STATE OF CALIFORNIA — ENVIRONMENTAL PROTECTION AGENCY

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

REGION 2
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N00296.002281
MOFFETT FIELD
SSIC NO. 5090.3.A.

July 22, 1995

Commander
Department of the Navy
Engineering Field Activity, West
Naval Facilities Engineering Command
Attn: Mr. Stephen Chao, Project Manager
900 Commodore Drive, Bldg. 101
San Bruno, California 94066-2402

Dear Mr. Chao:

DRAFT STATION-WIDE REMEDIAL INVESTIGATION (SWRI) REPORT, MOFFETT FEDERAL AIRFIELD (MFA)

The Department of Toxic Substances Control (DTSC) and the San Francisco Regional Water Quality Control Board (RWQCB) have reviewed the subject document and prepared the following comments for your consideration. Please respond to all comments prior to the submission of the draft final report. If you have any questions, please call me at (510) 540-3830.

Sincerely,

C. Joseph Chou
Remedial Project Manager
Base Closure Unit
Office of Military Facilities

Enclosures

cc:
Mr. Michael Bessette
Regional Water Quality Control Board
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Mr. Michael D. Gill
U.S. Environmental Protection Agency
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Sacramento, CA 95812-0806

GENERAL COMMENTS

1. Much of Section 6 of the document is devoted to criticism of the point estimate approach for a site wide risk assessment. We find this troubling in that the Navy, DTSC and U.S. EPA agreed with this approach and we are puzzled why so much of the document is devoted to discrediting the approach agreed to by all parties. Discussion of the differences between point estimate of risk used in the Station-Wide risk assessment and the spatially averaged approach used in the risk assessments for the individual Operating Units (OUs) should be consolidated in the uncertainty section.

2. The method of different sizes circles and crosses which was chosen to portray risk and hazard in Figures 6-1 through 6-10 is confusing. These figures are arguably the most important feature of the entire Station-Wide risk assessment. The Navy, DTSC and U.S. EPA should discuss the problem and arrive at a more satisfactory method of presenting the data.

3. As part of this Station Wide RI, in addition to Sites 21, 22, and 23, data for three other sites is presented for the first time. They are the "Station-Wide" sites, consisting of the weapons storage bunkers, the industrial wastewater flux ponds and the potential runway wetland at the end of the runways. No risks assessments at all were calculated for these sites. At least residential and industrial scenario risk assessments should be presented for these sites.

4. It appears that carcinogenic chemicals were not included when calculating noncarcinogenic hazard for sites 21, 22 and 23. DTSC guidance specifies that both carcinogenic and noncarcinogenic chemicals must be included when calculating hazard.

SPECIFIC COMMENTS

1. **Page 1-4, bottom paragraph:** The high concentrations of several inorganics in the MFA upper aquifers are attributed to the site-specific background. More information should be provided to support its conclusion. For example, the sources of those high "background concentrations" of antimony, manganese, and thallium were not satisfactorily explained in the OU5 Final Feasibility Study (FS) report. If metal concentrations in groundwater at MFA are from natural dissolution of sediments derived from the Santa Cruz Mountains or affected by salt water intrusion, then similar compositions should be found in neighboring groundwater or in seawater. Unfortunately, no

neighboring groundwater data were provided in the OU5 FS report for comparison. Further, the "OU5 background concentrations" are quite different from seawater.

2. **Page 1-5, paragraph 2:** To our understanding, there is no restriction of using C aquifer. However, the Santa Clara Valley Water District (SCVWD) does not allow withdrawing water from both deep and shallow aquifers from the same well to prevent cross contamination.

3. **Page 1-7, bottom paragraph:** The commingled plumes of petroleum products and other CERCLA substances at Site 5 or other areas are not excluded from CERCLA process. Therefore, they should be included in future SWRI reports.

4. **Page 1-9, paragraph 4:** Were analyses for dioxin conducted on samples from the Site 2 landfill? Since a former burn pit was reported to be located at this site, dioxins could be present.

5. **Page 1-9, bottom paragraph:** It is our recollection that the chain-link fence has been only installed in the west side of the landfill which is next to the runway and will not be able to provide any access control.

