

**NAVAL AIR STATION MOFFETT FIELD**

**RESPONSE TO COMMENTS ON  
DRAFT OU 6 WORK PLAN**

**NOVEMBER 24, 1992**

This report presents point-by-point responses to comments received from the U.S. Environmental Protection Agency (EPA), the State of California EPA Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board (RWQCB) on the sitewide ecological assessment work plan for NAS Moffett Field.

Comments from EPA Region IX

**Comment Number 1:**        **Page 2, Section 2.0, Paragraph 2: Give the rationale for not including groundwater sampling in this operable unit.**

**Response:**                The revised work plan submitted on November 3, 1992, states that the ecological assessment will proceed in a phased approach; this work plan represents the first step of the first phase. The purpose of the Phase I study is to determine the presence and extent of contamination in soils, sediment, and surface water and to provide a preliminary ecological assessment. Phase II may involve collection of groundwater samples in areas not currently being monitored quarterly, if Phase I data justify further investigation.

**Comment Number 2:**        **Page 2, Section 2.0, Paragraph 2, line 6: "...to assess the presence or absence of...", delete the word "absence" since some of the contaminants have already been found during past investigations.**

**Response:**                This correction has been made in the November 3 version of the work plan.

**Comment Number 3:**        **Page 7, Section 4.2.2, Paragraph 1: Provide data and/or reference for making the statement that VOC contamination is minimal and does not occur at levels that are acutely toxic in the OU 6 area.**

**Response:**                This section of the work plan has been revised in the Draft Final SWEA Work Plan.

**Comment Number 4:** Page 7, Section 4.2.2, Paragraph 2: If VOCs have been detected at above the Maximum Contaminant Level (MCL) in the OU 6 area, then all samples should be analyzed for VOCs.

**Response:** Page 22, Section 4.4.1, Paragraph 1 states that samples collected for this study will be analyzed for metals, PCBs, pesticides, BNAs, and VOCs.

**Comment Number 5:** Page 7, Section 4.2.2, Paragraph 2: State the number and depth of the soil samples, sediment samples and surface water samples that are going to be collected. The work plan should include the locations of surface water sampling. The sampling methods should also be briefly mentioned.

**Response:** The revised work plan includes the locations of surface water samples and describes the sampling methods. The new plan also indicates the number of soil samples and sediment samples. Sediment samples will be taken only at the surface (i.e., 0.5 feet bgs or less).

**Comment Number 6:** Page 7, Section 4.2.2, Paragraph 2: Past investigations indicate that the contamination level was found at about 2.5 feet below the ground surface (Figure 7). Soil sampling during this first phase should at least extend to the same depth, not just to 1.5 feet bgs.

**Response:** The Final Work Plan will state that soil samples will be collected at one-foot intervals from surface to first encountered groundwater. Generally groundwater is anticipated to be encountered at less than 2.5 feet bgs at most locations.

**Comment Number 7:** Page 14, Section 8.0, Paragraph 1, Last sentence: Air monitoring should be conducted during the soil and sediment sampling period in the field for health and safety reasons.

**Response:** The Base Wide Health and Safety Plan (PRC and JMM, 1992c) describes air quality monitoring procedures in Section 5.0. These procedures will be followed during sampling of soil and sediment.

Comments From Science Applications International Corporation

GENERAL COMMENTS

- Comment Number 1:**      **This work plan should contain the following information:**
- **An organizational chart showing key project staff and depicting the relationship between JMM and PRC.**
  - **A schedule showing expected time frames for field work and preparation of deliverables.**
  - **A list of expected deliverables (including data packages and draft and final documents).**

**Response:**                      **The Draft Final Phase I Site-Wide Ecological Assessment Work Plan includes a list of deliverables and target dates for completion. The project organization chart is provided in the Base Wide QAPjP (PRC and JMM, 1992b).**

- Comment Number 2:**      **The text should provide an explanation for why groundwater sampling is not being conducted. Although additional wells may not be necessary, resampling of existing wells is in order to evaluate whether concentrations of contaminants fluctuate over time. Also, water level measurements should be obtained, to track the behavior of the aquifer(s) over time.**

**Response:**                      **Groundwater monitoring wells in the North Base Area are being sampled on a quarterly basis. These wells are located in the NASA wetland and toward the north end of the runways. If the sediment sampling indicates the potential for contaminated groundwater in areas not being monitored, we will recommend collection of groundwater samples during Phase II of the study.**

- Comment Number 3:**      **The text should describe the frequency with which the storm water retention ponds contain water, and what the contingency for collecting sediment and soil sampling will be if the ponds are flooded.**

**Response:**                      **The revised work plan addresses the seasonal nature of water in the retention ponds. Sediment sampling will occur when the ponds are dry.**

- Comment Number 4:**      **The text should provide the depth to groundwater in this area.**

Response: Groundwater is expected to be encountered at depths between 0 to 2.5 feet bgs.

Comment Number 5: **A working distinction should be provided between sediment sample, surface soil sample and soil sample within the context of this investigation. These three terms are used throughout the text, and it is difficult to determine how they will apply to samples collected at depths between 0 and 1.5 feet below ground surface bgs.**

Response: Sediment samples are samples collected in streams, ponds, wetlands, or retention basins in areas of likely deposition. Surface soils are soils between ground surface and six inches which is the area of likely biological interaction with soils.

Comment Number 6: **Section 4.3 on Environmental Assessment has all the major components required by EPA risk assessment guidance but reads as if it were a work plan for a human health risk assessment, instead of a work plan for an ecological risk assessment. For example, the identification of potential receptors is discussed rather than the evaluation of potentially affected populations, and conceptual models are discussed rather than biotic structure and dynamics.**

Response: The ecological risk plan has been rewritten to conform with current EPA guidance.

Comment Number 7: **A table should be included in Section 4.3.4, Risk Characterization, comparing concentrations of contaminants in groundwater and surface water at operable unit (OU) 6 versus water quality criteria.**

Response: We will use such tables and other "benchmarks" as indicated in the revised ecological assessment work plan in the section on risk characterization. Such a comparison is properly a part of the ecological risk assessment and not an analysis or comparison to be made in the context of a work plan.

#### SPECIFIC COMMENTS

Comment Number 1: **Page 2, Paragraph 2. Please clarify if studying the role of potential horizontal conduits in contaminant migration will be part of the investigation delineated by this work plan. The stated objective of the investigation outlined in this work plan does not include such a conduit study. For the purposes of this**

review, it is assumed that the horizontal conduit study will not be part of the investigation delineated by this work plan. Given the date of this Draft Work Plan (July 3, 1992), it seems unlikely that a horizontal conduit evaluation could be conducted during the third and fourth quarters of 1992, unless a work plan has already been submitted. If one has been submitted, it should be cited in this section. If the horizontal conduit investigation will be part of the investigation delineated by this work plan, then additional sampling, beyond what is proposed in this work plan, will be required.

Response:

A horizontal conduit study will not be performed as part of this investigation. PRC/JMM is in the process of writing a work plan for the horizontal conduit study. This work plan will be reviewed by the agencies in late December 1992.

