list of chemicals of concern, brief toxicological profiles, and exposure pathways. Based on the chemicals of concern at each site and the remedial action goals, remedial alternatives will be screened. The data needs can then be identified for site characterization, risk assessment and remediation. The data from RI Phase I will be used in review and update the above process to develop the RI objectives for Phase II.</p>

	<p>Regarding the statement "The scope of the RI/FS, under this work plan, will encompass an evaluation of (the) 22 sites grouped into three operable units through a field investigation and/or risk assessment evaluation.", additional activities, which are not within this work plan, are anticipated to encompass an adequate evaluation of the 22 sites.</p> <p>Specific summaries of the background documents which were "reviewed and summarized" and any other prepared scoping documents should be included in the Work Plan for completeness and to support the proposed filed efforts' direction and detail. These summaries and scoping documents may be appended to the Work Plan as Appendices.</p>	<p>The pertinent findings of the previous reports will be summarized and referenced in the Existing Data Analysis section of Chapter 3 to develop the preliminary risk assessment and screen the remedial alternatives.</p>
<p>2.0 2.2.2</p>	<p>Site Background and Physical Setting Previous Site Investigations</p> <p>Regarding the Initial Assessment Study performed by Brown &amp; Caldwell (within which the majority of the presently-listed IRP sites were first identified), some review comment on the methods, thoroughness, specific findings, and recommendations, and possible oversights of this study should be part of a more elaborate discussion of this document. For example, why was Site 22 not included in the earlier list of IRP sites, while it was researched in the IAS?</p> <p>Similarly, an elaboration is needed regarding the large-scale similarities between the presently-proposed Work Plan and the fieldwork proposed by James Montgomery in 1987. In light of the listing of MCAS El Toro on the National Priority List, it would seem necessary that the potential extent of contamination be determined without delay and addressed in a more substantial manner than that which may have been appropriate in 1987. What were the findings of the Site Investigation Plan of action study which was underway in 1987?</p>	<p>A clear sampling rationale will be developed and presented in the revised work plan based on risk assessment and potential remedial alternatives. The previous investigations such as the Initial Assessment Study performed by Brown &amp; Caldwell were not based on site characterization data. Therefore, none of the exposure pathways at these sites can be discounted at this time based on the conclusions of these previous reports. The existing data that will be utilized to develop the site-specific conceptual models and a preliminary list of chemicals of concern are the OCWD Regional Ground Water Studies, the Air SWATS and the perimeter soil gas surveys. The proposed Phase I field sampling plan which will include the generic soil sampling strategy will determine the presence and nature of contamination at the sites. Based on this data the conceptual model can be updated and further data needs identified for Phase II.</p>

	<p>It seems that it would be most appropriate to discuss the findings of the SIPOA and the Perimeter Study Investigation in detail in this portion of the site history. In the effort to gather the greatest level of understanding about the sites and their existing data needs, the findings of these investigations would provide important details which would allow for the proper focusing of the upcoming data collection activities.</p> <p>A comment is requested on the greater concentration of the VOC in the recovered groundwater on the downgradient edge of the base which is greater than that detected in other sampling points. These comments should include a discussion of the probable site(s) where this contamination may originate.</p>	<ul style="list-style-type: none"> <li>• The relevant findings of these previous studies will be included in the existing data analysis section of Chapter 3 of the revised work plan.</li> <li>• A discussion of probable sites on-base where contamination might originate will be addressed when Phase I results are available.</li> </ul>
	<p>Regarding the statement that "The project team reviewed the reports mentioned above, as well as other documents pertinent to past disposal practices at the facility.", please provide a listing of these "other documents," as well as a summary of the important findings generated from this review and the resultant rationale for the selection of the three additional sites, and a description of those sites which were considered but were not added to the list and why.</p>	<p>Federal Facilities Agreement has mandated that 22 sites be considered under the RI/FS process. Furthermore, a future RCRA Facility Assessment (RFA) may identify additional sites to be included under OU4 of RI/FS. A discussion of why certain sites are or are not included is premature and outside the scope of this work plan.</p>
<p>2.2.3</p>	<p>Summary of Environmental Hazards - Regarding the statement "This inconsistency between the suspected contaminants and the detected groundwater contaminated will be addressed in the RI/FS investigation.", an elaboration is requested as to how this inconsistency will be addressed by the proposed field efforts.</p>	<p><i>To develop the RI objectives, VOCs will be added to the list of suspected contaminants at all sites.</i></p>
<p>2.2.5</p>	<p>Monitoring Well Inventory - Please modify the text to reflect that the OCWD wells are included in the monitoring well inventory, Appendix A.</p>	<p>The revision will be made as requested.</p>