6. **Page 1-11, paragraph 1:** It is unnecessary to address the estimated volume of waste again here. Please delete the second sentence as it has been mentioned in previous paragraph (Site 6).

7. **Page 1-14, paragraph 2:** Further description or a citation should be supplied for the soil cleanup levels referred to in this paragraph.

8. **Page 4-1, paragraph 2:** Please clarify that whether the fuel related contaminants are still in the unsaturated zone soil near Buildings 29 and 31 or has been remediated.

9. **Page 4-1, bottom paragraph:** The inorganic chemicals detected at MFA are derived from naturally occurring materials, anthropogenic levels and may as well relate to site activities. With current available information, it is still very difficult to differentiate those sources.

10. **Page 4-2, top of page:** The report states that data for metals will not be presented because no source at the airfield can be identified. This is most unusual, especially since high levels of metals in excess of regional background were found at several locations. Metals should be included in the report in order for a complete understanding of the site to be communicated to the reader.

11. **Page 4-6, bottom paragraph:** The Department agrees that bis(2-ethylhexyl)phthalate (BEHP) is a common laboratory contaminant (CLC). However, it is inappropriate to report all the findings of BEHP at Moffett Federal Airfield are from laboratory contamination without evaluating other factors.

12. **Page 4-15, paragraph 1:** Please note that various inorganic contaminants were identified in the OU1 RI report.

13. **Page 4-17, bottom paragraph:** According to the OU2 Final RI report, metal analyses were performed as well.

14. **Page 4-22, paragraph 3:** Please clarify if any PCBs have been detected at Site 3 through the Site Wide Ecological Assessment (SWEA).

15. **Page 4-23, paragraph 2:** The first sentence in this paragraph should be revised to reflect that various inorganic contaminants were identified in the OU2 RI report.

16. **Page 4-89, paragraph 2:** Please explain how to reach the conclusion that the chlorinated solvents at Hanger 1 Fuel Pits area are derived from regional VOC plume.

17. **Page 4-92, paragraph 1:** Please clarify whether pesticides/PCBs were only detected in the surface debris or it has been found in the soil boring as well.

18. **Page 5-2, paragraph 2:** The second sentence is contradictory to the findings of OU5 Final Feasibility Study Report. According to the Final OU5 FS report, contaminants were found in the surrounding groundwater of Sites 1 and 2.

19. **Page 5-2, paragraph 3:** Exfiltration of groundwater from A-1 aquifer to the ditch should be considered as a potential pathway and be included in the conceptual model.

20. **Page 5-2, paragraph 5:** To our knowledge, at least 11 A-1, and 3 A-2 aquifer monitoring wells were installed through previous RI activities and the shallow groundwater aquifer has been evaluated in the OU5 RI report. All the previous investigation data should be included in the SWRI report.

21. **Page 5-3, paragraph 5:** Please provide more information about the dry wells mentioned in this paragraph.

22. **Page 5-5, paragraph 4:** Several organics such as 1,1,1-TCA, Bis(2-ethylhexyl)phthalate and toluene were identified as chemicals of concern in the A-1 aquifer and cannot be attributed to the regional plume. If VOCs in vadose zone soil are due to

volatilization from contaminants in groundwater, then the same contaminants should be found in groundwater as well.

23. **Page 5-5, paragraph 5:** Previous shallow soil analytical results of the stained area should be included in the SWRI report.

24. **Page 5-10, paragraph 3:** The infiltration from vadose zone to groundwater might be considered as a potential migration pathway.

25. **Page 5-11, paragraph 2:** It is stated that volatilization could be an important pathway at the pier. If so, air emission should be evaluated.

26. **Page 5-11, paragraph 5:** An individual site number should be assigned to each of the "Station-wide sites".

27. **Page 5-11, paragraph 1:** A conceptual contaminant transport model should be included for, at least, the "first group" of bunkers.

28. **Page 5-12, paragraph 2:** Please provide the abandonment schedule of the agricultural well in the "runway wetland" area.

29. **Page 5-12, paragraph 3:** The last sentence should be removed from the report. Instead, inorganics should be considered in conceptual modeling and risk assessment.

30. **Page 5-24, Figure 5-2:** Please see Comment 18.

