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MCAS EL TORO
SSIC # 5090.3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL	# of pages ► 42
To Tim Latas	From Bonnie Arthur
Dept./Agency	Phone #
Fax # Comments	Fax # finally!
NSN 7540-01-317-7368 5099-101	GENERAL SERVICES ADMINISTRATION

May 24, 1995

Mr. Joseph Joyce
BRAC Environmental Coordinator
Environment and Safety (Code 1AU)
MCAS El Toro
P.O. Box 95001
Santa Ana, CA 92709-5001

Dear Mr. Joyce:

EPA has reviewed the "Revised Draft Workplan Phase II, Remedial Investigation/Feasibility Study" and "Draft Field Sampling Plan, Phase II Remedial Investigation/Feasibility Study," prepared for Marine Corps Air Station, El Toro, California. Please address the enclosed comments in the draft final reports. If you have any questions, I can be reached at (415) 744-2389.

Sincerely,

Bonnie Arthur
Remedial Project Manager
Federal Facilities Cleanup Office

Enclosures

cc: Mr. Juan Jimenez, DTSC
Mr. Larry Vitale, RWQCB
Mr. Jason Ashman, SW DIV
Mr. Dante Tedaldi, Bechtel

ENCLOSURE A

EPA COMMENTS ON THE
"REVISED PHASE II WORKPLAN(WP)" AND "DRAFT FIELD SAMPLING PLAN (FSP)"

GENERAL COMMENTS - WORKPLAN AND FIELD SAMPLING PLAN

1) Overall, the report is well written and organized. We appreciate the high level of cooperation from the Navy and CLEAN I and II contractors which aided in developing this workplan.

2) The use of NFRAP or NFAC is not an appropriate form of no further action certification for sites or units within sites which are in the MCAS El Toro Installation Restoration Program (IRP). As discussed during the April 24, 25 meetings, "no further investigation" decisions regarding units within sites can be documented with the proposed form (Attachment). A no action ROD may be an appropriate option for sites with risk levels below human health and ecological criteria. Please revise the text throughout the report.

3) Future reports will not be accepted without chemical data from prior investigations included on maps. Review time was increased due to reviewers having to record data on maps from prior reports.

4) Currently approved immunoassays for PNAs and PCBs are only effective for sites at El Toro where compounds are known to be present and the sampling effort is targeted toward investigating extent of contamination. As discussed in our April 24, 25 meetings, the detection limits for these immunoassays are higher than the risk criteria, either EPA's Preliminary Remediation Goals (PRGs) or the Risk Based Concentrations (RBCs). The sampling strategy for the sites which utilize immunoassay analyses should be reassessed. In all cases, the minimum number of confirmation samples to be analyzed in the mobile or fixed laboratories is not sufficient.

5) The selection of the landfill presumptive remedy for Sites 2, 3, 5, 17 at El Toro cannot be made until further data is collected to determine if the landfills present a risk to human health and/or the environment. Presumptive remedies may not be applicable for all four landfill sites for the following reasons: a) groundwater may not be affected, b)

soil may not be impacted or c) habitats for special status species may be impacted and can not be successfully mitigated. Please revise the wording of Step 1 (Problem Statement) for each of the landfill appendices to reflect only that the landfills are strong candidates for presumptive remedy approach. EPA does agree, with few exceptions as discussed in the site specific comments, with the investigation strategy outlined in the WP and FSP for Sites 2, 3, 5, and 17 (also refers to the "Response to Regulatory Agency Comments," Page 34, Response #40).

6) Please add a discussion connecting the stratum and unit discussions. If the unit and stratum are identical, then place the unit number in parenthesis each time stratum is used. It would be helpful to summarize the discussion from Page 4-36 of the workplan in each site specific appendix.

7) EPA will not be providing comments on Sites 4, 13, and 14 as agreed because the Navy is providing EE/CAs for review in May which address these sites.

8) As it appears that residential risk has been calculated for each unit, this should be specified in each FSP site specific Section 4.

9) Further soil gas may be a useful tool in Site 24 for selection of locations for the SVE and air sparging wells.

10) Please change the term background to ambient when applied to any organic contaminants.

11) The chemical concentration lists should be consistent between the FSP and WP. For example, please review the chemical concentration lists in FSP Attachment B and WP Appendix B (Site 2).

SPECIFIC COMMENTS - REVISED PHASE II WORKPLAN

Major

1) Page 4-3, Section 4.2.1.3; This discussion should include ecological risk screening. Identify the criteria for completing risk estimates.

2) Page 4-4, Section 4.2.2, Step 2, #3; Please revise the phrase starting "to determine if groundwater beneath the site is impacted." This statement implies that the soil investigation is the only factor to determine if groundwater is impacted.

3) Page 4-5, Step 2, #7; Please add the evaluation of ARARs.

4) Page 4-5, Step 2, #8; State which air action levels will be used.

5) Page 4-5, Step 2, #9, b; Please define the term "principal threat waste."

6) Page 4-5, Step 2, #9; It is confusing to state that if the answers to the four questions regarding hot spots are all negative, that no further action would be recommended. Although no further action may be recommended specifically designed as a source action to address the hot spots (as noted), the landfill site may still require remedial action due to the risks posed by the hot spots.

7) Page 4-5, Step 2, #10; Have the regulatory agencies approved surface and sediment background or action levels for El Toro?

8) Page 4-6, Section 4.2.3.1; The citation from the NCP is correct, however, it does not apply for El Toro. EPA has used the NFRAP process for sites in the PA/SI phase which do not rank high enough to qualify for EPA's National Priority List (NPL). Please see General Comment # 2.

9) Page 4-16, Section 4.2.3.5; a) The Navy should provide new Operable Unit site categories to CLEAN II contractors. These operable unit categorizations were finalized in the revised 3/95 FFA schedule b) Please revise the presumptive remedy discussion (see General Comment #4).

10) Page 4-22; Immunoassay detection limits should be discussed and a table included which compares detection limits and PRGs.

11) Page 4-32, Section 4.2.3.9; Fate and transport models should be selected in consultation with the regulatory agencies.

12) Page 4-35, Section 4.2.3.10; ARARs are also required inputs to the development of cleanup levels.

13) Page 4-37; It is anticipated that this section will be revised with the use of PRGs. Please consult with regulatory agencies during revision.

Site 2

14) Please clarify that trenching to delineate the boundaries of the landfill is proposed.

15) Page B-i; Include an evaluation of critical habitats in Step 2.

16) Page B-27; Dioxin analyses should also be included.

17) Investigations should be scheduled around the nesting periods for the special-status species.

Site 3

18) Page C-i, Step 1; Clarify why the first objective for Site 3 investigation is "to determine if the landfill is the source of volatile organic compounds in groundwater." Other contaminants in the groundwater would also be of interest.

19) Page C-12, Site 3; The text cites 2 excavations which took place east of Agua Chinon Wash. Are these depicted on a map?

20) Page C-31; Dioxin analyses should be added for soil samples.

21) Page C-41; a) Clarify use and timing of groundwater monitoring data. For example, text states that "no additional wells are proposed for Site 3." However, the second sentence states that "the analytical results of the existing groundwater monitoring wells will be assessed and a determination will be made as to if the existing groundwater monitoring network is sufficient to ascertain if the landfill is the source of the groundwater contamination in the immediate area." b) qualification that "if groundwater contamination is observed from Site 3, additional Tier 2 field investigations will be performed, as necessary, to obtain site-specific data for...objectives," one of which is to document seasonal variations in groundwater elevations. This should be completed sitewide anyway. Also, if there is no groundwater contamination, are angle borings still planned?

Site 5

22) Page E-8; What is the location of the 2 anomalies identified in the EPA survey? a) area of disturbed ground in the SW portion of the landfill b) impoundments in the NW area. Are these locations included in the landfill site boundary?

23) Page E-9; There are several areas identified in the SAIC survey from aerials after the late 1960s. Although the landfill only officially operated between 1955-1960, these areas should be covered in the estimated landfill boundary.

24) Page E-20, Unit 1 discussion; Text states that groundwater is impacted, therefore, clarify meaning of the first sentence.

25) Page E-30; Earlier data (page E-19) indicates that groundwater is impacted, therefore, the objective would be to collect additional groundwater samples for confirmation of past results.

26) Page E-33, Unit 2; It is not clear why Unit 2 fill is classified as clean.

Site 6

27) Page F-5; Please include the locations of SUMU/AOCs 204 and 236 on a map.

Site 7

28) Based on the 4/24-25 meetings, the Navy proposed the following:

Unit 3: Navy proposed removal action. EPA concurs with this recommendation.

29) Page G-27, Unit 2: Recommended for "no further investigation (NFI)." EPA does not concur for Unit 2, given the soil gas concentrations in samples #355 and 215 (located in SW corner). Additional sampling should be proposed.

Site 8

30) Based on the 4/24-25 meetings, the Navy proposed the following:

Units 1 & 4: Navy proposed removals. EPA concurs with this recommendation.

31) Page H-28; Unit 2: Navy proposed NFI. EPA does not concur given the limited depth of sampling at 08_GN3 (2 feet), 08_GN2 (4 feet) and 08_ST2. Also, low soil gas levels were detected. Additional sampling should be proposed..