<p>3.0 3.2</p>	<p><b>Initial Evaluation</b></p> <p>Conceptual Site Model - In reference to the two statements "The term "conceptual" should be stressed due to the lack of analytical data from the potential contaminant sources or from migration pathways." and "The site model is based solely on information from record searches and onsite surveys documented in previous reports and will need to be refined as more data becomes available.", we agree that this situation exists and requires a comprehensive field effort with the goal of providing an adequate understanding of the nature and extent of contamination by the agreed-upon date for draft Remedial Investigation submittal.</p>	<p>The conceptual site model section will be revised by providing more detailed source, exposure and receptor diagrams and additional subsections would also be added to present site-specific issues.</p>
<p>3.3</p>	<p>Operable Units - Regarding the statement that "These OU-3 sites generally address the VOC groundwater contamination as a secondary issue.", this sentence should be rephrased to indicate that the effort toward the initial collection of data from the groundwater underlying OU-3 sites is a substantial priority of the proposed fieldwork. However, the further characterization or remediation of any finding of VOC-contaminated groundwater would be handled with OU-1.</p>	<p>The revision will be made as requested.</p>

<p>5.0 5.3.1</p>	<p>Remedial Investigation/Feasibility Study Tasks Offstation Groundwater Operable Unit - The objectives of the regional VOC investigation are given as:</p> <ol style="list-style-type: none"> <li>1. Identify potential sources of VOC contamination at MCAS El Toro.</li> <li>2. Assess the horizontal and vertical extent of contaminated groundwater on-base and off-base as necessary to complement the OCWD investigation.</li> <li>3. Derive horizontal and vertical gradients of groundwater flow.</li> <li>4. Characterize the geochemical facies of groundwater on and near MCAS El Toro.</li> <li>5. Evaluate whether leakage occurs between shallow and deeper aquifer zones.</li> <li>6. Derive physical aquifer parameters and determine the rate and direction of groundwater flow.</li> <li>7. Describe the geological stratigraphy.</li> <li>8. Assess whether surface water runoff into washes has been a source of contamination.</li> </ol>	<p>No action is required.</p>
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<p>5.3.1.1</p>	<p>Groundwater Investigation Unit - The proposed fieldwork is acceptable as a proposal to significantly increase our understanding of the hydrogeology of the areas on- and off-base. However, it is strongly recommended that additional cluster wells be installed in the central and eastern portions of the base to provide data regarding the presence of contaminants, the watertable elevations, and the stratigraphy of the portion of the base closer to the foothills (and the landfills). Clearly, if the possibility that the landfills are contributing to the groundwater contamination problem is proven or disproven at an early date, this would benefit the entire investigation markedly. Overall, the proposed field effort of OU-1 is well received.</p>	<p>Two additional cluster wells will be included in the revised work plan: one of the well clusters will be located between Agua Chinon and Borego Canyon Washes next to the golf course and the other cluster southwest of Site 4, Ferrocene Spill.</p> <p>The monitoring wells to be placed downgradient of the landfill will provide the data to assess if they are contributing to groundwater contamination.</p>
	<p>Clarification is requested on how often the groundwater monitoring wells will be sampled. Also, does the objective to complement the OCWD investigation indicate that the Navy accepts their investigation and findings? Elaboration of the Navy's position on this matter is requested. It is our position that either the OCWD wells are to be included in this regional groundwater contamination investigation as an integral part, or a substantial discussion as to why it is felt that they should not be included should be presented. Also, the details regarding the aquifer testing of the wells installed for the specific sites should be elaborated upon, as to what testing procedures will be performed at each of the well sites.</p>	<ul style="list-style-type: none"> <li>• A quarterly monitoring program for groundwater monitoring wells may be instituted depending on the results of the RI Phase I.</li> <li>• Initial evaluation of construction of OCWD wells will be performed during RI Phase I. The Navy's position regarding the inclusion of OCWD wells under the RI/FS process is not finalized.</li> <li>• The details of aquifer testing can be found in the FSP.</li> </ul>
<p>5.3.1.3</p>	<p>Soil Sampling Points - It seems that the use of only one angle setting of the borehole attitude will provide soil samples at depths which very well may be below the areas of contamination. As opposed to the fieldwork at the 21 specific sites, this proposal aims for subsurface levels which may be too deep without securing samples from near-surface elevations.</p> <p>Consideration should be given toward either the use of drilling equipment which allows for different borehole attitudes or lighter drilling equipment and alternative techniques to obtain samples from shallower depths below the stream bottoms. Additionally, consideration should also be given to drilling these angled borings from both sides of the stream channels to obtain overlapping coverage.</p>	<p>The angle borings will be able to provide soil samples below the bottom of the washes at depths between 10 and 40 feet.</p>