Comment Number 2:

**Page 6, Paragraph 2. This section states that the salt marsh harvest mouse, California clapper rail, California brown pelican, and California least tern are species of special concern at NAS Moffett Field. The reader is then referred to Tables 1 and 2 for a list of plant and wildlife species found at NAS Moffett Field. These species are not found on these tables. Why are these considered species of special concern if the animal or signs of the animal have not been observed? Was their omission from these tables an oversight? If so, they should be included.**

Response:

As the ecological risk assessment plan now indicates, the table is a list of species observed on Moffett during one specific study. The plan also refers to a recent study regarding Clapper Rail breeding areas on or near the site. The revised plan includes a field assessment and a review of appropriate agency files to assess the presence of other species, especially threatened or endangered species.

Comment Number 3:

**Page 7, Paragraph 2. The sampling grid spacing should be provided in this discussion, and the rationale/criteria for selecting sampling points on the grid defined. Specifically, the text should state the sampling grid size near the Lindberg Avenue outfall, distant from the outfall, and along the shoreline area adjacent to the salt evaporation ponds. It should also explain at what distance from the outfall the points become more widely spaced. In addition, the discussion of density of sampling points in the text does not agree with Figure 12. The text indicates that the density of sampling points around the**

**Lindberg Avenue outfall and along the shoreline adjacent to the salt evaporation ponds is to be higher than the density of sampling locations distant from the outfall. However, the sampling points along the shoreline in Figure 12 appear to be spaced farther apart than the points a moderate distance from the outfall, and quite a bit further apart than the points adjacent to the outfall.**

**This paragraph should provide the rationale for collecting samples to only 1.5 feet bgs. According to Figure 7, samples were collected at depths of 2.5 feet bgs where significant concentrations of contaminants were detected. In order to properly characterize contamination within this operable unit, the vertical extent of contamination must be delineated. It is therefore, recommended that samples be collected from deeper than 1.5 feet bgs. The text should also explain why borings are to be advanced to 2 feet bgs if the deepest samples are to be collected at 1.5 feet bgs. A contingency for deeper sampling should be included, should sampling at the proposed depths reveal high levels of contamination.**

**Response:**

**The revised sampling plan in the ecological assessment provides the rationale for sampling locations based on field observations and the location of depositional areas.**

**JMM/PRC plan to sample sediment from ground surface to first encountered groundwater. This will provide vertical contaminant characterization in the unsaturated zone.**

**Comment Number 4:**

**Page 8, Paragraph 3. Identify the databases to be utilized in determining the ecological toxicity, environmental persistence and mobility, bioaccumulation potential, etc., for the contaminants of concern identified in the environmental assessment.**

**Response:**

**The databases to be searched are listed in the revised work plan.**

**Comment Number 5:**

**Page 8, Last paragraph. The specific definition of "contaminants of concern and their transformation products" should be provided. A reference on how the transformation products will be defined should be provided.**

**Response:**

**The revised work plan provides a definition of contaminants of concern. Transformation products will be addressed insofar as**

they are detected on site and will be considered as contaminants of concern if found.

**Comment Number 6:**

**Page 9, Paragraph 4. This section should include an ecosystem survey and a discussion of identifying ecosystem surrogates for assessing impacts of the contaminants on the ecosystem population. Information on exposure end points such as population abundance, diversity, nutrient retention/loss, and reproductive potential should be provided. This will aid in identifying no observed effects levels (NOELs) and lowest observed effects levels (LOELs) which were discussed in Section 4.3.3. Further, there is no information on how the study will address the structure and dynamics of biotic communities that are potentially threatened at this site.**

**Response:**

The revised ecological risk assessment work plan includes a qualitative ecosystem survey. The remainder of this comment regarding exposure endpoints is naive. The work plan also indicates how we will choose exposure endpoints. However, we feel that it is presumptuous to anticipate what these endpoints will be in advance of our literature review and on-site work. Therefore we do not include information on diversity, nutrient retention/loss, population abundance or reproductive potential in the plan. These decisions will be made as part of the execution of the plan. The execution of the plan will also address the biology of communities potentially threatened at the site.

**Comment Number 7:**

**Page 10, Paragraph 1. This section should explain specifically how exposure point concentrations (EPCs) will be estimated based on field data or derived from modeling.**

**Response:**

The revised work plan explains how exposure point concentrations will be estimated.

**Comment Number 8:**

**Page 10, Paragraph 2. The text should explain why adverse health effects associated with exposure to chemicals of potential concern are to be evaluated in an environmental (ecological) assessment. Please clarify the difference between chemicals of potential concern and contaminants of concern.**

**Response:**

The reference to adverse health effects is a typographical error. The revised work plan uses the term contaminants of concern and does not use the term contaminants of potential concern.

**Comment Number 9:** **Page 11, Paragraph 2. The text should discuss how figures delineating the range and extent of contamination at OU 6 will be used to determine the distribution of potentially impacted environmental receptors.**

**Response:** This comment is somewhat confusing. The text does not refer to using range and distribution data to determine impacted receptors. The exposure assessment analysis and risk characterization as described in the revised ecological risk assessment work plan addresses in detail how toxicity data will be used with exposure point concentrations and information on receptors to assess risk.

**Comment Number 10:** **Page 12, Paragraph 1. Provide a brief explanation of the data quality objective (DQO) approach and how it will be used to ensure that the data collected are adequate. In addition, indicate the timing within the investigation where each step occurs (i.e., Is this process only followed during scoping of an investigation? Are some steps initiated during scoping and some after the data are collected?) If steps or sequences of steps are repeated throughout the investigation, this also should be mentioned.**

**Response:** The development and use of the work plan is an integral portion of the DQO process as described in the EPA approved Base-wide QAPjP (PRC and JMM, 1992b). This work plan states the problem, describes activities to be conducted, describes uncertainties, defines data analysis and uses, and decision matrices.

**Comment Number 11:** **Page 12, Paragraph 4. Please elaborate on specific decision criteria that have been developed and will be developed as the investigation proceeds. Provide the timing and discuss the relationship between the criteria and the types of decisions the criteria will be applied to.**

**Response:** It is inappropriate to speculate which decisions and problems may be encountered during an investigation during the preparation of the work plan for the investigation. Problems encountered during the investigations will be resolved during routine consultations and by applying the "observational methods" approach.

**Comment Number 12:** **Page 13, Paragraph 1. The text indicates that an algorithm is to be developed during this step. The term "algorithm" suggests a mathematical relationship or statistical analysis. The text does not mentioned performing statistical analyses with the data (i.e., analysis of variance, method of polygons,**

etc.). Is the data (the maps depicting contaminant concentrations) the "algorithm" referred to in solving the problem of vertical and horizontal extent of contamination? If so, it is recommended that a different term, such as "method," be used. It should also be noted that the volume of data on shallow contamination at this operable unit, after this investigation, should be adequate for conducting statistical analyses of the data to determine areas of potentially high contamination.

Response:

The EPA DQO process requests the development of an algorithm. The Navy's approach as indicated in the work plan will be the development of "maps of the OU 6 area which will include the vertical (to 2.0 feet bgs) and horizontal extract of contamination. Within each EU (if definable) an average and range of values for each site-related contaminant of potential concern will be calculated and evaluation of the variables of the data will also be made." The graphical depiction of the nature and extent of contamination and the statistical analysis of analytical data will allow the determination of areas possessing contamination to be further assessed in additional phases of the ecological risk assessment.