32) Page H-12; Samples should be screened for radiological activity given that the Marines may have stored small quantities of radium painted parts and gauges at Site 8, according to D. Campbell.

33) Pages H-14, H-21; Site 8 may be a source of VOCs if the list of VOCs are compared from the upgradient and downgradient contaminants' list. For example, benzene, carbon tetrachloride, chloromethane are detected in the downgradient monitoring wells and not in the upgradient ones.

Site 11

34) It may be appropriate to consider reorganizing the units within Site 11, given their close proximity to one another.

35) Page K-7; The depth of sampling for PCBs should be contingent upon the PCB levels found in shallow soils not based upon a general statement that it is not expected that the PCBs "will readily migrate vertically into these media." Many times the carrier compounds which were used with PCBs are very mobile and thus PCBs have been found at significant concentrations at depths below 10 feet.

36) Page K-7; It is not appropriate to cite hazardous waste criteria in comparison to site PCB levels. PRGs are the appropriate screening criteria.

Site 12

37) Based on the 4/24-25 meetings, the Navy proposed the following:

Unit 3: Navy proposed removal. EPA concurs with this recommendation.

38) Page L-5; Is location of SWMU/AOC 7 depicted on a map?

39) Page L-29, Unit 1; All soil samples should be submitted to mobile or fixed laboratory.

Site 15

40) Based on the 4/24-25 meetings, the Navy proposed the following:

Unit 1: Navy proposed removal. EPA concurs with this recommendation.

41) During the 5/2/95 regulatory site visit, the covered soil piles were observed. Apparently these soil piles have been located at Site 15 for many years. These should be sampled and properly disposed of.

42) Page O-2; What is the location of SWMU/AOC 272? RFA sample locations should be shown on a map.

43) Page O-9; The "mounded material" observed in the SAIC survey is stated to not be part of Site 15. Which site will it be handled within?

Site 16

44) Page P-2; The text indicates that the evaluation of the current Crash Crew Pits "will be included under the Base Closure Plan." Clarify which Navy RPM and contractor is responsible for this area.

45) Page P-2; The text indicates that SWMU/AOCs 288, 289 and

290 will be evaluated under the MCAS El Toro UST Investigation. Please clarify if a Navy RPM was contacted for this information.

46) Page P-7; Which map includes the location of the 27 surface and near surface soil samples?

47) Page P-26; Are some judgmental sampling locations proposed near 16AB213 where "significant TFH contamination is present to depths of approximately 60 feet bgs," and if so, in Tier 1 or 2?

Site 17

48) Page Q-10; In the conceptual model section, need to indicate whether agricultural workers are currently exposed.

Site 19

49) Based on the 4/24-25 meetings, the Navy proposed the following:

Unit 1: Navy proposed removal action. EPA concurs with this recommendation. It also might be advisable to combine Units 2, 3 and 4 into one unit.

Site 20

50) Page S-27; Unit 1: Navy proposed NFI. EPA does not concur and recommends that one sample be collected in the NE corner.

51) During the 5/2/95 regulators' site visit, a black pipe was observed leading into Aqua Chinon from Unit 1. Please clarify its purpose.

Site 21

52) Page T-5; Please include the surface sample locations from page T-2 of the text on the figure.

Site 22

53) Page U-25; Unit 2: Navy proposed NFI. EPA does not agree with this recommendation. Further vertical definition is necessary near Boring 22_2FB3 and 22_25B219 (concentrations at 25 feet).

Site 23-Sewer Lines (Comments same as for FSP)

54) Page V-1; Specify how the other sewer lines across the base will be handled.

55) Page V-1; Was visual inspection completed of the sewer lines?

56) Page V-1; Silver was detected above action levels in 1

location. Since samples were only collected every 200 feet, any sample location with concentration levels above action levels should be investigated further.

57) Page V-1; Clarify the last sentence starting with "this site is being considered with other OU-3 sites to be addressed in the Work Plan and its associated supporting documents."

Site 24

58) Page W-i; Clarify the relationship of Site 24 to the site investigations for individual sites contained within the boundary of Site 24 (Sites 7, 8, 9, 10, 11, 12 and 22).

59) Pages W-2, W-9; Please include a map (or refer to map if located elsewhere) with the industrial wastewater sewer lines.

60) Page W-15; Which map identifies the abandoned water wells?

61) Page W-16; Include reference to the Bee Canyon and Agua Chinon Wash investigations, since sources of contamination to these washes are identified.

62) Page W-16; As "liquid wastes were spread over unpaved areas of the flightline for dust suppression" limited surface sampling should be proposed.

63) Page W-32; Explain the connection between Operable Units 1 and 2 within the "Statement of Phase II RI Problem" section.

64) Page W-38; Please revised the decision rules to specifically apply to this Site. For example, as stated on page W-37, there are no background concentrations which have been identified for Site 24. Also, #6 and #7 do not appear to apply given the conceptual model figure which indicates that at Site 24 the higher soil concentrations are deeper due to many factors.

Site 25

65) Page X-1; It is not appropriate to cite that the contaminant concentrations in stream sediment "were still considered low." Please compare results to ecological screening criteria.

66) Page X-5; Which map includes the location of the Phase I RI samples?

67) Page X-11; Please clarify if regulatory agencies approved this methodology for deriving the ecological screening

criteria for wet wash sediment using ambient water quality criteria and an equilibrium partitioning approach for nonpolar organic compounds.

68) Pages X-18, X-19; Clarify whether there are established background levels for El Toro surface water?

69) It is not clear from the text for Site 23 (Sewer Lines) if the storm sewers have also been investigated as part of the RFA. The wash maps should clearly show the lined or unlined portions of the wash and the drainage from the following individual sites (mentioned in the site appendices):
o Site 10- Petroleum Disposal Area
o Page J-9; from Employee interviews--"a storm drain trench was located adjacent to the northwest edge of the original parking apron. The drain was used to divert surface runoff away from the apron (assume drainage into Bee Canyon Wash).

o Site 11; Potential for PCBs draining into Bee Canyon Wash from a catch basin west of Building 369

o Site 16 drainage into Bee Canyon.

o Page X-12; storm sewer lines leading from each of these building into the washes.

Minor

1) Page 2-3; Correct grammar in sentence starting with "VOC-contaminated water is sent to an on-site granular-activated carbon unit for treatment..."

2) Page 4-33; Other sites in addition to Site 2 have impacted groundwater.

Site 2
3) Page B-i; Correct the typographical error in Step 1.

4) Page B-5, Figure B-2; It is difficult to identify the surface water sample locations.

Site 3
5) Page C-i, Step 3; Typographical error in first sentence-should be Step 2.

6) Page C-21, Step 3; Typo first sentence. Step 3 should be Step 1.

7) Figure C-3; Check the labeling of the SWMU/AOC 194 borings.

Site 5

8) Page E-30; Correct grammar in the following sentence: "If groundwater impacts are observed as a result of Phase II well installation and sampling, additional wells may be constructed and sampled to estimate the extent of groundwater degradation."

Site 7

9) Map G-2; Difficult to tell difference between Units 5 and 2 on the map.

10) Page G-12; Delete the following phrase:"...and is of primary interest to this investigation."

11) Page G-29; Unit 4: Please confirm the location of sample 7_NP1 (located in Unit 3 or 4?).

Site 8

12) Page H-ii; Correct the grammar in last sentence.

Site 10

13) Page J-5; Are the 6 surface soil sample locations depicted on a map?

Site 11

14) Page K-5; It is difficult to distinguish between the Unit 1 and 2 boundaries.

Site 12

15) Page L-20; In the "Nature and Extent of Contamination" section, clarify that the additional sampling would take place as Tier 2.

Site 15

16) Page O-1; Typographical error in Step 1.

17) Page O-9; Typographical error in the "SAIC Aerial Photograph Survey section."

Site 17

18) Page Q-1, Step 1, 2nd sentence; Correct grammar.

19) Figure Q-2, Site 17; Missing proposed sampling locations.

20) Page Q-8, Summary of Employee interviews; Correct grammar in indented paragraph.

Site 19

21) Page R-7, Figure R-2; Please add the location of AOC/SWMU 20 to the figure.

Site 20

22) Page S-5, Figure S-2; Is SWMU/AOC 157 depicted on a map? Also, Unit 4 appears to be mislabeled.

23) Page S-11; Two different depths are cited for depth to groundwater (150 and 190 feet).

Site 21

24) Page T-5; Pages appear to be misnumbered.

Site 22

25) Page R-2; Which map depicts AOCs 107, 242 and 20?

Site 23

26) Page V-1, 2nd paragraph; Typographical error-duplicate "none of."

Site 24

27) Page W-14; Is a map with PCE soil gas levels included in report?

28) Page W-20; State that two rounds of data have been collected from the on-site multiport monitoring wells.

29) Page W-38; Typographical error in Step 4 section.

30) Page W-47; Key for VOCs in soil gas, i.e. Freon 113, 1,1-DCE, 1,2-DCE, etc. appears to be in the wrong place.

Site 25

31) Page X-5; Is page X-4 missing?

32) Page X-15; Not all portions of the washes are lined as indicated in the figure.

33) Page X-17; Typographical error in the second bullet under "Statement of Phase II RI Problem."