<p>5.3.2</p>	<p>Onstation Sites - Similar to the Section 5.3.1, the objectives of this portion of the investigation should be listed.</p>	<p>The objective for characterization of onstation sites is to provide enough information so that a baseline risk assessment and a screening of remedial alternatives could be performed.</p>
<p>5.3.2.1</p>	<p>Groundwater Sampling and Analysis Strategy - The overall comments made earlier should be applied to this section. In response to the comment that "wells are proposed for installation as close as practicable (sic) to the suspected source," it is recommended that the monitoring wells be located a small but sufficient distance downgradient of the suspected source to ensure their sampling of the groundwater for every possible indication of contamination.</p> <p>Similarly, in response to the comment that "Upgradient and downgradient wells are proposed for each site selected for groundwater sampling," it is recommended that all groundwater monitoring wells be placed on the assumed downgradient side of the suspected site of contaminant discharges with sufficient spread to detect any trace of contamination. This is the purpose of the field effort and if contamination is detected, then an upgradient well should be installed to determine the quality of the groundwater flowing toward the site.</p>	<ul style="list-style-type: none"> <li>• The downgradient wells are located close but a sufficient distance away from a site to insure the detection of contamination. Two additional wells, one upgradient and one at the suspected source area, are typically proposed for each installation. We should discuss sites individually if you have specific concerns.</li> <li>• Upgradient wells will be retained in the work plan.</li> </ul>

<p>5.3.2.4</p>	<p>Soil Sampling and Analysis Strategy - The proposed soil sampling is insufficient and inappropriate considering the actual data needs of the investigation. There are numerous descriptions of the discharges of compounds which can readily migrate vertically through the coarse-grained sediments anticipated to be encountered.</p> <p>Given the timeframe over which many of these discharges occurred, the types of possible discharged contaminants, the lack of existing soil data, and the acknowledged presence of VOC-contamination at the downgradient base boundary, the present situation demands that the initial effort at subsurface sampling extend to a minimum depth of twenty feet.</p> <p>Such a field effort would provide a significantly greater quantity of pertinent data from essentially the same field effort and would be an action directed toward the essential objective of the RI, "to acquire sufficient data to estimate risks to human health and the environment from contaminated sites at MCAS El Toro." It is too late to be approaching the characterization of the extent of soil contamination at these sites with such cursory steps.</p>	<p>The proposed generic soil sampling strategy should address these concerns.</p>
	<p>Additionally, the allocation of field activity resources toward the specific task of collecting "background" samples outside of the areas of concern is inappropriate. Given the degree of uncertainty regarding the actual location of the documented, let alone the suspected, discharges, many of the presently proposed soil sampling points established by "a combination of random and judgmental" techniques should be expected not to encounter soil contamination. These samples can provide initial indications of "ambient" conditions in unaffected areas. The borings intended for background sampling should be relocated into the areas of concern to increase the level of data collection efforts in these areas.</p>	<p>The "background" soil samples proposed will be mainly utilized as upgradient for the purposes of material balance. Ten to twelve additional soil samples are proposed for collection offstation to provide an indication of background conditions.</p>