31. **Page 6-3, bottom paragraph:** Please note that soil or groundwater plumes containing mixed petroleum and non-petroleum wastes are not covered under the petroleum exclusion and should be evaluated on a chemical by chemical basis using DTSC and U.S. EPA guidance.

32. **Page 6-18, paragraph 3:** According to DTSC guidance, all site related chemicals should be included in the risk assessment unless a very large number of chemicals are present (DTSC, 1992). There are not a very large number of chemicals present at Moffett Field and all site related chemicals should be carried through the risk assessment. The advent of modern computer spread sheets does not make this an onerous task.

33. **Page 6-19, paragraph 1 and 2:** These two paragraphs are somewhat confusing and could use further explanation about how the point by point estimate was conducted. Also, it is not clear to DTSC how the inclusion of chemicals of concern (COCs) across the site is a confounding factor. If a chemical was not used at

a particular area and was not detected in the analyses then it will not contribute to the point estimate of risk for the area. We feel any discussion of confounding factors should be moved to the uncertainty section. We do not agree that much of the discussion in Section 6.3.2 should be devoted to criticism of the point estimate of risk approach. This approach was successfully used at Sacramento Army Depot where it was approved by U.S. EPA, the Army and DTSC.

34. **Page 6-20, paragraph 1:** We do not feel 5% frequency of detection is a conservative benchmark to eliminate a chemical as a COC. Indeed, this is more of an upper limit, especially if the chemical was used on site and/or it was detected at a high level. Injudicious use of a 5% cutoff could result in elimination of a hot spot of a particular chemical.

35. **Page 6-21, last paragraph:** This paragraph does not provide any actual details how the list of COCs was selected. Such detail must be provided.

36. **Pages 6-26 and 27, discussion of Sites 3, 7 and 10:** The text indicates that soil and groundwater contact was assessed. Does that include the complete exposure scenarios including groundwater and soil ingestion as outlined in Table 6-1 and described in Section 6.4.2 on page 6-30?

37. **Section 6.4.3 Pages 6-31 and 6-32:** Section 6.4.3 should concentrate on explaining how the point concentrations were obtained. A critique of the point estimate of risk approach as compared to a spatially averaged concentration should be moved to the section on uncertainty. Personal opinions and editorial comments are not appropriate in the body of the risk assessment.

38. **Page 6-35, paragraph 2:** The most recent iteration of the DTSC dermal absorption guidance (DTSC, 1994) lists a value of 0.15 for the dermal absorption of PCBs, the value listed of 0.20 was from an earlier version of our guidance before results obtained from a soil matrix were available.

39. **Uncertainty section, Pages 6-37 to 6-39:** The comparisons of the point estimate to spatially averaged concentration approach should be consolidated in this section and eliminated from the earlier sections. Since both EPA and DTSC recommended the point estimate approach, we feel it would be appropriate for there to be an even handed discussion of the two approaches rather than persistent criticizing upon the point estimate approach.

Although much is made of the fact that receptors will be "standing for thirty years" in contaminated areas, receptors will

also be located over relatively uncontaminated areas. Instead of being averaged in with contaminated areas, these receptors will show a very low risk or hazard. Additionally, the spatially averaged approach employs the upper 95th percentile value on the mean as a conservative measure of chemical concentration. The point estimate approach uses the measured value itself, and in that regard is less conservative.

40. **Page 6-39, paragraph 3:** We are not aware of any specific studies which have been conducted showing that *"dermal absorption of compounds in soil is highly variable"*. If studies which specifically indicate that dermal absorption of chemicals in soil is highly variable are unavailable at present, we suggest this paragraph be deleted. Recent studies have shown that several inorganic chemicals can be absorbed by the dermal route from a soil matrix. Please note the Wester and Maibach (1995), recently reviewed this subject. (a copy of the manuscript, currently in press, can be obtained if requested).

41. **Page 6-42, paragraph 1:** Our understanding, after reviewing a recent pharmacology textbook, is that therapeutic use of antimony in humans has been discontinued because of its toxicity except for a specific use in treating Leishmaniasis (Gilman et. al, 1990).

42. **Page 6-45, paragraph 5, last sentence:** There appears to be a typographical error or partial deletion in this sentence.