Comment Number 13:

**Page 13, Paragraph 1. This paragraph should include a discussion of constraints on the uncertainty of the data to be collected during this investigation.**

**The second sentence requires clarification. It states that data delineating the vertical extent of contamination (to 2.0 feet bgs) will be presented. This sentence is contradictory to Section 4.2.2 which states that samples will be collected to 1.5 feet bgs. Please explain why maps of the OU 6 area will only show contamination to a depth of 2 feet bgs. Figure 7 presents contamination to a depth of 2.5 feet bgs.**

Response:

Uncertainties in the use of the data will be discussed in the limitation section of the report. An attempt to develop constraints prior to the acquisition and analysis of the data would be premature.

Section 4.2.2 of the work plan states that "samples will be collected at 0.5 and 1.5 feet bgs and will be...." The sample interval (1.5-2.0) will intercept the stated sample depths indicated in Sections 4.2.2 and 5.0.

**Comment Number 14:**

**Page 13, Paragraph 4. Define for the purposes of this document what constitutes Level III or Level IV analytical data.**

**Response:**

The analytical level for this project was identified by the Navy EIC as modified Level D. This level is similar to EPA Level 4 (EPA, 1987a), and was selected because NAS Moffett Field is on the EPA National Priorities List (NPL). In addition to meeting Level D QC requirements, the selected laboratory must also be certified/accredited Environmental Laboratory Accreditation Program of the California Environmental Protection Agency to perform Environmental Analytical testing. As part of a Level D program, the analytical laboratory must successfully perform the following:

- Submit a QA plan
- Analyze a performance sample
- Undergo an audit by the Navy
- Correct any deficiencies found during the audit
- Provide monthly progress reports on QA

The aforementioned activities will be administered by the Navy Contract Representative (currently, Martin Marietta Energy Systems, Inc.). The selected laboratory will have experience with EPA Contract Laboratory Program (CLP) procedures and will be able to generate CLP deliverables.

CLP Routine Analytical Services (RAS) procedures will be used for the analysis and reporting of semivolatile organic compounds, organochlorine pesticides/PCBs, and metals in soil and water samples; the CLP RAS procedure for volatile organic compounds (VOCs) will only be used on soil samples. CLP Special Analytical Services (SAS) procedures, as described in EPA Region 9 SAS Methods Compendium (EPA, 1989b), will be used for the analysis of VOCs in water and for various inorganic and organic parameters in soil and water samples (See Appendix D for SAS Methods). Where an EPA method does not exist, other standard methods will be used. Specific parameters are discussed in Section 6.1 and summarized in Tables 6-1 through 6-3.

**Comment Number 15:**

**Page 13, Last paragraph. This paragraph should state whether the field sampling plan (FSP) has been approved, and whether the approved FSP, including the standard operating procedures (SOPs), will be on site during the field investigation. This**

**information provides specific details on how samples will be collected.**

**Response:** All soil borings and sampling will be conducted as described in the EPA Approved Field Sampling Plan (FSP) (PRC, 1992). All soil borings will be advanced by hand augering or where possible by a hand transportable motorized auger rig as described in standard operations procedure (SOP) 19 of the FSP.

**Comment Number 16:** **Page 14, Paragraph 1. Describe how the drummed wastes will be classified for disposal (i.e., sampling methods, analytical methods, classification criteria, etc.).**

**Response:** In the final work plan, we will reference the RI/FS Final Field Sampling Plan that includes Section 14, waste contaminant characterization and disposal, for a description of how drummed wastes will be classified for disposal.

**Comment Number 17:** **Page 14, First full paragraph. The text should state in this section or in Section 7.0 that the approved base-wide quality assurance project plan (QAPjP) will be on site at all times during sampling.**

**Response:** A sentence will be added to this paragraph in the final draft stating that the QAPjP will be on site at all times during sampling.

**Comment Number 18:** **Page 14, Last paragraph. The third bullet states that equipment rinsates will be collected at a frequency of "one per day of groundwater sampling." There has been no mention of groundwater sampling in this document; however, contract laboratory program (CLP) quality assurance/quality control (QA/QC) protocols do require that one equipment rinsate be collected per day per media sampled.**

**Response:** The third bullet will be changed to read:

"• Equipment Rinsates - one per day per sampling media."

**Comment Number 19:** **Page 15, Paragraph 1. This paragraph should state whether the referenced health and safety plan (HSP) has been approved and that the HSP will be on site at all times during field activities.**

**Response:** A sentence will be added to the final document explaining that the approved HSP will be on site during all site activities.

**Comment Number 20:**

**Table 3. "CLP-RAS/CLP-SAS" are not method numbers for CLP analyses. The correct method numbers can be obtained from the User's Guide to the Contract Laboratory Program (EPA/540/P-91/002, January 1991). With the exception of the analysis for multimedia high concentration samples, EPA now uses OLM, OLC, OLV, ILM, ILC, or IHC, prefixes and the method revision numbers to refer to the various methods (i.e., ILC01.0 for Low Concentration Water for Inorganic Analytes). These method numbers must be specified in this table.**

**Response:**

The specific CCP method numbers will be included in Table 3 of the final work plan.

## ERRATA SHEET COMMENTS

**Comment Number 1:**      **Page 4, Paragraph 3. The second sentence states that BNAs were detected in four samples. However, Figure 7 shows six locations where BNAs were detected, and one location where SVOCs (non-specific) were detected.**

**Response:**              **This inconsistency will be corrected in the final work plan, and the specific SVOCs will be identified.**

**Comment Number 2:**      **Figure 7. The legend should include an explanation for the box format shown for each sampling location. The legend should indicate the units of measure because all boxes do not provide this information. The word pesticides is misspelled.**

**Response:**              **The final work plan will include these corrections to Figure 7.**

Comments From EPA Region 9  
Office Of Research And Development  
OTTRS/Technical Liaison Program

GENERAL COMMENTS

**Comment Number 1:**            **The work plan provides a good framework for developing an ecological assessment at NAS Moffett Field OU 6; however, the draft work plan relies too much on literature-reported data and does not include sampling and analysis of biotic parameters. The toxicity quotient model proposed in this draft work plan is not appropriate for an ecological assessment at NAS Moffett Field OU 6. Further, the ecological assessment should be conducted on a site-wide basis, not only for OU 6.**

**Response:**                    The revised work plan addresses concerns regarding too much dependence on literature data. We will be collecting appropriate site-specific data to assess the risk to selected receptors or to make informed decisions regarding the potential need for further site-specific data.

**Comment Number 2:**            **There are sufficient data to indicate potential impacts to ecological receptors and therefore an integrated, site-wide ecological assessment should be planned and implemented. A Phase I Ecological Assessment document should be prepared that evaluates existing information, identifies data gaps, and proposes an approach for an ecological assessment that fills those data gaps and addresses data quality objectives. The Phase I Ecological Assessment document should serve as the basis for preparing a detailed Field Sampling Plan for the ecological assessment field investigation. The draft work plan, as proposed, is only a framework and as such does not provide sufficient detail on which to base a definitive review of the validity of specific methodologies. This specificity must be provided in a detailed Field Sampling Plan that discusses data quality objectives and clearly defines each approach, including field sample numbers and locations, field and laboratory analyses and methodologies, sample handling procedures, data management and analyses, and technical rationale and justification for all procedures and methodologies.**

**Response:**                    The revised work plan is a plan for a site-wide ecological assessment.

## SPECIFIC COMMENTS

**Comment Number 1:** Section 1, Page 1. No substantive comments.

**Response:** No response.

**Comment Number 2:** Section 2, Page 2. The stated purpose of the investigation is to "determine if contamination exists in the storm water retention ponds or wetlands in or adjacent to the facility and to assess whether there is risk posed to ecological receptors in those areas." The proposed first phase involves "a field investigation of soils, sediments and surface waters to assess the presence or absence of contamination in the storm water retention ponds and wetlands." A second phase of the investigation, to be implemented if contamination is demonstrated in the first phase, will include an exposure assessment and risk characterization.