**Project:** MCAS El Toro RI/FS  
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Reference Page/ Sheet No.	Comments	Action
<p>General</p> <p>1.</p>	<p>Our review indicates that the proposed fieldwork effort is especially welcome in regard to Operable Unit 1; however, the proposed fieldwork for Operable Units 2 and 3 is inadequate for the existing data needs of the various sites.</p> <p>Significant clarification regarding the overall intended scope of both the proposed Phase 1 work and the anticipated Phase 2 efforts was received during the recent meeting with the Navy on November 26 and 27. It is our understanding that, in addition to written comments, this dialogue will be the basis for modifications to the Draft Sampling and Analysis Plan.</p>	<p>The Sampling and Analysis Plan (SAP) was originally written to emphasize the regional groundwater investigation (Operable Unit 1). Investigation of the 21 sites on MCAS El Toro (Operable Units 2 and 3) was based on the approach outlined in the Site Inspection Plan of Action (James M. Montgomery Consulting Engineers Inc., August 1988), which was developed under the Installation/Restoration Program (IRP) and previously approved by the California Department of Health Services (DOHS) and the California Regional Water Quality Control Board (RWQCB). Actually, the SAP greatly expanded the sampling proposed in the Site Inspection Plan of Action. For example, the number of soil samples proposed in the original plan totaled 111 on 16 sites. The SAP increased this number to 205 samples on these 16 sites, and added 5 additional sites (not counting Site 18), for a total of 315 soil samples on the 21 IRP sites. The original plan specified that 29 monitoring wells be constructed on the 16 sites. The SAP increased this number to 38 wells on the 16 sites, and 12 wells on the additional 5 sites, for a total of 50 wells (not counting Site 18). Based on meetings with the Technical Review Committee (TRC), it was believed that there was consensus with this approach.</p>

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General (Continued)		<p>However, it is now apparent that the TRC would like to expand the emphasis on Phase I RI soil sampling at the 21 sites. The Navy has agreed to this additional focus, and the SAP now contains an expanded sampling regime at each site. The SAP also has increased sampling activities designed specifically to support Risk Assessment and Remedial Design phases, and includes discussion on the relationship of sampling to these activities. The additional work follows the understanding reached between the Navy and the TRC at their meeting on November 26-27, 1990, with some further increase in the scope of soil sampling beyond that agreed to in November. The SAP finally includes more explanation and rationale for how this phase of investigation fits into the overall RI/FS process.</p>
Section 1.0	<p>Objective - The description of the objectives of the Sampling and Analysis Plan should include its goal. It is our understanding that this goal is to provide adequate data for the fulfillment of the CERCLA requirements for a Remedial Investigation within the agree-upon timeframe. This goal does not require the removal of all uncertainty regarding the contamination of the soils and/or groundwater which may have resulted from base activities, but should consist of the performance of appropriate investigations properly scoped to provide the essential data sufficient to support an informed risk management decision.</p>	<p>The Navy agrees with this goal. The revised SAP will include language that discusses the goal of the RI/FS and how the phases of the investigation interact to achieve the goal.</p>
	<p>With the proposed fieldwork for OUs 2 and 3 consisting essentially of a Soil Investigation, the subsequent phase is, in itself, the entire Remedial Investigation without a follow-up phase. While we agreed with the listed objectives, it is our position that, with the general exception of OU-1, the proposed Sampling and Analysis Plan is inadequately scoped to accomplish said objectives.</p>	<p>On the contrary, the SAP expanded the scope and magnitude of the Site Inspection Plan of Action. See the response to General Comment 1 above.</p>