43. **Page 6-62, last paragraph:** A value of 300 mg of lead per day appears to be greatly in excess of normal adult daily exposure. Our information is that about 10 ug lead per day normally ingested from the diet, along with about 5 or 10 ug of lead per day which may originate from drinking water, represent the major sources of lead exposure in uncontaminated areas. This paragraph should be changed accordingly.

44. **Page 6-77, paragraph 3:** We suggest reference be made to the primary known metabolic role of selenium in humans, substitution for sulfur in the amino acids selenomethionine and selenocysteine required for activity of the enzyme glutathione peroxidase.

45. **Page 6-77, paragraph 4, sentence 1:** This sentence should be revised. In its current form, it is not grammatically correct.

46. **Page 6-79, paragraph 1:** We are aware of previous medical use of silver in treating syphilis, currently we believe there are only extremely limited medicinal uses of silver compounds.

47. **Page 6-80, paragraphs 5 and 6:** The first sentence of each of these paragraphs need revision to correct typographical errors.

48. **Page 6-86, paragraph 1:** The paragraph indicates that risks were not summed across all pathways as requested by DTSC and U.S. EPA. Instead, it is indicated that groundwater risks were presented separately. We understood that all parties had agreed to summing risks across all pathways as required in both U.S. EPA and DTSC guidance. We feel a deviation from our agreement of this magnitude must be agreed to by all parties and is unacceptable to DTSC.

49. **Page 6-86, last paragraph:** The contractor may include a correction for incomplete G.I. absorption when estimating the toxicity of chemical exposure by the dermal route. However, please note this is not required under DTSC guidance in the PEA manual (DTSC, 1994).

50. **Page 6-87, paragraph 3, last sentence:** This sentence by using the word "toxic" in the phrase "toxic or carcinogenic" may confuse the reader into thinking that Cal EPA has RfDs for chemicals when only Cancer Slope Factors (CSFs) are available. In all fairness, if the last sentence in the paragraph is to be retained, it should be pointed out that Cal EPA cancer slope factors for some chemicals are smaller than the corresponding U.S. EPA value. If teamwork between all parties is a goal, we feel the last sentence of the paragraph should be deleted.

51. **Page 6-87, paragraph 2:** We do not recall the point estimate approach being recommended for expediency. All comparisons of the point estimate and spatially averaged approach should be impartial and condensed into one section.

52. **Page 6-91, paragraph 3:** The approach suggested for analyzing lead hazard, using the DTSC lead spreadsheet combined with a default value of 400 ppm, is unacceptable. Our understanding was that the DTSC lead spreadsheet would be used for all analysis of lead hazard. A value of 130 ppm lead as given in the PEA manual could be used as a health based screening level for lead hazard.

53. **Page 6-92, last paragraph, last sentence:** The sentence has a plural subject and singular verb and states that the point estimate of risk is ten-fold higher than the spatially averaged estimate. The numbers provided however, show only about a three to four-fold higher risk estimate by the point estimate method. Additionally, the maximum point estimate value for the area was selected for comparison against the spatially averaged value.

All the other point estimates would be lower for that exposure area. The argument could be made that the point estimate approach is not conservative enough by citing the lowest value in the exposure area and pointing out that it is lower than the spatially averaged value. One conservatism built in to the spatially averaged approach, and not mentioned in the discussion, is the use of the upper 95 percentile value on the mean concentration when estimating an exposure point concentration. As we have indicated previously, the comparison of the two approaches should be moved to the uncertainty section.

54. **Page 6-94, paragraph 1:** DTSC would like further discussion on the purpose of the second sentence in this paragraph.

55. **Page 6-94, paragraph 2 :** References should be provided for the first two sentences.

56. **Page 6-94, paragraph 2 :** A reference or citation should be provided as to where the Monte Carlo simulation can be located.

57. **Page 6-95, paragraph 3:** We would appreciate further clarification of this paragraph. In some cases, inorganic chemicals present at background levels for a particular area can be eliminated as chemicals of concern. If background risk might be a concern, it should be calculated separately from site-related risk. If this procedure is followed, background level contaminants will not artificially elevate risk or hazard. Therefore if detected at a sampling point, a site related chemical would be contributing to risk or hazard estimates in both the point estimate and spatially averaged methods. In general, DTSC does not approve of elimination of chemicals as COCs if they are present as site related contaminants, unless they are inorganics present at below background levels.