While this approach would be a justifiable initial investigation for a site that has had little or no previous soil and sediment sampling and analyses, it is not appropriate for NAS Moffett Field, where a significant amount of field investigation has already occurred. Figure 7 of the draft work plan (Previous Soil and Sediment Sampling Locations with BNAs/PCBs/Pesticides Above Reporting Limits) and Figure 8 (Previous Soil and Sediment Sampling Locations With TPH Above Reporting Limits) clearly show sufficient numbers of contaminated samples in and around sensitive habitats to indicate a potential risk to ecological receptors. The next step should therefore be to develop an integrated ecological investigation that would have the goals of describing potential exposure pathways, determining actual impacts to ecological systems, and developing clean-up goals that will be protective of ecological receptors. For enhanced statistical power this investigation should incorporate sampling and analyses of both biotic and abiotic parameters, including contaminants. Use of reference sites should also be considered.

The first phase of such an investigation should be an intensive synoptic study to answer general questions such as magnitude of spatial variability, appropriateness of sample site locations, reference sites and methodologies, and relative extent of contamination and impact. A decision tree should be made to guide this study and to direct any subsequent, longer term study.

**Response:** The revised work plan addresses the concerns regarding the sufficiency of the sampling to address ecological concerns, broadens the sampling, and includes a biological survey. These additions to the work plan will provide sufficient data to conduct exposure assessment and risk characterization.

**Comment Number 3:** Section 3, Page 3. No substantive comments.

**Response:** No response.

**Comment Number 4:** Section 4.0, Subsection 4.1, page 4. On the basis of the existing chemical data on soil and water samples, there is sufficient evidence to indicate a potential threat to ecological receptors from exposure to hazardous chemicals.

**Response:** The revised plan includes biological measurements and analysis of some sediment properties such as TOC.

**Comment Number 5:** Subsection 4.2, page 6. While considerable effort is devoted to identifying and avoiding disturbance to wildlife and habitat, virtually no effort is proposed to evaluate impacts of contamination on wildlife and habitats.

**Biotic parameters, including tissue analyses, species distribution and abundance data, toxicity testing and bioassays, and abiotic parameters in both soil and water samples (e.g., pH, TOC, grain size analyses, TSS, and others) should be integrated with any analyses of contamination. This approach will save time, money, and provide much greater statistical power than performing independent investigations.**

**Response:** The purpose of Phase I of this investigation is to determine the nature and extent of contamination in soils and sediment in the study site area. Phase II will include analyses for the biotic and abiotic parameters listed above if Phase I data warrants further investigation.

**Comment Number 6:** Subsection 4.3, page 7. This section proposes that an ecological assessment be conducted if "...contaminants are found to exist in the wetlands and storm water retention ponds." As previously stated, there are already sufficient data to indicate the presence of contaminants in these sensitive habitats, and therefore an ecological assessment should be planned and implemented without additional investigations to determine the extent and nature of contamination. Further, the proposed

approach for conducting an ecological assessment "...would rely upon field measurements of the levels of chemicals in the environmental media, observed conditions in the field, and information available in the scientific literature on the potential effects of site chemicals on biota. Data available in the literature would provide estimates of the potential effects of levels of chemicals in environmental media to biota that are or may be expected to be present at the site and in the surrounding area." This approach is far too dependent on data from the literature.

Unlike risk assessments for human populations, the complexities of ecological systems, the uncertain quality and relevance of literature-reported data to site-specific conditions, synergistic and antagonistic effects of contaminants and other sources of anthropogenic stress on biota, and the paucity of information on chronic effects of low-level, sub-acute contamination on biotic populations and systems (e.g., impacts on development and fecundity) preclude using simply toxicity quotient models to predict ecological impacts. The preparers of this draft work plan, however, should be commended for acknowledging that published toxicity data may be inadequate and therefore bioassays and toxicity tests may be necessary (page 8). Such tests should form one of the primary mechanisms to evaluate toxicity. Information provided in the literature should be used in developing and guiding an ecological assessment, not as the primary source of data.

Response:

We feel that it is premature to do bioassays on the site. Execution of the revised work plan will provide the level of analysis necessary to make an informed decision regarding the necessity of including bioassays in future work.

Comment Number 4:

Subsection 4.3.1, page 8. Identification of contaminants of potential concern has already occurred *de facto*, and should not be reevaluated as a separate activity. Any additional investigation should have as its goal quantifying the nature and degree of actual impacts.

**ALL OF THE CONTAMINANTS IN FIELD SAMPLES THAT HAVE CONCENTRATIONS ABOVE REPORTING REQUIREMENTS ARE OF POTENTIAL CONCERN.**

Response:

Identification of contaminants of concern is an important task in ecorisk assessment and should be done explicitly not *de facto*.

**Comment Number 5:** Subsection 4.3.2., page 9. The approach and steps outlined in this section are well conceived. The only exception is where it is proposed that when field data for estimating exposure point concentrations (EPCs) are unavailable from previous studies (Task 4. Estimation of Exposure Point Concentrations, page 10), EPCs will be estimated from modeled concentrations. Instead, it should be acknowledged that a data gap is identified when EPCs are not available from field data, and the field investigation should be planned to address this data gap.

**Response:** The revised plan addresses concerns regarding exposure assessment.

**Comment Number 6:** Subsection 4.3.3, page 10. The proposed approach is based entirely on data derived from the literature, and as such, is unacceptable. Literature-derived data should be used only to assist in planning a field investigation, not as a substitute for one. Unlike human populations, effects and impacts of contaminants on biological systems can be evaluated directly, and therefore should be.

**Response:** Again, we feel that it is premature to do bioassays on this site. This work plan covers Phase I of a site-wide ecological assessment. Based on the results of the Phase I investigation, the Phase II work plan may include direct evaluation of effects and impacts of contaminants on biological systems.

**Comment Number 7:** Subsection 4.3.4, page 10. The toxicity quotient (TQ) approach outlined in this section is unnecessary for the ecological assessment at NAS Moffett Field OU 6. Although the TQ approach itself is scientifically defensible, the appropriateness of the approach ultimately depends on the quality of data used in the TQ model. Since the denominator of the toxicity quotient, as proposed, is calculated from only literature-derived data, it is impossible to estimate uncertainty and therefore there is no way to estimate confidence (probability of making a type I or type II error). In addition, the TQ method accounts for only acute impacts and does not address chronic, sub-acute effects on ecological receptors. Finally, the TQ approach cannot account for multiple contaminant and stress effects, population effects, or multi-trophic impacts, including impacts from bio-accumulation on higher trophic-level receptors. The TQ approach for ecological assessments is generally useful as a preliminary screening tool for evaluating priorities from among multiple, discrete sites. The usefulness

**of this approach and any result it yields for risk management, as applied to NAS Moffett Field, is therefore disputable.**

**Response:** We recognize the uncertainty of the TQ approach, but note that it is one of several lines of analysis which the ecological risk assessment will use to provide weight of evidence.