SPECIFIC COMMENTS - DRAFT FIELD SAMPLING PLAN

Major

1) Page 5-1, Section 5.2 and Page B5-3; Immunoassay detection limits should be discussed and a table included which compares detection limits and PRGs.

Site 3

2) As discussed in the "Response to Regulatory Comments," page 53, comment #7, further investigation must be proposed to identify the location of Abandoned Well 24-4247.

3) Page C2-4, Section 2.3; Add statement regarding the disposition of the soil from the 1992 excavation.

4) Page C4-2, Section 4.1.5; Are the locations for angle borings selected?

5) Page C4-3, Section 4.2; Please clarify if groundwater monitoring is included as part of Tier 1.

Site 5

6) Page E4-2, Section 4.1.4; Are the locations for the groundwater monitoring wells selected?

7) Page E4-3, Section 4.2.1; Clarify if groundwater monitoring will be scheduled for Tier 1.

8) Page E5-6; Selected soil samples should be analyzed for dioxins.

Site 7

9) Page G2-4; Where are monitoring wells 07_DGMW72 and 07_DGMW91 located?

10) Page G5-1; Page G-1 states that waste fluids were used for dust control. Dioxin analyses may be appropriate?

Site 8

11) As it is specified that there is 5 feet of fill in the Old Salvage Yard (Unit 5), clarify the depths of the prior sampling.

Site 9

12) Page I5-1; See discussion for Site 9 under the workplan comments.

Site 11

13) Page K2-3; It is not appropriate to cite hazardous waste criteria in comparison to site PCB levels. PRGs are the

appropriate screening criteria.

14) Page K5-3; Unit 3: All samples should be analyzed at the offsite laboratory given the detection limit for PCB immunoassays.

Site 12

15) Page L2-1; When discussing a possible source of contamination to Bee Canyon Wash, reference should be made to the Site 25 investigation.

Site 17

16) Page Q1-1, Section 1.1; See General Comment #4 above regarding presumptive remedies for landfills.

17) Page Q5-7; Selected soil samples should be analyzed for dioxins.

Site 20

18) Page S5-3, Unit 4; Proposed to field screen all soil samples for PCBs and PAHs. No PCBs were detected, so since detection levels are not low enough to verify if PCBs are present, mobile or fixed laboratory should be used.

Site 21

19) Page T5-1; All analyses should be sent to fixed laboratory, due to the limited sample number.

Site 22

20) Page U5-1, Unit 1; Please include SVOC, PCB and VOC analyses.

Site 24

21) Page W4-1, Section 4.2; Explain the connection between site specific investigations and the comprehensive Site 24 investigations.

22) Page W6-5, Section 6.5.2 (page 6-43, Section 6.7); The following components are missing from the discussion of the air sparging (AS) and soil vapor extraction (VE) pilot tests:

a) objectives of the studies (more detail than page 6-43);

b) estimated area to be treated;

c) proposal to assess water quality in aquifers before and after pilot tests (vertical extent is mentioned on page 6-50)

d) schedule

e) will the system controls for each system be integrated to assure AS system only operates when VE is operating?

f) monitoring and reporting of the following parameters
- dissolved oxygen in groundwater
- groundwater elevations
- contaminant concentration in extracted vapor stream from the VE wells

g) sample of AS/VE field log

h) frequency of status reports to regulatory agencies

i) supporting documentation in the RI
-field notes
-laboratory data
-site plan
-copies of any permits
-chain of custody documentation

23) Page W6-6, Aquifer Pumping Tests; Necessary to add a proposal for the length of time for the pump tests.

Site 25

24) Page X2-1; The short reach adjacent to Site 19 should be shown on the map.

25) Page X2-4, Section 2.2.4.1; Please provide the rationale for filtering the surface samples.

26) Page X4-5, Section 4.1.3; Would the SVE wells or piezometers be installed under Tier 1 or Tier 2?

27) Page X5-2, Section 5-3; All samples should be sent to the on-site mobile laboratory for analysis of VOCs.

Minor

1) Page C6-2, Section 6.4; Please correct the grid discussion, as the soil gas grids are unit dependent. For example, a 20 ft. grid is proposed for Unit 3.

2) Page O3-5; Name listed incorrectly.

3) Page Q1-2; Soil gas samples shown on what map?

4) Page W3-7; Take proposed fieldwork key off the map.

5) Page W6-5, Section 6.5.1; Section 6.6.1.2 cited in the FSP. Is this an error?

ENCLOSURE B

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

May 16, 1995

MEMORANDUM

SUBJECT: Draft Field Sampling Plan and Revised Draft Work Plan, Phase II Remedial Investigation/Feasibility Study (RI/FS), Marine Corps Air Station (MCAS) El Toro, El Toro, California (QAMS Document Control Number H6CA002Q95VSF1/H6CA003W95VSF1)

FROM: Lisa Hanusiak, Chemist
Quality Assurance Management Section (P-3-2)

THROUGH: Vance S. Fong, P.E., Chief
Quality Assurance Management Section (P-3-2)

TO: Bonnie Arthur, Remedial Project Manager
Navy Section (H-9-2)

The subject field sampling plan (FSP) and work plan (WP), prepared by Bechtel National, Inc. and dated March 1995, were reviewed. The review was based on the guidance provided in "Preparation of a U.S. EPA Region 9 Field Sampling Plan for Private and State-Lead Superfund Projects," (QAMS DCN 9QA-06-93, August 1993); "Guidance for the Data Quality Objectives Process," (EPA QA/G-4, September 1994); and "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act), Interim Final," (EPA/540/G-89/004, 1988).

The FSP and WP provide a thorough discussion of results from previous investigation efforts and planned activities for the Phase II RI/FS at each of the 25 Installation Restoration Program (IRP) sites defined for MCAS El Toro. However, it is unclear whether the three-tiered analytical scheme will provide sufficient definitive data to support the planned risk assessment. The comments provided below should be addressed before the FSP and WP can be approved by the Quality Assurance Management Section (QAMS).

Concerns

1A. [WP Section 4.2.3.5, Tiered Sampling Programs; WP Section 4.2.3.8, Analytical Methods] It is unclear whether the analytical scheme described in Sections 4.2.3.5 and 4.2.3.8 of the WP, which involves a three-tiered approach that incorporates preliminary field screening analyses, on-site

mobile laboratory analyses, and fixed-based laboratory analyses, will provide sufficient sensitivity to meet the RI/FS objectives.

The analytical scheme involves submitting samples with positive results from field screening analyses for further analyses (by a mobile laboratory and, possibly, by a fixed-based laboratory). In general, field screening techniques afford less sensitivity than mobile laboratory and fixed-based laboratory analytical techniques. It is possible that samples from site locations may contain contaminants of concern at concentrations below the field screening detection limits, but above the applicable action levels. As a result, definitive data would not be generated for areas of possible regulatory concern.

It is recommended that the discussion of the proposed analytical scheme be expanded to indicate how the generation of such data gaps will be avoided or minimized. Actual detection limits should be specified for the various field screening instrumentation/techniques (e.g, portable gas chromatograph, portable scintillometer, x-ray fluorescence, immunoassay test kits). Also, these limits should be discussed in relation to the limits for on-site mobile laboratory and fixed-based laboratory analyses and the applicable regulatory limits or action levels.

1B. The text in Section 4.2.3.8 of the WP states that 5% of samples determined to be free of contamination by preliminary field screening will be submitted to an on-site mobile laboratory for analysis, and that 10% of the samples with positive results and 5% of samples determined to be free of contamination by mobile laboratory analyses will be submitted to a fixed-based laboratory. The procedure by which samples will be selected for submission for mobile laboratory and fixed-based laboratory analyses should be described.

In addition, the possibility of using a different approach for determining the number of samples to submit for definitive analyses should be considered for sites where limited sample collection is planned. For some sites, 5 or 10% of the total samples may equate to 1 or 2 samples. It is unclear whether sufficient definitive data will be generated for these sites; it may be necessary to submit a greater percentage of samples for additional analyses.

2A. [WP Table 4-4, Project-Required Detection Limits] Detection/reporting limits should be added to Table 4-4 of the WP for the following parameters:

- total Kjeldahl nitrogen [TKN] (E353.3; aqueous samples)
- total dissolved solids [TDS] (E160.1; aqueous samples)
- total organic carbon [TOC] (E415.1/SW9060; aqueous/solid samples)
- biological oxygen demand [BOD] (E405.1; aqueous samples)
- chemical oxygen demand [COD] (E410.4; aqueous samples)
- total phenolics (SW9065; solid samples)
- sulfate (E375.4; solid samples)

2B. Detection limits should be specified for all target analytes listed in Table 4-4 of the WP. "NL" (Not Listed) or "--" is entered instead of detection limits in the table for many analytes.

2C. The analytical methods specified for several of the chemicals of potential concern (COPC) do not provide sufficient sensitivity to detect these chemicals at concentrations below the risk-based concentrations (RBCs) specified in Table 4-4 of the WP. This issue is a concern for the following analytes: carbon tetrachloride, chloroform, dibromochloromethane, 1,2-dichloroethane, 1,2-dichloropropane, and 1,2,2-tetrachloroethane (SW8010); vinyl chloride (SW8240); heptachlor epoxide (SW8080); n-nitrosodipropylamine (SW8270); and arsenic and beryllium (SW6010).