58. **Page 6-95, paragraph 2:** DTSC cannot agree with the second sentence of the paragraph and would like to further discuss the issue with the Navy. The third sentence is vague, it appears that some words were left out.

59. **Figures 6-1 through 6-10:** The mechanism of different size circles used to communicate the magnitude of risk and hazard for soil samples makes it confusing and difficult to compare the risk at different locations. The crosses chosen to communicate risk and hazard for groundwater are even more confusing. Also, the title of the figures displaying hazard indicate noncarcinogenic hazard indices are displayed, but the legend refers to a *"Risk Value"*. We are certain that if the Navy, DTSC

and U.S.EPA can meet on this problem, a more satisfactory method of displaying risk and hazard can be arrived at.

A figure depicting blood leads predicted using the DTSC lead spreadsheet should be prepared at least for the residential scenario. Figures should be prepared for the other two scenarios if the predicted blood leads approach 10 ug/dl or greater (at the 99th percentile) at any of the sampling points.

60. **Table 6-1:** DTSC guidance indicates that the ingestion of fruits and vegetable be evaluated when utilizing the DTSC lead spreadsheet for evaluating the hazard from lead in a residential exposure scenario.

61. **Table 6-5:** As we have indicated in previous memos, DTSC guidance indicates a value for soil adherence of 1.0 mg/cm^2 which should be utilized.

62. **Table 6-6:** The value for inhalation rate should be 0.83 m^3/hour for adults.

63. **Table 6-5 through 6-10:** DTSC guidance specifies that both childhood and adult exposures be considered when calculating carcinogenic risks from exposure to soil, air and water in a residential exposure scenario. Children, the most sensitive receptor, should be used when calculating noncarcinogenic hazard by from soil, air or water. Please see our PEA manual for default exposure parameters (DTSC, 1994).

64. **Table 6-12:** See our comment regarding Table 6-5 above; a soil adherence value of 1.0 mg/cm^2 should be used.

65. **Table 6-18:** See our comments on Table 6-12 above; a soil adherence value of 1.0 mg/cm^2 should be used.

66. **Table 6-24:** Hazard indices should be calculated (and RfDs provided) for carcinogenic as well as noncarcinogenic COCs.

67. **Table 6-25:** The Cal EPA inhalation slope factor for hexavalent chromium is 510 $(mg/kg\text{-}day)^{-1}$ not 5.0. The listing for chromium should indicate that it is for the hexavalent form.

The Cal EPA slope factors for arsenic are incorrect. The slope factor of 12 $(mg/kg\text{-}day)^{-1}$ is the value for the inhalation slope factor. The oral value is pending.

68. **Table 6-27 and 28:** It would be useful if an additional table or tables were available providing at least a sample of chemical exposure point concentrations and associated risks and hazards for the site wide risk assessment.

69. **Page E-5, first paragraph:** We do not feel a 5% frequency of detection is a conservative benchmark to eliminate a chemical as a chemical of concern (COC). Indeed this is more of an upper limit, especially if the chemical was used on site and/or it was detected at a high level. Injudicious use of a 5% cutoff could result in elimination of a hot spot of a particular chemical. Chemicals eliminated as COCs because of less than 5% frequency of detection should be re-evaluated based on site specific conditions.

70. **Page E-8, second paragraph:** As a policy, DTSC requires a residential scenario for all sites. This does not mean the site will need to be cleaned up to residential standards. Cleanup would depend on the most likely future use. The residential scenario is required to document the need for a deed restriction on the property if it is not cleaned up to residential standards. There should be further discussion between DTSC, EPA and the Navy concerning the landfill and ditch as well as the groundwater underlying these sites.

71. **Page E-14, second paragraph:** We are not aware of any specific studies which have been conducted to show that *"dermal absorption of compounds in soil is highly variable"*. If studies which specifically indicate that dermal absorption of chemicals in soil is highly variable are unavailable at present, we suggest this paragraph be deleted. Recent studies have shown that several inorganic chemicals can be absorbed by the dermal route from a soil matrix. Please note the Wester and Maibach, 1995 review (currently in press) of this subject (a copy of the manuscript can be obtained if requested).