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	<p>The supposition that an effective reduction in the level of investigative field activities from previously-agree-to levels (within the Site Investigation Plan of Action) should be considered as an "attempt to streamline potential remedial actions" is difficult, at best, to understand. This comment is in reference to the limited amount of soil sampling proposed. The previous plan of action was developed before MCAS El Toro was on the NPL and without a timeframe for the completion of a RI/FS investigation.</p>	<p>As previously mentioned, the SAP expanded the level of initial site characterization activities. The revised SAP expands this level of characterization further.</p>
	<p>While we acknowledge that additional data collection efforts are necessary, but cannot be properly defined at present, it is difficult to understand how the agreed-upon timeframe can be met by reducing the level of initial site characterization activities.</p> <p>The initial site characterization efforts should be sufficient to allow the subsequent phase to resolve specific issues, such as the extent of detected contamination or the clarification of unexplained findings, in order to culminate on schedule.</p>	<p>It is believed that the current revised SAP, which includes the sampling agreed to at the TRC meeting of November 1990, as well as additional site characterization and risk assessment activity beyond that agreed to at the TRC meeting, will be an adequate Phase I investigation.</p>
	<p>Thus, the proposed approach, which seeks to "provide an indication of the presence/level of contamination at each site" is considered inappropriately scoped, and, with the additional stated purpose of "form(ing) the basis...to eliminate sites from future consideration," may be inherently inadequate to fulfill even this limited scope.</p> <p>Additionally, the workplans and sampling and analysis plans for each phase of the Remedial Investigation should be considered primary documents and submitted for agency review. A timetable for the necessary review process should be determined at the earliest possible date.</p>	<p>The revised SAP has eliminated the phrase "eliminate sites from further consideration". At the November 1990 meeting, the Navy agreed to perform additional site characterization at each site during Phase II, even if all samples collected during Phase I do not detect contamination.</p> <p>Agency review of the work plan and field sampling plan for each phase of the RI will be incorporated.</p>

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	<p>Regarding OU-1, it is our position that, with the exception of the lack of the submittal of an intermediate workplan and sampling and analysis plan for the second phase of work, the proposed approach is appropriate and acceptable. It is especially welcome to see the written statement that the sampling of the presently existing MCAS wells will be part of the proposed field activities for OU-1 (Page 1, Par 3). The inclusion of these wells will provide valuable hydrologic and chemical data for the investigation of the regional aquifer.</p>	<p>The SAP has been modified to include language describing an evaluation of wells monitored by the Orange County Water District (OCWD) as an early activity of Phase I. Sample data generated by OCWD will also be evaluated to ensure comparability and validity. Wells in the OCWD network found suitable will be incorporated into the RI/FS network. It is anticipated that monitoring wells constructed by OCWD will be found acceptable. However, existing irrigation wells may not be found suitable. Wells incorporated into the RI/FS network will be sampled quarterly during Phase I, according to an addendum prepared to the SAP.</p> <p>In addition, the revised SAP specifies that 2 additional sets of cluster wells will be constructed west of Culver Drive, downgradient from the currently mapped position of the plume. These wells will serve to track the movement of the leading edge of the plume. Approximately 40 new wells are now designated for construction downgradient from MCAS El Toro (the actual number will vary, depending on how deep cluster wells may be drilled, how many intervals are screened, etc.). These wells are designed to complement the OCWD network. Based on information developed during Phase I, new well locations may be proposed for Phase II.</p>
	<p>A quarterly monitoring program for the groundwater monitoring wells utilized must be instituted regardless of the results of the initial sampling episode. The subsequent sampling rounds will serve to confirm and substantiate the chemical findings obtained from the wells. A modification of the types of analyses performed for subsequent sampling events can be considered once data trends are established.</p>	<p>The SAP proposes to analyze the first quarterly sample for the entire Target Compound List (TCL) and Target Analyte List (TAL), as well as pH, conductivity, anions and California LUFT Hydrocarbons. Wells will continue to be monitored on a quarterly basis, but in successive quarters, samples will be analyzed for a reduced suite of compounds. This reduced list will be appropriate for long-term monitoring, will partly depend on first quarter results, and will be described in an addendum to the SAP.</p>