In order to reliably quantitate these analytes at concentrations less than RBCs, it may be necessary to use alternative methods or to modify the specified methods. For example, for SW-846 Method 8010 analyses, it may be sufficient to analyze a low level standard daily to demonstrate the ability of the laboratory to detect these analytes at the RBCs. For the analysis of arsenic and beryllium, the use of an atomic absorption spectroscopic method, rather than the specified inductively coupled plasma (ICP) emission spectroscopic method, may be necessary. All method modifications and alternative methods should be specified in the quality assurance project plan (QAPjP) for MCAS El Toro.

3. [WP Section 5.5, Data Evaluation] It is recommended that the discussion of data evaluation in Section 5.5 of the WP be expanded to specify how data collected for each of the individual sites during the Phase II RI/FS will be integrated and evaluated from a basewide investigative perspective.

4. [FSP Section 5.3.1, Quality Control, Field Duplicate Samples] The text in Section 5.3.1 of the WP states that

the laboratory will prepare duplicate soil samples, rather than duplicates being collected in the field. It is recommended that duplicates be prepared in the field, from a single core, and submitted "blind" to the laboratory. The analysis of field duplicate soil samples will provide additional information regarding the variability of contaminant concentrations. Field duplicate samples should be collected at a frequency of 10%.

It should be noted that field duplicate analyses cannot be used as a means for assessing laboratory accuracy. Accuracy can be determined only if the true concentration of a target analyte is known.

5. [FSP Section 6.4.12, Field Filtration of Groundwater Samples] A justification for filtering groundwater samples targeted for metals and gross alpha and beta radioactivity analyses should be provided in Section 6.4.12 of the FSP. In general, the filtering of groundwater samples prior to analysis should be performed only after all other techniques for reducing turbidity (e.g., proper well development, use of low flow pumps) have been tested and proven to be ineffective.

6. [FSP Section 6.7, Pilot Tests] It is recommended that the discussion of the pilot tests involving soil vapor extraction, air sparging, aquifer pump tests, and bioremediation be expanded to specify the parameters that will be used for measuring the success of each test (i.e., the criteria against which data will be evaluated and/or the statistical tests that will be applied to the data). Additionally, the scope of the database required for evaluating each remedy should be discussed.

7. [FSP Section 6.10.2, Decontamination, Wash and Rinse Method] The equipment decontamination procedure described in Section 6.10.2 of the FSP should include a rinse with nitric acid when cross contamination from metals is a concern.

8. [FSP Attachment T, Site 21, Materials Management Group] Portions of the Site 21 FSP were omitted, including Sections 4 (Rationale for Sampling Locations), 5 (Request for Analyses), and 6 (Field Methods and Procedures).

9. [General - Site Specific FSPs] The use of portable gas chromatograph/mass spectrometers (GC/MS) by the mobile laboratory for volatile organic compound [VOC] and semivolatile organic compound [SVOC] analyses is discussed in several of the site specific FSPs. The actual analytical

methods that will be followed by the mobile laboratory should be enumerated.

10. [General] It is recommended that the possibility of generating definitive mobile laboratory data for the Phase II RI/FS be considered to reduce the number of required fixed laboratory analyses. The information presented in the FSP and WP indicates that a fairly sophisticated mobile laboratory set-up is planned. Many EPA-approved methods will be used for the mobile laboratory analyses, including SW-846 8010 (VOCs); 8015M (total petroleum hydrocarbons as gasoline and diesel [TPH-G/D]); 8020 (aromatic VOCs); and 6010/7000 series (metals). For these procedures, the analytical efforts of the mobile laboratory essentially will be duplicated by the efforts of the fixed laboratory.

    The generation of definitive data for these methods should be possible for the mobile laboratory provided that sufficient quality control (QC) procedures are incorporated into the analyses, and adequate data deliverables are generated. These requirements will ensure that data of known and documented quality are produced. Although producing definitive data will require a greater effort on the part of the mobile laboratory, this approach should prove to be more cost effective in terms of the overall project.

If you have any questions concerning this memorandum, please feel free to call me at (415)744-1528.

ENCLOSURE C

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

MEMORANDUM

TO: BONNIE ARTHUR
REMEDIAL PROJECT MANAGER
FEDERAL FACILITIES CLEANUP OFFICE

FROM: JEFFREY M. PAULL, MS HYG, MPH, CIH
REGIONAL TOXICOLOGIST
SUPERFUND TECHNICAL SUPPORT SECTION

DATE: MAY 24, 1995

SUBJECT: REVIEW OF "REVISED DRAFT WORK PLAN, PHASE II, REMEDIAL INVESTIGATION/ FEASIBILITY STUDY, MCAS EL TORO, CALIFORNIA"

Background

The Southwest Division Naval Facilities Engineering Command (SWDIV) has contracted with Bechtel National Inc. to prepare a Phase II Remedial Investigation and Feasibility Study (RI/FS) at Marine Corps Air Station El Toro, located in Orange County, California, in accordance with the Department of the Navy Installation Restoration (IR) Program, and the Federal Facilities Agreement (FFA).

The purpose of Phase II RI/FS work is to collect sufficient information at 23 sites to support decision-making required to determine risks associated with IR Program sites, and appropriate response actions when IR Program sites pose unacceptable risks to human health and the environment. This revised draft was prepared in response to regulatory agency comments on the draft Phase II RI/FS Work Plan, submitted by Jacobs Engineering, in 1993. The current memorandum contains USEPA Region IX's comments on the human health risk assessment sections of the revised RI/FS.

Scope of Review

We reviewed the risk-assessment related portions of §4.2 "Work Plan Approach," including §4.2.1.2 "Chemicals of Potential Concern," §4.2.1.3 "Estimated Risk," §4.2.3.3 "Risk-Based Concentrations and Action Levels," §4.2.3.4 "Background Concentrations," §4.2.3.10 "Cleanup Levels"; §5.6.1 "Human Health Risk Assessments"; and Work Plan Appendix B, "Data Quality Objectives, Site 2-Magazine Road Landfill," of the draft Phase II RI/FS, dated March 17, 1995.

These sections of the document were reviewed for scientific and technical accuracy, and for conformance with USEPA Region IX risk assessment guidelines, policies, and procedures. We assume that sampling or sampling plans of environmental media, analytical chemistry procedures or data, QA/QC procedures, and the assessment of contamination described and summarized in the document, have been adequately reviewed by appropriate USEPA Region IX and Cal/EPA staff. We request that future changes in the document made in response to these comments be clearly identified.

Specific Comments

Estimated Risk, §4.2.1.3, p. 4-3: For sites where risk estimates were completed, the document states that [cancer] risks generally exceeded the excess cancer risk of 1×10^{-6} for a residential exposure scenario. A brief description is needed explaining the significance of this risk level, and the resultant actions which may be triggered by risks which exceed this level. No information was provided on noncancer risks at these sites--from this the reader assumes that noncancer risks were not significant at any of them. An explanation also needs to be added for why the risk estimates for many sites were not completed, and how and when those unknown risks are to be evaluated, as part of the RI/FS process.

Step 2 - Identify the Decisions, §4.2.2, p. 4-5: A description of the term "action level as it is used in Question (8) concerning action levels in air, needs to be provided. If this is the same term as that defined in §4.2.3.3, this definition needs to be placed further forward in the document, preceding the introduction and use of the term.

Risk-Based Concentrations and Action Levels, §4.2.3.3, p. 4-7: Risk-Based Concentrations (RBCs) were developed as part of a Preliminary Health Risk Assessment (PHRA) performed at 22 sites that compose OU-2 and OU-3. The PHRA, developed by CH_2M Hill, was submitted to the USEPA Region IX and Cal/EPA in 1993, and comments on it were submitted to CH_2M Hill by the two agencies. At that time EPA Region IX made the recommendation to use the USEPA PRG Tables for the health risk screening criteria, rather than independently developing RBCs.

In our memo of January 20, 1995, in which we reviewed the MCAS El Toro Risk Assessment Plan, we reiterated this comment, and we submit it again here. The USEPA

PRGs are recommended for use instead of RBCs for the following reasons:

(1) Toxicity values, including cancer potency factors (CPFs), Reference Doses (RfDs), and Reference Concentrations (RfCs) have changed for many of the chemicals since the preliminary risk assessment in which the RBCs were developed, was performed. The USEPA Region IX PRGs reflect these changes, and also incorporate Cal-Modified PRGs for those substances for which Cal/EPA toxicity values are required to be used, for sites within the State of California.

(2) It is both more time-efficient and cost-effective to utilize USEPA PRGs. The use of PRGs avoids the need to update the RBCs to reflect changes in toxicity values, and the presence of different Cal/EPA cancer potency factors. In addition, by utilizing the PRGs, which have already been approved by both USEPA Region IX, and Cal/EPA for the purpose of risk screening, further review of proposed risk-screening values by the regulatory agencies may be avoided.

It is stated that action levels are calculated for cumulative excess cancer and noncancer risk based on the concentrations of all COPCs detected for each site, and that they are to be used to make preliminary risk management decisions during Phase II RI/FS work. As described, action levels appear to be more conservative screening values than either RBCs or PRGs, but further clarification on how they are to be employed to make preliminary risk management desisions during Phase II RI/FS work is needed.