72. **Page E-15, first paragraph, last sentence:** Please remove the last sentece. Toxicity information is not directly appended to the Table of Cancer Potency Values made available by the Office of Environmental Health Hazard Assessment (OEHHA). However, each of the cancer potency values in the Table was obtained from a risk assessment document prepared by OEHHA or the Department of Pesticide Regulation. Dr. David Siegel of OEHHA could be contacted at (916) 324-2829 for further information or acquisition of the carcinogenic risk assessment supporting any of the values in the CAL EPA Cancer Potency Table. Alternatively, under the column heading *"Source"* each of the compounds listed on the Table of potency values has a Telephone number which is provided so that interested individuals can call and obtain information on the supporting risk assessment. Some of these risk assessments such as those for toxic air contaminants or drinking water contaminants are quite extensive.

73. **Page E-15, second paragraph:** Please note that recent studies by Waalkes et al (1992) indicate that cadmium may have activity as an oral carcinogen in rats.

74. **Page E-19, last paragraph:** It is our understanding that cobalt is only essential when administered as part of the vitamin B_{12} molecule and cobalt itself has no current therapeutic uses although it may have been administered in the 1950's (Gilman et.al., 1990; NRC, 1989).

75. **Page E-23, second paragraph:** We are unfamiliar with the word sulfite being used as a synonym for Endosulfan. It is not listed as a synonym in *The Farm Chemicals Handbook* or *Merck Index*.

76. **Page E-25, second paragraph:** A value of 300 mg of lead per day appears to be greatly in excess of normal adult daily exposure. Our information is that about 10 ug/day is normally ingested from the diet, which along with about 5 or 10 ug of lead/day which may originate from drinking water, represent the major sources of lead exposure in uncontaminated areas.

77. **Page E-29, fourth complete paragraph:** This paragraph would be more informative if further information were provided as to why inhalation is the most significant route of exposure to PAHs.

78. **Page E-31, fourth complete paragraph:** We suggest reference be made to the primary known metabolic role of selenium in humans, substitution for sulfur in the amino acids selenomethionine and selenocysteine required for activity of the enzyme glutathione peroxidase.

79. **Page E-32, last paragraph:** Our understanding is that phytotoxicity refers to toxicity to plants. How can phytotoxicity be studied in experimental animals?

80. **Page E-34, third paragraph:** The soil screening value of 130 ppm cited in the PEA manual (DTSC, 1994) can be used as a screening value for lead. The value of 400 ppm is not in accordance with DTSC guidance and is not acceptable.

81. **Page E-45, California EPA references:** The finalized version of the Preliminary Endangerment Assessment manual is dated January, 1994. The most recent iteration of the Cal EPA Cancer Potency Factors List is dated December 28, 1995. The earlier versions cited in the two references on page E-45 are not finalized documents.

82. **Page E-52, Table E-3:** More information needs to be provided about chromium. Was chromium speciated and was hexavalent chromium found? In contrast to the trivalent species, hexavalent chromium is carcinogenic and more toxic. Further information on speciation data on chromium is required to ensure that the potential risk from hexavalent chromium has been suitably addressed.

83. **Page E-54, Table E-5:** A complete literature citation should be provided for the Hetch Hetchy, USGS and Waller references cited as sources of the reported background concentrations of inorganic chemicals. There are a number of sites in the South Bay which may have relevant background data.

84. **Page E-58, Table E-9 and Page E-62, Table E-13:** More detail should be supplied on the algorithm or model used to estimate vapor concentration of chemicals in air based on measured soil concentrations.

85. **Page E-59, Table E-10:** Units of mg/L are given for chemical concentration to be used in calculating soil ingestion.

86. **Page E-60, Table E-11:** As per our guidance (DTSC, 1994), a value of 1.0 mg/cm^2 should be used for soil adherence.