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	<p>Similarly, it is appreciated that a specific stated use of the data for the monitoring wells installed at the OU-3 sites will be to delineate contamination which has been caused by "specific site activities," in addition to addressing the specific site itself. It is our position that the presently acknowledged number of sites should be considered inherently incomplete. This is due to the possibility that past and/or present activities may have had contaminant discharges which are either unknown, unreported, or undocumented. It is our understanding that, upon acquisition of relevant data, new sites will be adequately investigated.</p>	<p>The Navy agrees that additional sites may need to be investigated upon acquisition of new data. These sites will be included in Operable Unit 4.</p>
	<p>Regarding OU-4, it is requested that, in order to avoid any future confusion, the description of the sites to be considered within OU-4 be rewritten to reflect that which is listed within the appendices of the Federal Facilities Agreement for MCAS El Toro.</p>	<p>Text will be added to the revised SAP to more fully describe sites that may be included in Operable Unit 4, including sites listed in the appendices of the Federal Facilities Agreement.</p>
Section 4.0	<p>Rationale for Sample Locations, Number of Samples, and Analytical Parameters - The initial sampling effort is described as "provid(ing) an indication of the presence/level of contamination" and "not designed to fully delineate the extent of contamination at each site, only to determine if contamination is present." From the recent meetings, it is now understood that this description is perhaps best described as misleading, and does not reflect the Navy's actual position.</p> <p>As commented on earlier, it is our position that the sampling rationale for this phase of the Remedial Investigation should not be retarded in scope due to the lack of existing data, but rather should strive to develop an appropriate level of understanding regarding contamination on base.</p>	<p>The Navy is not trying to mislead anyone, and is making an honest effort to adequately characterize the sites at the base. Additional language will be added to Section 4 to more fully describe the expected outcomes of the Phase I investigation. As previously mentioned, the SAP expanded the original plan for the IRP sites. As an outcome of the November 1990 TRC meeting, the SAP has been expanded even further to deal with these sites, while not cutting back on the scope of the regional VOC investigation. Phase I will provide sufficient data to describe the presence and type of contamination and to assess the extent of contamination.</p>

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	<p>Although an effort to "fully delineate the extent of contamination" would be premature, this initial sampling effort should provide more than "an indication of the presence of contamination" by generating a sufficient level of data to either describe the type and extent of contamination present in an initial manner or determine that contamination was not detected with an initial, although appropriate, level of confidence.</p> <p>Only with such an initial effort will the Remedial Investigation be able to be adequate performed to the necessary level in the agreed-upon timeframe.</p>	<p>The revised SAP will incorporate the sampling program agreed to at the November 1990 meeting, as well as additional sampling activity to better accomplish site characterization and risk assessment.</p>
Section 4.1	<p>Groundwater Sampling Points - The selection of sites for the installation of monitoring wells with OUs 2 and 3 is described as being where "the volume of waste reported and the mobility of those wastes indicate the need for sampling of groundwater at the site." Therefore, it follows that, at those sites where monitoring wells are proposed, significant volumes of contaminants were discharged or releases of contaminants with substantial mobility occurred. Since monitoring wells are proposed at essentially all of the twenty-one sites within these two operable units, discharges of these types apparently have occurred at the majority of these sites. This understanding indicates that the proposed level of shallow soil sampling is cursory.</p>	<p>It was felt that the medium most in need of characterization at the base was groundwater, because of the long period of time that has elapsed since contamination may have occurred at the sites, and because the primary concern at the base is the regional groundwater contamination by VOCs. In addition, wells installed at the sites provide valuable information in support of the regional investigation, by providing data on extent of contamination (wells will be sampled for VOCs even at sites where VOCs are not the contaminants of concern), groundwater flow directions and gradients, and distribution of hydraulic and geochemical parameters. The revised SAP will attempt to make this more clear. The decision to install monitoring wells at all 21 sites does not indicate that discharges to groundwater has occurred at all sites. The wells will provide the data to determine if groundwater contamination has occurred from each site.</p>