**Comment Number 8:** **Section 5.0, page 12. The proposed approach for developing DQOs is generally good, although it will be necessary to modify specific objectives.**

**Response:** The Data Quality Objectives section of the work plan has been modified to conform to the DQO requirements described in the Ri/FS QAPjP (PRC/JMM, 1992). Please see the response to EPA specific comments 10-15.

**Comment Number 9:** **Section 6.0, page 13. Additional methodologies will be necessary to evaluate biotic parameters. GPS should be used to provide the precise latitude and longitude of all sample locations, unless a more accurate method is proposed.**

**Response:** As previously mentioned biotic parameters will be evaluated in Phase I of the investigation. The scope of work is dependent on the results of the initial phase of study. Surveying of boring locations is described in Section 11.3 of the Draft Final Work Plan submitted for Agency review on November 3, 1992.

**Comment Number 10:** **Section 7.0, page 14. No substantive comments.**

**Response:** No response.

**Comment Number 11:** **Section 8.0, page 15. No substantive comments.**

**Response:** No response.

**Comment Number 12:** **Section 9.0, References. The U.S. EPA has published a series of 4 ECO UPDATES-Supplemental Guidance for Ecological Assessments: (1) The role of BTAGs in ecological assessment, (2) Ecological assessment of Superfund sites: An overview, (3) The role of Natural Resource Trustees in the Superfund process, and (4) Developing a work scope for ecological assessment. These provide useful, general information on ecological assessment approaches, coordination, and technical assistance resources. They are not, however, blue prints for**

**ecological assessments and their applicability to any specific Superfund site will vary.**

Response:

These ECO updates will be included in the References section of the final work plan.

## Comments From NOAA

### **Comment Number 1:**

**General Work Plan.** The proposed work plan for the NAS Moffett Field site includes collecting additional on-site soil, sediment, and surface water samples from the wetlands and storm water retention ponds. Sample locations were established along a grid pattern, with a greater density around the edge of the shoreline/fill area (secondary suspected source). Thirty-two sample locations have been identified. Samples will be analyzed for total petroleum hydrocarbons (TPH), PCBs, BNAs, pesticides, and trace elements. Surface water samples will be collected from the outfall, Jagel Slough, Devils Slough, and the Navy Channel and will be analyzed for the same suite of analytes.

### **Response:**

No response.

### **Comment Number 2:**

**Environmental Assessment.** An environmental assessment will be conducted as part of the investigation of the wetlands and storm water retention ponds to provide the necessary baseline information (chemical, ecological, and toxicological) for assessing potential impacts to biota near the site. This assessment will be based on the Risk Assessment Guidance for Superfund (RAGS) Volume II, Environmental Evaluation Manual (EPA, 1989a) and Ecological Assessment of Hazardous Waste Sites: A Field and Laboratory Manual (EPA, 1989b). The Environmental Assessment will rely upon field measurements of chemical concentrations in environmental media, observed conditions in the field, and information available in scientific literature on the potential effects of site-related chemicals on biota. The proposed plan for conducting the environmental assessment includes four steps:

- Hazard identification
- Exposure assessment
- Toxicity assessment
- Risk characterization

The first phase of the field investigations will help define the spatial extent and magnitude of contamination. The second phase will evaluate the likelihood of exposure to contaminants of concern for any flora and fauna under current conditions or potential future conditions. The third step will evaluate the potential adverse effects that may be associated with exposure to the chemicals of potential concern at each site. The final

**step will integrate the results of the hazard identification, exposure assessment, and toxicity assessment into an overall assessment of risks or impacts.**

**The approach presented in the work plan for conducting an environmental assessment for the NAS Moffett Field site was consistent with the risk assessment approach recommended by the U.S. EPA (1989a). The information presented in the work plan was very general and did not fully address each of the phases of the ecological assessment. The approach emphasized literature reviews, modeling efforts, and available data.**

**Response:** The revised work plan is more specific in its approach.

**Comment Number 3:** With regard to sampling, it may be beneficial to add sampling stations in the wetlands near the diversion box to determine whether PCBs are migrating from this location. Otherwise the placement and number of sampling locations appear to be adequate to characterize sediment in OU 6. In Section 4.3.1 (Hazard Identification) it is mentioned that bioassays conducted with indicator species may be necessary. The details of bioassays to be conducted and the types of species to be utilized should be discussed in the work plan.

**Response:** We have added sampling stations to address the site wide nature of the assessment.

**Comment Number 4:** The Exposure Assessment (Section 4.3.2) discusses using literature data, modeling efforts, and existing federal, state, and facility information. An exposure assessment should include the actual and potential exposure pathways with respect to resident organisms. Benthic surveys should be conducted to assist in identifying potentially impacted areas as well as organisms that could be used as indicator species for bioaccumulation studies. Since the effects of PCB contamination may not be apparent with standard laboratory toxicity tests, bioaccumulation studies with resident organisms may provide more meaningful information regarding the extent of site related contaminants.

**The Toxicity Assessment (Section 4.3.3) is based on data available through the literature and electronic databases. These data bases are proposed to be used to establish appropriate assessment endpoints for all contaminants of concern. Both no observed effects levels (NOELs) and lowest**

**observed effects levels (LOELs) will be used in the evaluation. The concentrations derived from this analysis will then be used to establish concentrations below which biological effects would not be expected to occur. The literature and electronic sources should only be used to corroborate the site-specific test results, not to evaluate site-specific conditions.**

**There are additional data available from NOAA with which to screen for biological effects. NOAA scientists have conducted several studies on adverse biological effects to aquatic resources associated with specific contaminants. The NOAA Technical Memorandum NOS/OMA 52 the Potential For Biological Effects of Sediment-Sorbed Contaminants Tested In The National Status and Trends Program, August 1991, contains the screening criteria that NOAA recommends be used to assess the potential for injury to aquatic resources. NOAA suggests using the effects range-low (ER-L) values presented on page 138 in Table 70 as detection limits in analysis of sediments. This document has been provided to Mr. Jim Haas of Moffett. If additional copies are needed, please contact me.**

**Response:**

**The revised work plan includes various qualitative benthic studies to assist selection of receptors.**

**Comment Number 5:**

**Also, on July 16, 1992, I sent the March 1992 NOAA Technical Memorandum NOS ORCA 64, An Evaluation of the Extent and Magnitude of Biological Effects Associated with Chemical Contaminants in San Francisco Bay, California, to Stephen Chao. This document contains specific information on biological effects found in the Bay around Moffett Field and will provide information useful for the ecological assessment at OU 6.**

**On page 11 of the work plan, it is proposed that a summary of appropriate data will be presented. This summary will include data pertaining to environmental contaminant concentrations, body burdens, toxicity test results, literature values of toxicity, field surveys of receptor populations, and measures of community structure and ecosystem function. Except for the information from the literature, no information has been provided regarding the proposed approach for acquiring data for each of these efforts. It is recommended that the work plan include proposed methods for determining body burdens, conducting toxicity tests, performing field surveys, and evaluating community structure and ecosystem function.**

**Response:**

**The revised work plan includes measurement of body burdens in fish. The revised work plan includes use of Long and Morgan.**

Comments From California Department Of  
Toxic Substances Control

GENERAL COMMENT

**Comment Number 1:**        **The stated purpose is not clear. The report contains information on the existence of contamination in the wetland areas, yet the purpose of the investigation is "...to determine if contamination exists." The inconsistency between the purpose and the content of the report must be corrected.**

**Response:**                Paragraph 1 of Section 2.0 of the final work plan will read: "The purpose of the site-wide field investigation is to determine if contamination exists in the storm-water retention ponds. In addition we will define the extent of contamination in the stormwater retention ponds, the wetlands in or adjacent to the facility and to assess whether there is risk posed to ecological receptors in those areas."