87. **Pages E-67 and E-94, Tables E-18 and E-44:** Based on the upper 95th percentile confidence limit on the mean soil concentration (95 UCL) shown in Table E-18 and the exposure parameters shown in Table E-10, we attempted to reproduce the calculations for the Cal/EPA CDI and Cal/EPA cancer risk for Aroclor-1260. The values for CDI and cancer risk that we calculated were about 15 fold larger. Although we did not run calculations for the other chemicals, this discrepancy appears to extend to other chemicals in addition to Aroclor-1260. Spotchecks should be conducted on other tables to screen for arithmetic errors.

88. **Page E-115, Table E-64:** A reference should be cited for the values used to estimate lead in air and lead in water.

CONCLUSION

In its current form, the Station Wide risk Assessment is not acceptable to DTSC. As detailed above, there are a considerable number of points where the document departs from our guidance or from what we feel should be included in a Station-Wide risk assessment to make it useful and understandable to both the public and the regulatory agencies. We look forward to discussions with the Navy over these issues.

REFERENCES

CaL EPA, Office of Health Hazard Assessment, 1994. Cancer Potency Factors List dated December 28, 1994.

Department of Toxic Substances Control, Office of Science Advisor, 1992. Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities.

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US EPA Office of Solid Waste and Emergency Response, Directive 9285.6-03B, 1991. Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors.

US EPA Office of Emergency and Remedial Response, 1994 Health Effects Assessment Summary Tables (HEAST), FY -1994 Annual.

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US EPA Office of Emergency and Remedial Response, EPA 9285.7-081, 1992. Supplemental Guidance to RAGS: Calculating the Concentration Term.

Waalkes, et. al., 1992 Carcinogenicity of Oral Cadmium in the Male Wistar (WF/NCr) Rat: Effect of Chronic Dietary Zinc Deficiency. Fund. Appl. Toxicol. 19:512-520.

Wester, R.C. et. al., 1990. Percutaneous Absorption and Skin Decontamination of PCB's: In vitro studies with human skin and In vivo in the Rhesus Monkey. J. Toxicol. Env. Health 31:235-246.

Wester, R.C. et. al., 1993. In vivo and In vitro Percutaneous Absorption and Skin Decontamination of Arsenic from Water and Soil. Fund. Appl. Toxicol. 20: 336-340.

Wester, R.C. and H. Maibach, 1995. Percutaneous Absorption of Hazardous Substances From Soil and Water. in **Dermatotoxicology**, Fifth Edition, Marzulli and Maibach editors., in press, Taylor and Taylor Publishers.

STATE OF CALIFORNIA PETE WILSON, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
2101 WEBSTER STREET, SUITE 500
OAKLAND, CA 94612
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July 20, 1995
File No. 2189.8009 (MMB)

Mr. Joseph Chou
DTSC Region 2
Office of Military Facilities
700 Heinz Avenue, Suite 200
Berkeley, California 94710-2737

SUBJECT: RWQCB's Comments on the Draft Station-Wide Remedial Investigation Report for Moffett Field Airfield dated May 1, 1995.

Dear Mr. Chou:

Enclosed are the San Francisco Bay, Regional Water Quality Control Board (RWQCB) comments on the above referenced report. Please note, to expedite review, the Water Board has reviewed USEPA's comments regarding this document and will not be submitting duplicate comments. If you have any questions regarding these comments, please contact me at (510) 286-1028.

Sincerely,

Michael M. Bessette

Michael M. Bessette
Remedial Project Manager

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 4

To JOSEPH CHOU	From MICHAEL BESSETTE
Co. DTSC	Co. RWQCB
Dept. DOD	Phone # (510) 286-1028
Fax # (510) 540-3819	Fax # (510) 286-3986

Prepared By: Michael M. Bessette Phone No.: (510) 286-1028
Date: July 17, 1995 File No.: 2189.8009 (MMB)
Subject: Draft Station-Wide Remedial Investigation Report, July 1, 1995

General Comments:

- Sites identified as the Weapons Storage Bunkers, Industrial Wastewater Flux Ponds, and the Potential Runway Wetland should be designated with Site Numbers.
- Past environmental impact by Navy activities is to be considered a potential source of inorganic concentrations detected in groundwater samples above background levels.
- Please tabulate and reference all background and ambient inorganic constituent concentrations in soil and groundwater.
- Revise document to state "ambient concentrations" when anthropogenic sources are included.
- The exclusion of metal data from this document because of the stated reason as to not confuse the reader is unacceptable. Please, present inorganic concentration data for soil and groundwater in such a way to clearly demonstrate the correlation to ambient conditions.
- Many descriptions of site activities stop at specific times and leave in question the activities up to the present. Please fill this data gap with information regarding any change in the type of activities performed at each site and how waste management practices changed. The question of continuing sources of potential contamination to groundwater and soil should be answered by the inclusion of this information.
- This document would be appear to be greatly enhanced by the inclusion of a discussion and table of the following items; the clean up requirements as specified in the MEW ROD, the clean up requirements as specified in the petroleum CAP, and treatment goals for TPH impacted soils.
- Aquifer zones, model layers and channel deposit horizons need to be presented and clearly correlated in a cross-section conceptual model cartoon.
- A conceptual model cartoon demonstrating the behavior of groundwater influenced by the pumping at building 191 and horizontal conduits, e.g., french drains, would be helpful in understanding the hydraulic controls on the groundwater movement in the northern area of MFA. The model should include a cross-section representation of the saltwater/freshwater interface with the actual depths of the aquifers and flow arrows depicting the interpreted groundwater behavior.
- The cross sections do not provide adequate presentation of the soil horizons and the associated aquifers. Preferable each classification of soil should be represented by a distinct pattern with a legend to describe each unit. Additionally, every aquifer zone should be delineated with correlation to the channel zones. Potentiometric surfaces of every aquifer should be shown. The use of color would also greatly improve the quality of the cross sections.

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Date: July 17, 1995 File No.: 2189.8009 (MMB)
Subject: Draft Station-Wide Remedial Investigation Report, July 1, 1995

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- The Horizontal Conduit Study is not referenced in this report and should be included as a supporting document.
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Specific Comments:

Page 1-1, Sec. 1.0, para. 1: Include text to state "Formerly Naval Station Moffett Field."

Page 1-1, Sec. 1.0, para. 3: State the number of appendices.

Page 1-9, Sec. 1.2.4.1, para. 2, sen. 2: This sentence may appear to mean that groundwater is being used to MFA for agricultural purposes.

Page 1-5, Sec. 1.2.2.2, para. 1, sen. 1: Please verify this with the California Integrated Waste Management Board, as they may have files regarding operations at Site 1.

Page 1-15, Sec. 1.2.4.4: Please revise the title of this section to agree the subsequent text regarding the number of sumps.

Page 1-18, Sec. 1.2.4.4: The discussion regarding Hanger One should include the investigation status of the electrical utility vault and the subsurface tunnel connecting Hanger One to the steam plant.

Page 3-3, Sec. 3.4, para. 2: Please clarify the extent of the crevasse splay deposits. Does the geology indicate that the splay deposit area of a given horizon extended from the primary river or the secondary channels; or do the secondary channels and splay sediments indicated concurrent deposition? A conceptual model depicting the site and the nature of deposition would be helpful to delineate the lobate tongues of the splay deposits.

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Page 3-7, Sec. 3.5.3, para. 3, last sen.: Document the data used to determine the vertical groundwater gradient of the C aquifer.

Page 3-7, Sec. 6: Please include a site map delineating the types of habitat occurring at MFA.

Figures 3-2 and 3-5: Include the depths associated with each zone on each figure.

Plates 3-2 and 3-5: Please verify the depicted geology beneath WU5-8. These cross sections do not correlate and require revision.

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Page 4-96, Figure 4-1: Please delineate the landfill boundaries to clarify the locations the wells.

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General Comments:

- Sites identified as the Weapons Storage Bunkers, Industrial Wastewater Flux Ponds, and the Potential Runway Wetland should be designated with Site Numbers.
- Past environmental impact by Navy activities is to be considered a potential source of inorganic concentrations detected in groundwater samples above background levels.
- Please tabulate and reference all background and ambient inorganic constituent concentrations in soil and groundwater.
- Revise document to state "ambient concentrations" when anthropogenic sources are included.
- The exclusion of metal data from this document because of the stated reason as to not confuse the reader is unacceptable. Please, present inorganic concentration data for soil and groundwater in such a way to clearly demonstrate the correlation to ambient conditions.
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