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	<p>With the understanding that the subsequent phase of the investigation plans to characterize the extent of contamination within the vadose zone, the proposal to do limited soil sampling for chemical analysis in the borings for the monitoring wells is acceptable.</p> <p>It is requested that, if possible, this sampling be performed with a five-foot sampler in order to provide the onsite geologist with the greatest possible amount of soil sample to observe for indication of lithologic variation and evidence of contamination.</p>	<p>The wells will be drilled by a "dual-tube percussion" method, chosen because it facilitates geologic logging on a continual basis. In addition, samples will be collected and subjected to headspace analysis at regular intervals. The use of a 5-foot sampler requires that the soil samples be cored. Mud or water must be used as the recirculating medium during coring, therefore the core samples may be potentially cross-contaminated. For this reason, the use of standard 18-inch California modified soil sampler has been proposed.</p>
Section 6.1.3	<p>In contrast to the text, Section 6.4.3 does not describe the criteria by which soil samples will be selected for chemical analysis.</p>	<p>Section 6.4.3 will be expanded to more fully describe field headspace analyses and their role in the selection of soil samples for lab analysis.</p>
Section 6.4.1.3	<p>Groundwater Sampling During Drilling - In addition to the field tests described, relevant geochemical and contaminant data should be generated by the performance of similar chemical analyses as those proposed for typical monitoring well groundwater samples. Although these groundwater samples are not obtained by the standard protocol, these samples to provide an opportunity to obtain data in a portion of the subsurface which will not be accessible when the monitoring wells are completed.</p>	<p>Shallow monitoring wells will be screened across the first permeable zone encountered during drilling. Deeper wells will be constructed in clusters. In these clusters, the deepest well will be drilled first by mud rotary techniques, and then given geophysical logging. Permeable zones will be identified in the logging, and additional wells will be screened across these zones. In addition, samples will be collected and analyzed in the field with an OVA or PID. Thus, all portions of the upper 500 feet of the subsurface should be adequately characterized.</p>
Section 6.4.2 Section 6.4.2.1	<p>Soil Sampling Subsurface Soil Samples Sampling Method - Regarding the use of the two samplers described in the text, how will the decision of which sampler is to be utilized made prior to knowing whether that particular sample will be retained for chemical analysis? Consideration should be given to utilizing the California sampler in all sampling situations.</p>	<p>The SAP specifies the use of the California Sampler in all situations, except where this sampler cannot be physically driven into the soil.</p>
Section 6.4.3	<p>Organic Soil Gas Vapor Samples - A description of the specific selection criteria for determining which soil samples are to be submitted for chemical analysis should be included in this section.</p>	<p>Section 6.4.3 will be expanded to more fully describe field headspace analyses and their role in soil sampling.</p>

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Section 6.5	Disposal of Wastes - Regarding the selection of an appropriate attenuation factor, site specific data should be used to generate such a factor, rather than the arbitrary selection of an attenuation factor of 100 times, which has no substantiation.	The revised SAP will not specify an attenuation factor of 100, but will postpone the designation of an attenuation factor until the completion of the Waste Disposal Plan.