SPECIFIC COMMENTS

**Comment Number 1:**        **Page 2, Paragraph 2. Are you saying that this investigation will include horizontal conduit study? Or that is a separate study whose results might affect the cleanup?**

**Response:**                No. The potential for horizontal conduits to accelerate the transport of contaminants to the wetlands will be investigated in a separate investigation.

**Comment Number 2:**        **Page 7, Paragraph 1. It appears that the author independently decided that VOCs in the wetland do not harm the biological receptors. This is an inaccurate conclusion because the biological receptors have much lower tolerance level than humans. In addition, if the purpose of the investigation is to determine the existence of contaminants in the wetlands, then how can you tell there are VOCs in the wetlands unless you have already determined that? This paragraph contradicts the purpose of the investigation.**

**Response:**                The revised work plan indicates that sampling for VOCs in surface waters and wetlands will occur during the investigation.

**Comment Number 3:**        **Page 7, Paragraph 2. The VOCs might not bioaccumulate in ecological receptors, but can affect the receptors irreversibly.**

Response: The toxicity assessment will address the toxicity of VOCs to receptors.

**Comment Number 4:** **Page 7, Paragraph 3. The detection limits must also be consistent with the NOAA and RWQCB guidance documents.**

Response: These documents will be considered when establishing Contract Required Detection Limits (CRDL) with the selected Analytical Laboratory.

**Comment Number 5:** **Page 9, Paragraph 4. The ecological receptor identifications require biological sampling. Literature review will provide a generic information void of any site specifics.**

Response: The revised work plan includes wetland delineation and qualitative field assessments which will aid the identification of receptors.

**Comment Number 6:** **Table 3 Requires detection limits on all the parameters.**

Response: Table 3 will be revised to include appropriate detection limits.

Comments From Laura Valoppi  
Office Of Science Advisor

GENERAL COMMENTS

**Comment Number 1:**            **This work plan is inadequate as written. The first phase should be to characterize the biological resources of the wetland area. This should occur prior to planning any contaminant sampling. Such characterization should be extensive, and include maps showing habitat and species occurrences in relation to surface features and previous sampling events and results. Particular, but not exclusive, attention should be given to federal and state species of concern, their habitat, food resources, and temporal distribution in the wetlands. This first phase can then be used to develop the work plan for the second phase, which would be field sampling activities. The results of the second phase can be used for subsequent studies or evaluation as needed.**

**Response:**                            **The revised work plan addresses the comment regarding the level of detail in the work plan.**

**Comment Number 2:**            **The scope of work, as presented in work plan, has the potential for damage to the wetland habitat and species of concern at Moffett. For example, Figure 12 of the work plan indicates soil/sediment locations which appear to be located in the middle of the wetland, yet no mention is made of the method which will be used to transport personnel and equipment to those locations. The whole objective of this work plan should be to describe, in detail, what specific activities will occur, in what manner, and what measures will be taken to ensure habitat is not destroyed or damaged.**

**Vague statements, such as, "specific information on what to do if wildlife is encountered or destroyed or damage to habitat is extensive or unplanned will be provided [to field personnel].", (page 6) provide little assurance that the planned activities will not do more harm than good. The way to adequately ensure that habitat is not damaged or destroyed is to know beforehand the location and type of biological resources, and plan sampling activities specifically to minimize impacts.**

**Response:**                            **Soil samples collected for this investigation will be taken with hand augering equipment used by a staff of one or two field personnel. therefore, damage to sensitive areas will be minimal.**

Additionally, sensitive areas will be delineated prior to the start of field activities.

### SPECIFIC COMMENTS

**Comment Number 1:** Page 6 of the work plan refers to Table 1 and 2 which list plant and animals species found at Moffett Field, based on a study by USDA (1990). The work plan then cites species of concern (salt marsh harvest mouse, California clapper rail, California brown pelican, and California least tern) which are not listed in Tables 1 and 2.

This suggests that, either the tables are not complete lists, or the USDA study was not thorough in identifying all species found at Moffett Field. Interestingly, the species not listed are all state and federally listed endangered species. A review of California Natural Diversity Data Base (Rarefind, 1991) indicates the saltmarsh common yellowthroat (Category 2 candidate for federal listing) and the saltmarsh wandering shrew (Category 1 candidate for federal listing), are found in nearby areas to Moffett Field, and therefore can be suspected of occurring at Moffett Field also.

All of these factors indicate that a thorough inventory of the biological resources of the area is needed. Phase 1 should include a complete characterization of the biological resources, including detailed maps and descriptions of species and their habitats.

**Response:** The revised work plan describes the level of literature review, review of agency files, and site-specific field assessments to provide a more detailed description of species occurring on site.

**Comment Number 2:** The work plan should identify any known or suspected waste disposal sites within the wetlands or adjacent fill areas, if any. Aerial photographs would provide evidence of such activity. The contaminants known or suspected to have been disposed should be described.

**Response:** The work plan does identify known waste sites (see Figure 3).

**Comment Number 3:** The general source and flow patterns of the storm water lines should be described and indicated on maps. As much as possible, the known or suspected contaminants of the source

**areas should be described. Particular attention should be given to past site activities.**

Response: The revised work plan describes stormwater flow on site.

**Comment Number 4: The laboratory detection limits of past sampling activities should be reported, and these levels compared to potential levels of concern. One resource for sediment quality guidelines is Long and Morgan (1991). The detection limits for each method of analysis should be stated in any future sampling work plan.**

Response: It is our understanding that there are no published levels of concern for soil samples. Detection limits for soil analyses vary as a function of soil moisture so stating values in a work plan may lead to confusion when reviewing data.

**Comment Number 5: The work plan mentions "soil disposal areas". what is the nature and source of these soils?**

Response: This soil was transported from NASA property, during excavation activities associated with construction of NASA facilities.

**Comment Number 6: The work plan does not indicate the depth to groundwater, but consideration should be given to evaluating the effect of contaminated soil-gas collecting in animal burrows.**

Response: Groundwater is expected to be encountered at depths of 0 to 2.5 feet bgs. Given the nature of the soils and the height of the capillary fringe, it is unlikely that soil gas is a contributing risk factor.