Cleanup Levels, §4.2.3.10, p. 4-35: It is stated that acceptable exposure levels will be determined on the basis of the results of the baseline risk assessment and the evaluation of the various scenarios, and associated risks for each alternative, and that cleanup levels will be established by comparing contaminant levels in each media to these acceptable levels. This description does not provide enough specific information to discern how exposure levels will be determined. A more complete explanation is needed for the following:

(1) Will "acceptable" exposure levels be determined on the basis of risk levels, PRGs, RBCs, ARARs, or other criteria?

(2) Once a comparison of a contaminant level to an acceptable level is made, how is the cleanup level determined? How will non-health-risk factors, such as cost of remediation be factored in to the final cleanup level?

Step 5-Decision Rules, §4.2.5, p. 4-37: In this section it is stated that if the purpose of a decision is to make a preliminary risk management decision for a particular unit, then both action levels and RBCs would be used in the decision process. As stated in our comment on §4.2.3.3 above, further clarification on how action levels are to be employed, in conjunction with RBCs, to make preliminary risk management desisions during Phase II RI/FS work is needed.

Human Health Risk Assessments, §5.6.1, p. 5-11 to 5-13: The document states that human health risk assessments performed on IR Program sites will be baseline or streamlined risk assessments. In our view the term "streamlined" risk assessment is somewhat of a misnomer. Because the policies and procedures for conducting streamlined risk assessments are less well-developed than those for conducting screening and baseline risk assessments, they often require more rigorous agency review to ensure that human health is being adequately protected. For sites that do not pose an immediate threat to human health or the environment, we do not see any particular advantage to using this type of assessment, and encourage the use of the baseline risk assessment for those sites that did not pass the risk screen.

There is an apparent typographical error on p. 5-12. The words in the brackets appear to be missing from the following sentence: "The criterion for assessing noncancer risk [are the reference dose] (RfD) or reference concentration (RfC)."

Data Quality Objectives, Site 2 - Magazine Road Landfill, Work Plan Appendix B, Conceptual Site Model, p. B-11: Here it is stated that current exposure of workers is unlikely via ingestion of groundwater at the site, but the site conceptual model (Figure B-4) presented on p. B-13 indicates that workers/visitors are current potential receptors for the ingestion of groundwater. An explanation is needed for this apparent contradiction.

Data Quality Objectives, Site 2 - Magazine Road Landfill, Work Plan Appendix B, Determination of Risk, p. B-21: As indicated in our comment on §4.2.3.10 above, we prefer that complete baseline risk assessments, which consider all COPCs, and relevant exposure pathways, be used to determine if cleanup action is warranted.

Data Quality Objectives, Site 2 - Magazine Road Landfill, Work Plan Appendix B, Identification of Cleanup Levels, p. B-21: As indicated in our comment above, a more complete explanation is needed for the way in which cleanup levels will be determined for the site.

Summary

The draft Phase II RI/FS document is clearly written, well-organized, and generally follows USEPA policies, procedures, and guidance for conducting Remedial Investigations/ Feasibility Studies. The basic approach for assessing human health risk is fundamentally sound; however, there are several issues which need to be further clarified in the document before we can provide final approval, including information concerning how risk to human health will be assessed (the use of PRGs vs. RBCs), and the determination of cleanup levels.

cc: Doug Steele, USEPA Region IX
John Christopher, CAL-EPA/DTSC

ENCLOSURE D

Review Comments on
Revised Phase II Work Plan

1. Page 1-3, Section 1.2. The text should identify sites by the corresponding operable unit for clarity.

2. Page 1-4, Figure 1-2. The figure should include the Remedial Investigation Report and Feasibility Study Report for OU-1.

3. Page 2-44, Section 2.4.3.2. An EE/CA is only part of the process for the implementation of non-time critical removal actions. Also, consider additional statements which explain the reasons why sites proposed for EE/CAs are carried through this Work Plan.

4. Page 3-2, Table 3-1. The table should specify what the estimated risk represents, e.g., excess lifetime cancer risk or incremental ELCR.

5. Page 3-4, Table 3-1. The first note appears to be an error. Consider review and deletion from text.

6. Page 3-5, Table 3-2. TRPH and TPH are listed as COPCs; however, these are not chemicals. Rather, these are analyses which provide information on a broad spectrum of petroleum and fuel components. Were these analyses specified as COPCs because there were levels of concern at individual sites or simply because the analyses for TRPH and TPH happened to be conducted in Phase I and values above detection levels were reported? The reasons for the analysis of soil samples for both TRPH (418.1) and TPH (8015M) should be identified. It is not cost effective to specify both analyses without justification.

7. Page 3-14, Section 3.3. The text should note that Site 24 includes Sites 11, 9, 22, 17, 8, 10.

8. Page 4-4, Section 4.2.1.3. The text should specify if the risk for consideration was for cumulative, excess lifetime cancer risk alone or noncarcinogenic risk was also included (and apparently found not to be significant.)

9. Page 4-4, Section 4.2.1.3. The text should reinforce the fact that this section only contains some of the potential decisions. This is different than 4.2.5, in which all potential decision rules are listed.

10. Page 4-4, Section 4.2.1.3. The use of the word "impacted" is inconsistently applied throughout the document. In some apparently equivalent applications the word "contaminated" is used. Suggest that "impacted" be deleted and "contaminated" be used throughout for clarity unless data indicate that the medium is not contaminated.

11. Page 4-4, Section 4.2.1.3. Decision number 3 requires editing. Soil sampling cannot be used alone to determine if groundwater beneath a site is contaminated. Groundwater sampling should be used for that purpose.

12. Page 4-4, Section 4.2.3. Recent discussions with SWDIV representatives have indicated that PRGs will be used for Phase II work rather than RBCs. The document should be modified throughout to reflect this change. In addition, the Quality Assurance Project Plan should be modified accordingly. The text may need to note that PRGs will be calculated when federal PRGs do not exist, e.g., TRPH and TPH.

13. Page 4-13. The text should define if the coefficient of variation is based on the estimated mean or the arithmetic mean. The presentation in Table 4-2 does not appear to benefit from the inclusion of arithmetic mean values; they tend to diffuse focus on the values of interest and should be removed.

14. Page 4-17. For the Tier 1 and Tier 2 (and Tier 3 of OU-3) portions, the text should be modified to note that limited lists of analytes will be examined using field analytical screening techniques and these will be supported by offsite, fixed laboratory analyses. The difference is not simply a function of cost, as is stated in the text.

15. Page 4-18. Reorganize the bullet list on the top of the page to correspond with the sequence of presentation of the topics which follows.

16. Page 4-19. Sampling along an axis. Consider redefining the approach to include a provision for discontinuation of sampling under the following conditions. Along an axis, if the probable source is upstream/upgradient and two samples collected in succession downstream,/downgradient have analytes concentrations below PRGs or background/ambient levels, then discontinue further sampling.

17. Page 4-21, field screening. The text should be revised to clarify the definitions and relationships between preliminary field sampling devices, preliminary field screening and the undefined field screening which follows

but precedes off site analyses.

18. Page 4-21, field screening. Correct the text. Samples will be forwarded to laboratories under contract to Bechtel and the United States Navy, not to USEPA's CLP laboratories.

19. Page 4-21, field screening. The text does not mention metals analyses in the field; however, XRF analyses and/or ICP analyses are part of a field program are described elsewhere (DQOs by inferance and explicitly in the QAPP). Clarification of the use of these analytical techniques is needed.

20. Page 4-23, Table 4-4. The title should be "Project-Required Detection Limits by Method." This will reduce confusion which could result because HVOCs by 8010 and VOCs by 8240 possess overlapping lists of analytes; however, the respective detection limits are different. For these situations, consider a marker or super/subscript which would indicate, for individual analytes, the lowest detection limit available.

21. Page 4-23, Table 4-4. Correct the listing, benzene is not a halogenated volatile organic compound.

22. Page 4-23, Table 4-4. The analytes listed under HVOCs-Method 8010 and VOCs-Method 8240 are not complete. Clarify with a footnote the reason, or correct the table and include all analytes provided by the method. Please review the rest of the table to assure that this oversight did not affect other methods listed.

23. Page 4-23, Table 4-4. With respect to the previous comment, also note that TCE, PCE, carbon tetrachloride and benzene are absent from the listing under 8240.

24. Page 4-23, Table 4-4. The note footer should contain an explanation of the dash symbol which appears in the table. Does this represent something different from NL-not listed and NV-no value?

25. Page 4-31, confirmation methods. See previous comments regarding field screening terminology. Specifically, clarify "quantitative field screening" with respect to "preliminary field screening." Remove the term CLP from the paragraph.

26. Page 4-32, confirmation methods. Remove the term CLP from the paragraph. Provide a statement which explains that statistical comparison techniques may not be used if the number of samples collected are insufficient to conduct the comparison tests. Under these conditions, qualitative

comparisons would be necessary.