**Comment Number 7: The work plan should provide information on the specific analytical methods which will be used. Total petroleum hydrocarbon (TPH) analysis is of little use in evaluating potential ecological effects. Constituents in petroleum hydrocarbons which are of concern (such as VOCs and PNA's) should be analyzed for directly. Surface water samples should include analysis for VOCs in addition to the other compounds.**

Response: Section 11.2 of the revised work plan will be expanded to include these compounds.

**Comment Number 8: It is not clear why depths of 0.5 and 1.5 feet bgs are chosen for sediment samples. The rationale for this choice should be**

**explained and justified. In addition to depth samples, surface sediment samples should also be obtained. Complete sampling procedures should be provided in the work plan. Logistics, such as how and where field personnel will access the sampling locations should be provided. The locations of the surface water samples should be clearly marked on a map, and the reason why those locations were chosen should be provided.**

**Response:**

These issues are addressed in more detail in the Draft Final Work Plan submitted for Agency review on November 3, 1992. Surface sediment samples and soil samples will be taken within the first 0.5 foot because this is the area of most likely biological contact.

**Comment Number 9:**

**I am not commenting on Section 4.3, Environmental Assessment, since it is premature at this time to decide which species, habitats, and contaminants should be addressed quantitatively.**

**Response:**

No response.

**Comment Number 10:**

**Conclusion This work plan is inadequate to describe and support the scope of work planned for the wetland area. First and foremost, a thorough inventory of the biological resources should be conducted. This will provide a basis for deciding where and how to conduct sampling activities to minimize disturbance of the species and habitat, and to provide a rational framework for sampling activities.**

**Response:**

The work plan has been revised to include a more thorough inventory of receptors. Additionally the phased approach will allow the inclusion of additional tasks and surveys as necessary to properly characterize the ecological risk.

Comments from RWOCB

GENERAL COMMENTS

**Comment Number 1:** The OU 6 draft workplan provides a good initial framework for the investigative work that needs to be conducted on the site. However, the approach to the ecological risk assessment presented in this work plan is based on a human-health risk assessment model. This approach is not appropriate for the site. The use of investigation-derived information is important for the initial risk assessment, but the use of a "toxicity quotient" approach for risk characterization is not appropriate.

**Response:** The site-wide ecological workplan is now designed to conform with current EPA ecological assessment guidance (ECO update, U.S., EPA, 1972). The risk characterization section of the revised workplan will use several lines of analysis to provide a weight of evidence evaluation. This multi-analysis approach is designed to counterbalance the uncertainty inherent in any one of the approaches, including the toxicity quotient approach.

**Comment Number 2:** The OU 6 draft work plan needs to clarify the methods to be used during the investigation and assessment of the OU 6 areas. Specialized biological systems such as the wetlands and surface water channels within OU 6 require very different sampling and analysis methods than have been used throughout the rest of the site. In order to evaluate the extent of the possible impacts on the aquatic biota, a specialized sampling approach is required. We recommend the "sediment quality triad" approach to assess the impacts of contaminants on sediments. This approach includes chemical, bioassay and benthic community structure analyses of the sediment. The sediment can be sampled simultaneously by obtaining several core samples. The length of the core and the number of samples from each may be used to determine the extent of contamination. At a minimum, the top six inches should be homogenized for the "natural" chemistry and bioassay tests, the bottom six inches should be capped, kept out of the heat and sunlight, and analyzed for VOCs, PCBs, pesticides, BNAs, TPH and metals. A portion of the samples can be archived for future benthic community structure and chemical analysis, if necessary. The suite of chemical parameters should include pH, ammonia, salinity, grain size, and percent moisture in order to be able to evaluate the results from the chemical analyses associated with the contaminant investigation. The

**"natural" chemical characteristics of the sediment are important to know in order to evaluate what constituent is acting as a toxin. The ammonia levels may be naturally high, and could be as toxic to the benthic organisms as the possible anthropogenic contaminants from the Navy site. The percent moisture is important since much of the published toxicity data is expressed in "dry weight" terms. Specific sampling methods are associated with this test, and the Regional Board staff would be willing to provide guidance and information for field procedures.**

**Response:**

The revised workplan indicates a multi-analysis approach to evaluation in the first phase. This approach includes the screening of site compounds and their respective concentration based on NOAA sediment reference values (Long and Mayam, 1990). Although these data are a compilation of information from other areas in the country, the values do reflect the integration of concentration and changes in benthic community structures. We do not dismiss the possible future use of the triad approach for more site specific information, however, we do feel that the process of screening site data using the NOAA, ERM, and ERL values combined with qualitative observations at the site is sufficient for evaluation in this first phase.

**Comment Number 3:**

The text does not address environmental receptors which may be present on site in addition to the ones listed on Table 2. This table includes only mammals and birds, excluding the possible fish which may reside in the channels and the benthic organisms in the channels and sediments of the wetlands. The occurrence of the San Francisco Forktail Damselfly at other areas of the Base, may mean that the population resides in OU 6 areas also. This possibility needs to be included in the discussion of the environmental receptors. A general description of the area should also be included. How many months of the year is the area under water? What is the estimated "high water mark", and what is the average height of the ponded water in the wetland? Does the area dry out completely during the summer months? Do migratory birds use the area? These characteristics of the area will help to determine when the field work can be scheduled and provide details as to what are the specific sensitivities of the area.

**Response:**

The revised workplan includes information from a site visit and provides plan for a complete habitat characterization and receptor identification to be accomplished in Phase I.

**Comment Number 4:**

**This work plan is for the first phase of remedial investigation at OU 6. Since the fieldwork will include the investigation of possible sources, it seems that the area directly northwest of the runways, just west of site 1, as well as investigations of site 1, should be included within the same time frame. The landfill may be a possible contaminant source if contaminants are found within the adjacent storm water retention ponds. The grid sampling approach should include the area west of site 1 and directly south of the channel that connects with Stevens Creek (see enclosed map). This area, to my knowledge, has not been incorporated into either the north base area investigations or OU 2/OU 4 investigations. This area needs to be investigated to determine the extent of the TCE groundwater plume and to characterize the soils.**

**Response:**

Soil boring locations have been added in the work plan to the runway overrun area (just west of Site 1). No additional groundwater monitoring wells are planned at this time, however, existing monitoring wells are routinely sampled in the quarterly sampling efforts. These data will be incorporated into the SWEA. The channel connects with Guadalupe Slough not Stevens Creek.

**SPECIFIC COMMENTS**

**Comment Number 1:**

**Page 5, Section 4.1.2. The distribution of TCE and DCA in Figure 10 are delineated by "detect/non detect" lines. What was the detection limit for these compounds? In addition, please clarify the detection limits for both BNAs and PCBs, pesticides and TPH.**

**Response:**

Detection limits for all compounds in various environmental media is provided in the revised workplan.

**Comment Number 2:**

**Page 6, Section 4.2. As stated above, this section needs to include the other organisms, such as fish and benthic organisms that may reside in the area. Species of special concern should include the Damselfly and the burrowing owls.**

**Response:**

As stated in response to general comments, the revised workplan incorporates past site information and a site visit. In addition, the assessment plans for further ecological inventory in a site walk-over and habitat characterization. All of this is intended to identify all potential ecological reflections.

**Comment Number 3:**

**Page 7, Section 4.2.2. VOCs do not bioaccumulate, but are toxic at low levels. The levels of VOCs detected previously in the area were from shallow surface soil and sediment samples which do not reflect the concentrations which may be present in the sediment at other depths. A portion of the random grid sampling should include VOC analysis to validate the assumption that only low levels, that are not acutely toxic, are present. Surface water samples should also be analyzed for VOCs. Investigative work at OU 6 should include an attempt to locate the source of the high levels of PCBs in the area. Surface water and sediment samples should include samples from the slough which runs from Stevens Creek, as well as the channel which is perpendicular to Marriage Road, along the salt evaporation ponds. What is the name of this channel?**

**Response:**

Surface water samples are being collected in the ditch perpendicular to Marriage Road and parallel to the salt evaporation ponds. We have emphasized surface samples expecting that primary exposure to organisms is related to surface contact. Past sampling done in site has indicated that the most likely source of contamination is due to surface run-off as opposed to deeper soils. Thus, we have forward our sampling efforts at this level in soils. The wetlands are not ground water fuel, but are high during periods of run-off and green vegetation exists along the banks of ditches and discharge points. In summary, we have no observations or testing to indicate that the deeper soils may be a

**Comment Number 4:**

**Page 8, Section 4.3.1. The site characterization process should include the triad sediment sampling approach outlined in the general comments.**

**Response:**

This comment is addressed in the response to general comments for this reviewer.

**Comment Number 5:**

**Page 10, Section 4.3.3. The San Francisco Bay Regional Board has a document in draft form, "Sediment Screening Criteria and Testing Requirements for Wetland Creation and Upland Beneficial Reuse", May 1992, that may be utilized to evaluate the ecological risks at the site.**

**Response:**

This document will be requested for review.

**Comment Number 6:**

**Page 13, Section 5.0. The design for obtaining data, collecting a greater number of samples around suspected sources, is sufficient as long as an appropriate amount of random**

**sampling is conducted in order to statistically evaluate the toxicity data.**

Response:

To some extent, random sampling grids have been utilized in the proposed sampling at the site, however, use of non-random sampling data would result in conservative estimates of risk. Sampling has focused on potential depositional areas for run-off, thereby concentration estimates will be from areas expected to have the highest concentration.

**Comment Number 7:**

**Page 14, Section 6.2. Some soil/sediment and all surface water samples should be analyzed for VOCs as well as BNAs, PCBs, TPH, pesticides and metals.**

Response:

The revised workplan includes sampling for all compounds of potential concern.

**Comment Number 8:**

**Figure 5: How is the channel from the Navy storm water ponds to Stevens Creek being identified? What is its name? Is the "Navy Channel" the channel which runs perpendicular to Marriage Road along the salt evaporation ponds? I thought the Navy Channel was closer to Guadalupe Slough. Please clarify and identify these channels on the figures.**

Response:

There is no channel connecting the shared Navy/NASA storm water retention pond (SWRP) to Stevens Creek. When the water level in the SWRP reaches excessively high levels, an emergency storm water lift station, located in the northwest corner of the SWRP, is operated. This lift station pumps water over the levees and into Stevens Creek. The Navy channel transports water from Building 191 east towards Guadalupe Slough. The Navy channel will be identified on the final version of the work plan.

**Comment Number 9:**

**Figure 10: Were wells W1-2, 10H01A, 10A01A, 11M02A sampled for TCE and DCA? If so, what were the concentrations in these wells?**

Response:

The following are EPA wells that were sampled in March, 1992:

<u>Well</u>	<u>TCE Concentration(<math>\mu\text{g/L}</math>)</u>	<u>Detection Limit</u>
10H01A	ND	1.0 $\mu\text{g/L}$
10A01A	ND	1.0 $\mu\text{g/L}$
11M02A	ND	1.0 $\mu\text{g/L}$

These values are published in the North Base Area Hydrogeologic (JMM/PRC, October 1992).

W1-2 is a Navy well at Site 1. It was last sampled by JMM/PRC in December 1992. Analytical results are pending. The well was also sampled by Earth Science Associates in 1985 (Earth Sciences Associates and James M. Montgomery, 1986. Confirmation Study [verification step] Moffett Field Naval Air Station, Volume 1. April 1981).

<u>Sample Date</u>	<u>TCE Concentration (<math>\mu\text{g/L}</math>)</u>
09/16/85	2.4
10/22/85	ND
11/21/85	1.3

**Comment Number 10:** **Figure 12: Sampling locations along the channel perpendicular to Marriage Road need to be closer together. The proposed locations are almost 1600 feet apart, which will not be adequate to characterize the area.**

**Response:** We have additional samples in the revised workplan. However, the expectation with regard to contamination in the channel perpendicular to Marriage Road is as follows:

- Samples taken at discharge point should represent worst case or maximum concentrations.
- Water quality along the channel is expected to be homogenous with some loss of volatiles.
- When the Creek is flowing, low losses to sediments is expected.

In addition, sampling is proposed at the discharge and downstream, so any loss can be identified. Additional sampling in Marriage Road ditch has been proposed in the revised workplan.

365 Lennon Lane  
Walnut Creek, CA 94598-2427

**JMM** James M. Montgomery



December 17, 1992

*Mr. Stephen G. Chao, P.E.*  
Western Division  
Naval Facilities Engineering Command  
Bldg. 101 Code 1813SC  
San Bruno, California 94066

Contract No: N62474-88-D-5086  
CTO 0134

File: 2738.0367/2.1/3.1

**Subject: Response to Agency Comments on the Draft OU 6 Work Plan**

Dear Stephen:

Please find enclosed three copies of the Navy responses to agency comments on the Draft OU 6 Work Plan. The original set of comments/responses submitted November 24, 1992, inadvertently did not contain responses to the Regional Water Quality Control Boards comments. Please call if you have questions (510) 975-3400.

Sincerely,

**JAMES M. MONTGOMERY, INC.**

*Joseph P. LeClaire*  
Joseph P LeClaire, Ph.D.  
Project Manager

cc:	Ms. Roberta Blank	U.S. EPA Region 9	(1 copy)
	Ms. Elizabeth Adams	Regional Water Quality Control Board	(1 copy)
	Mr. Cyrus Shabahari	State of California EPA	(1 copy)
	Ms. Denise Klimas	NOAA c/o EPA Region 9	(1 copy)
	Mr. Fred Molloy	SAIC	(1 copy)
	Lt. Susanne Openshaw	NAS Moffett Field	(1 copy)
	Mr. Don Chuck	NAS Moffett Field	(2 copies)
	Mr. Josh Marvil	PRC Environmental Management, Inc.	(2 copies)
	Ms. Lynn Valdivia	PRC Environmental Management, Inc.	(1 copy)
	Mr. Keith Bradley	IT Corporation, Knoxville	(1 copy)
	Ms. Paula Pritz	Martin Marietta Energy Systems, Inc.	(1 copy)
	Ms. Sandy Olliges	NASA Ames Research Center	(1 copy)
	Mr. Patrick Hogan	NASA Ames Research Center	(cover letter)
	Mr. Eric Madera	Raytheon Corporation	(1 copy)
	Mr. Robert Bostic	Schlumberger Technology Corp.	(1 copy)
	Mr. Dennis Curran	Canonie Environmental Services Corp.	(cover letter)
	Dr. Jim McClure	Harding Lawson Associates	(cover letter)

1852