27. Page 4-32, Section 4.2.3.9. The discussion of groundwater models clearly states that MODFLOW, MT3D, and MODPATH will be used for some applications. However, the vadose zone modeling discussion does not specify which of the models presented will be used. The text should include a sentence which clarifies this. Additionally, regulatory agencies must be included in this decision.

28. Page 4-34, additional data requirements for groundwater modeling. The text states that "...confidence could be improved by obtaining..." empirical data listed in the bullets on the page. Although it seems likely that these data will be collected, please clarify that this indeed will occur.

29. Several Step 5 rules are vague when referring to comparisons with COPC. For example, Rule 7 states that if two consecutive samples are ND then the extent will be considered established. However, this approach ignores the fact that many COPCs such as inorganics and pesticides/herbicides (and as proposed in this review-SVOCs) have background/ambient levels above ND. Thus, the approach presented will not work.

30. Rule 14 indicates that cleanup levels will be defined if unacceptable risks are found. The implication is that unacceptable risks are result of an exceedence of action levels which are different from cleanup levels. However, the Navy has recently proposed NFAC at several OU-3 Sites and Units based on "Preliminary Risk Values." No explanation was provided for these OU-3 risk values; however, they seem to be equivalent to action levels (as defined above). If that is true then Rule 14 was not followed for these OU-3 sites. Please clarify.

31. Page 4-47, Section 4.2.6.3. The text should define the acronym MDRD.

32. Page 4-49, Section 4.2.6.3. The text should define the acronym MDD.

33. Page 4-51, Section 4.2.6.4. Table 4-6 was discussed at the BCT meeting in April and the RTM and BNI statistician concurred with deletion or modification of this table. The table should be modified or deleted to reflect the discussions.

34. Page 4-51, Section 4.2.6.4. The first three paragraphs are unsupported by references and appear to contain logic errors. At a minimum, the text should be recomposed and

presented in a manner which clarifies the relationship between risk and the ratio of geometric means.

35. Page 4-56,57, Table 4-7. Note "e" is based on data presented in Table 4-6 and these data have been questioned in the previous comment. Confirm that the approach presented in Note "e" is applicable and correct.

36. Page 4-63, Table 4-9. Note "f" should be corrected. The number of confirmation samples presented here does not equal the numbers presented in the text and QAPP.

37. Page 4-66, Table 4-12. For Site 24, VOC analyses would be included in the TO-14 analyses; therefore, the VOC analyses indicated would be redundant.

38. Page 5-5, Section 5.3.1.5. First paragraph and second to last sentence. Change the text to "Generally, VOCs are slightly soluble in water..."

39. Page 5-25, Section 5.9.2.3. Consider adding a description of the ARAR waiver requirements included under CERCLA.

40. Page 6-1. The dates provided for OU-3 are based on a start date of 1996. This is not consistent with the presentations provided to the BCT and therefore, the dates should be checked against the current FFA.

41. Page 7-3, Figure 7-1. The Project flow chart does not include the Laboratory Coordinator. The coordinator is responsible for the execution and oversight of all laboratory work and therefore should be included in this section. It is unclear who will be responsible for technical decision-making in the field. This individual and the reporting chain of command should be identified.

42. Page A-i, Step 6. Here and throughout the document replace the expression "confidence (0.05) and power (0.20) limits" with "confidence level of 95 percent and power of 80 percent." The current presentation is incorrect. a0.05 represents a maximum acceptable Type I error of 5 percent error and 0.20 represents a maximum acceptable Type II error of 20 percent. See page 4-47 of the text for clarification.

43. Page A-1. Within the title of this DQO and all others, identify which OU this site is associated with. For example:
Appendix A
SITE 1, OU-3 - EXPLOSIVE ORDNANCE DISPOSAL RANGE

44. Page A-7,8. The COPC summaries present concentrations that have letter "B" and letter "J" as qualifiers that are explained directly after the summaries. Here and throughout the Plan, the explanation should indicate if the letter is a laboratory or validation qualifier. Also, when giving a range of concentrations that state "from less than X to Y", the value for X should be less than Y. Here and throughout the plan, identify the boring, well, or location of the highest detected value for each contaminant. Also, picocuries should be abbreviated as pCi not pci.

45. Page A-7,8. Most DQOs in the Work Plan do not include explanations for the qualifiers. These should be explained prominently on the first page mentioned, as is done for Site 1.

46. Page A-14, Additional Inputs for Early Action; Additional Inputs for Long-term Action. The bullet lists should be developed further. The presentation incorrectly implies that the only difference between Early Action and the RI/FS/RA process is pilot testing.

47. Page A-15, Figure A-5. Here and elsewhere in the document, correct the statement "Is there a risk?" by replacing with "Is there an unacceptable risk?" Also, the legend should explain that the octagon represents points in the process which require BCT concurrence.

48. Page A-26, 27. Tier 2 and Tier 3 approaches are discussed at a level of detail which is inconsistent with other DQOs in this Plan. Explain why this is necessary since activities conducted under these Tiers is contingent on Tier 1 results.

49. Page A- 27. Provide an explanation why two upgradient wells are planned for Site 1.

50. Page B-5, Figure B-2. There are several errors within this figure. Well 59 is mislabelled as 58, well 27 is presented in duplicate, and surface drainages do not appear to be consistent with current conditions at the site.

51. Page B-27, Table B-2. Note "a" should be corrected to be consistent with the main text of the Work Plan and the QAPP, i.e., 10 percent of detects and 5 percent of non detects.

52. Page B-31, Unit 1, last bullet. The basis for the 300 mg/L cutoff value should be identified. Consider the presentation of isoconcentration lines and reevaluation of this value after the data are assessed in their entirety.

53. Page B-37. There is no mention of HydroPunch sampling; however, this is apparently part of the program. Confirm the HydroPunch work and include adequate discussion in the text.

54. Page B-38. The referenced map, Map B-3, is missing from this report.

55. Page B-38. The bullet introduction sentence states that the tasks listed are for Tier 3; however, the first bullet identifies Tier 2 tasks.

56. Appendix C in general. The presentation does not separate the Tier 1 activities from the Tier 2 and Tier 3 activities. This is confusing and the text should be corrected to be similar to other DQOs (e.g., Site 1) where the distinction is made.

57. Page C-21, Step 3. Here and elsewhere in the Work Plan the expression "...this approach is validated..." requires clarification. It is not clear what approach is being referred to nor the meaning of the term "validated."

58. Page C-21, Step 3. Within other DQOs, inputs for NFRAP, early action, and long-term action were listed and discussed separately. The approach presented here is not consistent with other DQOs.

59. Page C-21, Step 3. The basis for the statement
> "If a landfill is shown not to be producing gas, a vadose zone monitoring program may not be required by the California [RWQCB]."

should be provided. The statement fails to address emission rates, consituents, and concentrations within landfill gas. In addition, the production or absence of gas is not sufficient to make a determination that leachate is not being generated.

60. Page C-21, Step 3. On page C-42 the text states that vadose zone monitoring is dependent on the results of the groundwater monitoring. However, as noted in the previous comment, the text also states that this decision is to be based on landfill gas production. Please clarify the text.

61. Page C-21, Step 3 and page C-41, last paragraph. The text states that gas probes may be installed in the vadose zone; however, on page C-42 the text states that the probes will be used to collect leachate and/or gas. Clarify what will be measured using the probes.

62. Page C-30, Table C-1, and Page C-31, Table C-2. The Tier 1 description for the number of soil sample locations

at the Landfill Area states that NFRAP or no further investigation applies. This appears to be an error since landfill is suspected of leakage.

63. Page C-30, Table C-1, Page C-31, Table C-2, and page C-36, Table C-7. Here and elsewhere in similar Tables in the Work Plan consider removal of references to Tier 2 and 3 because these activities have yet to be defined. The presentation of limited portions of Tiers 2 and 3 approaches is confusing.

64. Page C-41, first paragraph. Correct the text, substitute "...maximum contaminant levels..." for "...maximum concentration level..." as per the Safe Drinking Water Act.

65. Page Q-1, Step 1. The second sentence
"Because this is currently the only groundwater monitoring the landfills impacting water quality on water quality is unknown."
is unclear and should be rewritten.

66. Page Q-1, Step 1. Provide a reference and definition of what "...allowable levels..." of landfill gas are.

67. Page W-15, Abandoned Water Wells.

67.1. A separate map should be prepared which identifies the probable locations of these wells.

67.2. The relationship between the abandoned wells and groundwater plumes and soil gas plumes has not been evaluated and should be considered. These wells, especially Well 2, have the potential to act as contaminant sources and pathways for deep aquifer migration.

Comments on the Draft Field Sampling Plan (FSP), Phase II Remedial Investigation/Feasibility Study MCAS El Toro

1. Please correct the following typographical errors: Table of Contents-Section 3-Maps, Site 2-Magazine Road Landfill is listed as both Map 3-4 and 3-5, throwing the following numbering off. Sites 21 and 24-the titles are different than those of the figures. In Section 3, the title of Map 3-17 appears to be wrong. In many of the Attachments, Section 4.2.1.1 (Land Surveying) second paragraph includes the wording "...delineated during by the surface geophysical survey..."

2. In each of the Attachments, in the Section 2.2 the COPC summaries present concentrations that have letter "B" and letter "J" as which are not explained. Here and throughout the Plan, the explanation should follow directly and indicate if the letter is a laboratory or validation qualifier. Also, when giving a range of concentrations that state "from less than X to Y", the value for X should be less than Y. Here and throughout the plan, identify the boring, well, or location of the highest detected value for each contaminant. Also, picocuries should be abbreviated as pCi not pci.

3. In each of the Attachments, Sections 4.2.1.1 and 6.1 addressing Land Surveying, there is a typo in the last sentence and next to last sentence respectively. The sentence should read "...delineated (delete "during") by the surface..."

4. Table of Contents

4.1. Page iv. Map 3-5 is Site 3-Original Landfill. Rest of Maps are misnumbered. There is no Map 3-26.

4.2. Map 3-22, Site 21-Materials Management Group, Building 320. Figure is for Building 20.

4.3. Map 3-24, Site 24-Potential VOC Source Area. Figure is titled "VOC Source Area".

5. Section 3 Maps

5.1. Page 3-35. Map 3-17, Site 15-Crash Crew Pit No. 2. Caption is supposed to be "Suspended Fuel Tanks". I assume figure is correct one for fuel tanks.

5.2. Page 3-45. Map 3-22, Site 21-Materials Management Group-Building 20. Should be Building 320 (according to Table of Contents).

6. Page B4-3. Section 4.2.1.2. The description of geophysical survey activities to be conducted does not explain how the edge of the landfill is to be determined.

6.1. The related figure (B3-2) shows that the survey is to be conducted over the entire landfill, instead of just around the boundary. This is curious because the stated reason for the survey was to define the limits of the landfill. Under these circumstances, efforts should focus on the perceived boundaries and beyond, not in the center of the known landfill.

6.2. How far beyond the boundary will the survey be conducted to be certain that the boundary is identified? There should be a buffer zone consisting of several data acquisition locations surrounding the landfill. Will the interior of the landfill be surveyed as shown on the figure?

7. Page B4-5. Section 4.2.2.3. Sampling is to be conducted after the "first rainfall." Suggest a specific description, i.e., "first rainfall after field work begins" or "first seasonal rainfall," or "first rainfall that produces runoff after sampling begins."

8. Section 4.2.3, first paragraph. The third sentence can be misconstrued and should read "...from Site 2 to a monitoring well upgradient from Site 5..."

9. Page B4-6. Section 4.2.3.1. Protocol for groundwater sampling from existing wells is not well defined. How many, how deep, and where are the screened intervals? What protocol will be used to collect samples? Full purge and sample? Micropurging? Bailers vs pumps?

10. Section 4.3.1.2. First sentence should read "...during Tier 1 surface soil and soil gas sampling..."

11. Page B4-7. Section 4.3.2.2. The text should describe how locations of temporary well points will be determined. The locations are not shown in any of the figures.

12. Page B4-8. First paragraph, second sentence. Cannot find well 02_DGMW59 on any of the maps. It was apparently mislabeled as 02_DGMW58.

13. Paragraphs 3, 4, and 5. Suggest mentioning the probable existence of a confining layer (layer II) at this location and that Wells NEW4 and NEW5 are intended to confirm its existence and ability to prevent (further) downward migration of VOCs.

14. Page B4-9. Section 4.4.1.2. The last sentence should

read "in FSP Section 6.7.3."

15. Pages B5-6 through B5-10. Please address the following comments regarding these types of tables. The number of samples in the table should always equal the numbers mentioned in the text. There are numerous blanks in the tables and numbers don't necessarily reconcile between left and right sides of the tables. Table B5-2 has 45 total samples, but only 44 mentioned on right side of table.

16. Page B6-1. Section 6.2, geophysical investigation strategy.

16.1. As noted earlier, the geophysical investigation strategy is not fully explained. Provide a discussion of the number of sampling points along survey lines, and how far beyond presumed boundary the investigation proceed until boundary is defined.

16.2. Specify if the entire are of landfill will be investigated or just the presumed boundary, and if the latter, the length of the survey lines be (i.e., the number of sampling points on either side of the presumed boundary).

16.3. Will it be possible to pick the boundary as the data is gathered or only after downloading the data at the end of the day? This entire approach should be reviewed by a senior geophysicist prior to implementation.

17. Last sentence should read "...Section 6.9.2 of the FSP."

18. Page B6-2. Section 6.4. Last sentence should read "...Section 6.6."

19. Section 6.5. Bullets identify wrong section numbers as follows: bullet 1 should read "Section 6.9..."; bullet 3 should read "Section 6.10 "; and bullet 8 should read "Section 6.12..."

20. Page B6-3. Section 6.6.1. Air temperature is not mentioned but may be a consideration here and in section 6.6.2. Discuss the effect if any of air temperature on gas migration.

21. Page B6-4. Section 6.7. Section numbers incorrect.

22. Page C2-1. Section 2.1.3, second paragraph. Regional flow direction vs flow from the foothills.

22.1. The regional groundwater flow direction from the center of the base to offsite is apparently to the northwest

toward MCAS Tustin. However, along the foothills the flow direction is initially to the southwest (the same as surface drainages) and then to the northwest along the axis of the syncline. Groundwater flow direction at Site 3 is almost certainly southwesterly to westerly rather than northwesterly.

22.2. If groundwater data has been gathered around the landfill and it is to the northwest, then this should be stated. Here and throughout the Field Sampling Plan, discussions of hydrogeology for specific sites should be clear on the source of information and whether or not it is applicable to the base in general or only a particular site.

22.3. These points are significant because the interpretation of flow direction affects the placement of groundwater monitoring wells. Confirm that well locations in the foothill sites are correctly situated based on local flow conditions.

22.4. Pages C3-5 and C3-9. Groundwater flow direction is shown as northwesterly. Please see previous comments.

23. Page C4-2. Section 4.1.4. There are no wells mentioned anywhere in Attachment C (see bullets under Section 4.2 Tier 1), except here and in Section 4.2.1.1 (Land Surveying). Furthermore, well locations are not shown on any of the maps of this site, therefore, this section should be deleted.

24. Page C4-3. Section 4.2.1.1. Section states that proposed locations for soil gas, soil borings, and wells will be surveyed during the initial survey. However, the tiered approach for the investigation states that locations of soil borings and wells will be established based on soil gas data. Thus, an additional survey team mobilization will be necessary.

25. Section 4.2.1.3. Provide an explanation for the 200 foot spacing here versus 100 foot spacing for Site 2.

26. Page C5-2. Section 5.2.4. Is it possible that an FID could be substituted for a PID? If so, the text should say "...PID or FID..."

27. Section 6.2. Last sentence should read "...Section 6.9 of the FSP."

28. Page C6-2. Section 6.5, paragraph 1. Provide a summary of the VOC sampling protocol.

29. Paragraph 2, line 6. "...at minimum 10-foot

intervals..." can be misconstrued to mean "...every 10 feet or greater..." Consider rewording the text as "...collected at least once every 10 feet and at changes in lithology..."

30. Page C6-4. Section 6.7. No new wells are shown in figures C3-2 and C3-3.

31. Page E4-6. Section 4.3.1.3. The proposed location of the downgradient well is not shown on Map E3-2.

32. Page E5-5. Section 5.3.10. Here and throughout the Plan where this sentence is repeated. The sentence suggests that additional investigation will be performed but the activities are not mentioned. The paragraph needs additional explanation as to whether or not additional work is proposed.

33. Maps Q3-2 and Q3-3. Discuss the significance of "keyhole" area delineated around Phase I soil borings 17_SA1-3. Consider that the direction of groundwater flow at this location is more to the west southwest than northwest.

34. Page Q4-1. Section 4.1.2. Explain rationale for soil gas sampling locations and spacing.

35. Page Q4-5. Section 4.3.1.3. Because the apparent groundwater flow direction is more to the west southwest, the placement of well NEW2 is not optimal. However, it may be used to determine the flow direction together with NEW1 and 17_DGMW82.

36. Page W2-1. Section 2.1.1. This paragraph could be improved by deleting the third sentence and adding to the second sentence as follows:

    "...synclinal trough that has accumulated approximately 30,000 feet or more of detrital sediments since the Miocene epoch."

    Also, in the last sentence, replace the word "...on..." with "...located within the boundaries of..."

37. Section 2.1.1.1. The first sentence could be improved by deleting "The majority of..." and replacing it with "Most of the surface and near-surface..."

38. Page W2-2. Section 2.1.2. Second paragraph. Replace the word "...on..." with the word "...beneath..." Delete the first five words of the third sentence and insert the rest of the sentence into the second sentence as follows:

    "The principal aquifer, approximately 120 feet beneath site 24, is the main water-producing zone..."

39. Fourth paragraph. First sentence. Replace the word "...on..." with the word "...beneath..."

40. Page W2-3. First line. Can not find well cluster 18_BGMW03 on Map W3-2 or W3-3. Confirm that the well cluster is supposed to be either 21_BGMW03 or 18_BGMW05.

41. Page W2-8. Section 2.2.3. Second sentence states wells TIC 47 and TIC 35 are located "downgradient" of the station. Please state the direction, distance from the station and depth of the screened intervals. Confirm that the groundwater flow direction is clearly known?

42. General comment about figures. The color plots are very useful, but it would be helpful to only have items listed in the legends that are shown on each of the maps.

43. Pages W4-2, W4-3 and W4-4. Tables W4-1, W4-2, and W4-3 are followed by blank pages with the page numbers, on which the tables should be located. Tables have Xs entered into columns with no explanation, and it is hard to understand just where the numbers entered as "subtotals" come from. Table W4-3 is confusing because the numbers of samples to be analyzed at the off-site laboratory do not always correspond with the total number of samples to be collected. Also, sometime there are blanks and sometimes dashes. Review these and similar tables in other attachments and clarify when possible.

44. Page W4-5. Section 4.2.1.

44.1. First paragraph, second sentence should read "...will be checked for acceptable quality and ability to be correlated between borings."

44.2. Identify the depth of the mud-rotary holes. Mud rotary has the potential to produce large quantities of potentially contaminated investigation derived wastes. Discuss the alternatives to mud rotary that have been considered and the reasons for their exclusion.

44.3. Consider using cased-hole logging techniques such as natural gamma and induced gamma. CPT logs can also be very helpful in correlating lithologic changes between borings, and are capable of penetrating over 200 feet depending on the nature of the soil. Large gravel and boulders, or concrete rubble can prevent its use. CPTs have lower total costs than borings and they produce much less IDW.

44.4. Section 4.2.2. CPT should be considered since soil and groundwater samples can be collected with minimum IDW produced.

45. Page W4-6. Section 4.2.2. Third paragraph. This is the first mention of abandoned water supply wells. Discuss how the investigation will proceed with a backhoe. What geophysical investigation is proposed and have agency file searches been conducted to establish the location of these wells.?

46. Page W4-7. Section 4.2.3. Third paragraph. Last word should read "W3-7" instead of "W3-8."

47. Fourth paragraph. First sentence. Delete commas on either side of " and possibly..." and replace the word "...on..." with the word "...beneath..."

48. Section 4.2.4. Line 7. Replace "...relatively low permeable soil layers..." with either "...relatively impermeable soil layers..." or "...soil layers with relatively low permeability..."

49. Page W4-8. Section 4.2.4. CPT sampling/logging locations are not shown in Figure W3-9.

50. Section 4.2.5. Last paragraph. Pumping tests will produce large quantities of IDW. The IDW plan should be referenced here and where mud rotary drilling is mentioned.

51. Page W5-1. Section 5.2. Second paragraph. Line 2. Using both FID and PID or either.

52. Page W6-2. Section 6.2. Second paragraph.

52.1. Include mention of brass sleeves if they are to be used.

52.2. Provide clarification as to:
Will each 6-inch sampling sleeve constitute a "sample" of which 25 percent are to be submitted to a mobile lab? Or is it from 25 percent of sample drives that one 6-inch sample will be collected for mobile lab analysis?

53. Page W6-4. Section 6.4.1. Last sentence. "Map W3-6" is a cross-section and does not show Tier 1 soil gas sampling locations. Can not find Tier 1 soil gas sampling locations on any of the maps presented. Review these items and correct the text and/or figures.

54. Section 6.4.2.1. Last sentence. CPT locations are not shown on Map W3-9.

55. Section 6.5. Third paragraph. Provide the details of the pumping tests to be conducted. For example, are three

separate tests proposed, which wells will be used as observation wells, and what length tests are proposed?

56. Page W6-5. Section 6.5.1. Provide details about the vapor extraction tests. For example, what will be the duration of the tests, what consideration related to air emissions need to be considered, is there a need to obtain local AQMD permits?

57. Section 6.5.2. Second paragraph. Air Sparging.

57.1. Indicate the direction in which sparging wells will be drilled 20 feet from well 09_DBMW45.

57.2. Second sentence. Delete the words "...placement proximate to the well..."

58. Page W6-6. Section 6.5.2. With reference to FSP, sections 6.6.2.2 and 6.6.2.1 should read 6.7.2.2 and 6.7.2.1 respectively.

59. Section 6.5.3. Second and third paragraph. With reference to FSP, section 6.6.3 should read section 6.7.3.

60. Page X2-4. Section 2.2.4.1. Second bullet. Delete the word "...in..." and insert the word "...and..." Fifth bullet. After "...Bee Canyon..." delete the comma and insert the word "...and...", and after "...Borrego Canyon..." before the comma add the word "...washes..."

61. Page X4-1. Section 4.1.1. Second paragraph. first sentence should read "...first rainfall that produces runoff.."

62. Page X5-1. Section 5.2. Second paragraph. Lines 5 and 7 mention FID and PID. This should be FID or PID.

As agreed by the Base Closure Team (BCT) during the meeting of April 24 and 25, 1995, this letter has been prepared to address the status of specific units at five Operable Unit (OU)-3 sites at MCAS El Toro that have been recommended for a "Removal Action" designation. With approval of this interim designation, the recommended units will follow the "Removal Action" process. Site specific baseline risk assessments covering all of the units comprising each site will be conducted during the Phase II RI/FS to confirm that the removal action was successful. Information utilized to make a "Removal Action" recommendation for the units listed below has been obtained from the following documents produced for MCAS El Toro:

- Phase I RI Technical Memorandum;
- EPA Aerial Photograph Survey;
- SAIC Aerial Photograph Survey;
- Soil Gas Survey Report; and
- Draft and Revised Draft Work Plans for the Phase II RI/FS.

Concurrence with the recommendation of "Removal Action" for the units identified below are designated by initializing either agree or disagree on the line below the unit. If you disagree please briefly note the reason(s) on the lines below each unit. To formalize this letter please date and sign your name on the bottom-most line, and print your name and title below your signature.

Site 7 (Drop Tank Drainage Area No. 1) - Unit 3 (New East Pavement Edge):
Agree for "Removal Action": BA (initials)
Disagree for "Removal Action": ____ (initials)
Reason: See 5/24/95 comments

Site 8 (Defense Reutilization and Marketing Office Storage Yard) (DRMO) - Unit 1 (East Storage Yard) and Unit 4 (PCB Spill Area):
Agree for "Removal Action": BA (initials)
Disagree for "Removal Action": ____ (initials)
Reason: See 5/24/95 comments

Site 12 (Sludge Drying Beds) - Unit 3 (Drainage Ditch):
Agree for "Removal Action": BA (initials)
Disagree for "Removal Action": ____ (initials)
Reason: See 5/24/95 comments

Site 15 (Suspended Fuel Tanks) - Unit 1 (Suspended Fuel Tanks):
Agree for "Removal Action": BA (initials)
Disagree for "Removal Action": ____ (initials)
Reason: See 5/24/95 comments

Site 19 Aircraft Expeditionary Refueling (ACER) - Unit 1 (Suspended Fuel Tanks):
Agree for "Removal Action": BA (initials)
Disagree for "Removal Action": ____ (initials)
Reason: See 5/24/95 comments

Bonnie Arthur
Name
Project Manager
Title
US EPA
Affiliation
5/24/95
Date

As agreed by the Base Closure Team (BCT) during the meeting of April 24 and 25, 1995, this letter has been prepared to address the status of specific units at four Operable Unit (OU)-3 sites at MCAS El Toro that have been recommended for a "No Further Action at this time" designation as proposed in the Revised Draft Work Plan for the Phase II RI/FS. With approval of this interim designation, the recommended units will not be investigated as part of the Phase II RI/FS. However, site specific baseline risk assessments covering all of the units comprising each site will be conducted during the Phase II RI/FS to confirm that the aforementioned recommendations were appropriate. Information utilized to make a "No further Action at this time" recommendation for the units listed below has been obtained from the following documents produced for MCAS El Toro:

- Phase I RI Technical Memorandum;
- EPA Aerial Photograph Survey;
- SAIC Aerial Photograph Survey;
- Soil Gas Survey Report; and
- Draft and Revised Draft Work Plans for the Phase II RI/FS.

Concurrence with the recommendation of "No Further Action at this time" for the units identified below are designated by initializing either agree or disagree on the line below the unit. If you disagree please briefly note the reason(s) on the lines below each unit. To formalize this letter please date and sign your name on the bottom-most line, and print your name and title below your signature.

Site 7 (Drop Tank Drainage Area No. 1) - Unit 2 (Old East Pavement Edge):
Agree for "No Further Action at this time": _____(initials)
Disagree for "No Further Action at this time": BA (initials)
Reason: See Comments dated 5/24/95

Site 8 (Defense Reutilization and Marketing Office Storage Yard) (DRMO) - Unit 2 (West Storage Yard):
Agree for "No Further Action at this time": _____(initials)
Disagree for "No Further Action at this time": BA (initials)
Reason: See Comments dated 5/24/95

Site 20 (Hobby Shop) - Unit 1 (East Drainage Ditch):
Agree for "No Further Action at this time": _____(initials)
Disagree for "No Further Action at this time": BA (initials)
Reason: See Comments dated 5/24/95

Site 22 (Tactical Air Fueling Dispensing System) (TAFDS) - Unit 2 (Eastern Area)
Agree for "No Further Action at this time": _____(initials)
Disagree for "No Further Action at this time": BA (initials)
Reason: See Comments dated 5/24/95

Bonnie Arther
Name
Remedial Project Manager
Title
EPA
Affiliation
5/24/95
Date