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MOFFETT FIELD
SSIC NO. 5090.3

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

OCT 27 1992

Mr. Stephen Chao
WestDiv Engineer-in-Charge
Western Division
Naval Facilities Engineering Command
900 Commodore Way, Bldge. 101
San Bruno, CA 94066-0720

Subj: Additional Sites Investigation Report Draft at Naval Air Station, Moffett Field, Mountain View, California

Dear Mr. Chao:

U.S. EPA has reviewed the subject document. Enclosed please find the comments made by the EPA and its contractor. We agree with the Department of Navy that the subject sites warrant a more detailed investigation.

The additional sampling proposal and the Draft Final Report should incorporate the enclosed comments as appropriate. As discussed in our 10/21 project managers meeting, the issue of how the additional sites will be folded into the operable units should be further addressed.

If you have any questions, please feel free to contact me at (415)744-2386.

Sincerely,

Lida Tan
Remedial Project Manager

cc: Roberta Blank (EPA)
Elizabeth Adams (RWQCB)
Cyrus Shabahari (DTSC)
Josh Marvil (PRC)
Joe LeClaire (JMM)

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COMMENTS ON THE ADDITIONAL SITE INVESTIGA NS REPORT
NAVAL AIR STATION, MOFFETT FIEI

1. Page 2, Section 1.1, Second Complete Paragrar

The report stated that the objectives of this in estigation were to determine if historical waste handling and di posal practices at these sites have resulted in soil and/or grou dwater contamination. However, groundwater sample were not taken during this investigation and groundwater data was not provided from the previous investigations, if there were any. Please explain the reasons for omitting the groundwater investigation.

2. Page 5, Section 1.4.1, First Paragraph:

The report included a letter dated September 28, 1988 in Appendix A. According to the letter, the spilled fuel was left to infiltrate into the ground. The last sentence of this paragraph stated that the fuel had either infiltrated or been otherwise removed. Please delete the highlighted part of the sentence since the letter did not make such an indication.

3. Page 6, Section 1.4.1, First Paragraph:

The report stated that the petroleum-contaminated subsurface soil associated with the aboveground tank storage tank is being handled as an interim action under a source control measure. State what type of an interim action it was, when the action took taken place and if the regulatory agencies were involved in the process.

The paragraph also stated that low levels (less than 21 ppm) of petroleum hydrocarbons are associated with the former burn pit. The report should reference the source of the data.

4. Page 7, Section 1.4.1, First Paragraph:

The report stated that at Site 12, elevated TPH was common in samples collected near the aboveground fuel storage area. The report should state the highest concentration found.

5. Page 7, Section 1.4.1, Second Paragraph:

The report stated that except the eleven SVOCs detected at Site 12 boring SB12-12, other borings showed non-detect or low levels of phthalate. Figure 6 indicated that three other SVOCs showed up in four soil samples at Site 12 including Bis(2-Ethylhexy)phthalate ranging from 400 ppb to 680 ppb, Di-n-butylphthalate at 590 ppb and Butylbenzylphthalate at 1700 ppb. The report should mention these levels in the discussion.

6. Page 7, Section 1.4.1, Third Paragraph:

The report stated that no petroleum hydrocarbons were found in

the six Site 12 monitoring wells. The discussion should also indicate if contaminants other than petroleum hydrocarbons were found in these groundwater samples. If so, provide the sample results.

7. Page 8, Section 1.4.3:

Figure 7 indicated the boring locations of the past Marriage Ditch Road investigation. It should also include the contaminant concentrations associated with each boring locations as well.

8. Page 13, Section 2.3.1 and Section 2.3.3:

These two sections stated that SVOC analysis was not performed on subsurface soil samples because of the low potential for SVOC migration in subsurface soils. SVOCs can migrate into the subsurface due to the presence of VOCs, natural precipitation and/or disturbance of the native soil. The section should discuss these possibilities.

According to Figure 6, a total of fourteen SVOCs were detected at the burn pit area. Especially at SB12-12, eleven SVOCs were detected at relatively high levels. Figure 6 only presented data at boring SB12-12 up to one foot. Were deeper soil samples taken and analyzed for SVOCs at that location?

9. Page 14, Section 3.1, Third Paragraph:

According to this section, an Organic Vapor Analyzer (OVA) was used. It seemed that the OVA was used as a screening method for soil samples at SBZR-2A through SBZR-2H. If so, why didn't the report include the analytical data from SBZR-2E either in Figure 10 or Table 2 since the OVM reading at SBZR-2E was 261 ppm (greater than SBZR-2D's OVM reading at >200 ppm)?

If Figure 10 only displayed compounds above the detection limits, Table 2 should have included the rest of soil boring data from SBZR-2E, SBZR-2F, SBZR-2G, SBZR-2H.

10. Page 17, Section 3.1, First Paragraph of the page:

The report should include the groundwater data from the CLEAN wells at Site 12.

11. Page 20, Section 4.0:

Unless agreed upon otherwise, the report should identify the chemicals of concern by using the Risk Assessment Guidance for Superfund Volume I and II.

12. Page 31, Section 6.0:

All additional soil and groundwater samples should be analyzed for base/neutral/acid extractables at all sample depths.

DCN: .4-C09015-RN-M15034

REVISED TECHNICAL REVIEW OF DRAFT ADDITIONAL SITES INVESTIGATION REPORT NAVAL AIR STATION, MOFFETT FIELD MOUNTAIN VIEW, CALIFORNIA

OCTOBER 23, 1992

SUBMITTED TO:

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 HAWTHORNE STREET
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SUBMITTED BY:

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION
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EPA CONTRACT NO. 68-W9-0008
EPA WORK ASSIGNMENT NO. C09015
SAIC/TSC PROJECT NO. 06-0794-03-0630

REVISED TECHNICAL REVIEW OF
DRAFT
ADDITIONAL SITES INVESTIGATION REPORT
NAVAL AIR STATION, MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

GENERAL COMMENTS

In Section 6.0 "Conclusions and Recommendations," James M. Montgomery, Inc. (JMM) recommends that additional soil samples be collected at the Zook Road Fuel Spill Site. In addition, resampling of the soil in the Patrol Road Ditch is recommended. We agree with this course of action.

SPECIFIC COMMENTS

Field Data Reliability

1. Page 30, Section 5.3

The reviewer does not agree with JMM's conclusion in the Data Quality Summary that all quality control parameters, other than those discussed, have been met. Based on the 10% rule for field duplication samples, additional samples should have been taken. Table 1 identified twenty-six field samples. Two additional samples were duplicate field samples. A minimum of one additional field duplicate sample should have been taken.

2. Appendix C

A full validation was performed on ten soil samples per a letter addressed to Mr. Applegate dated September 3, 1993 (Appendix C). The Calibration section of this letter states "The %RSD of and $\%D_s$ for acetone exceeded criteria in the calibrations. In addition, the $\%D_s$ for 2-butanone exceeded

25% in the continuing calibrations." This section of the validation letter further states that no action is necessary. Please discuss this occurrence in the Data Quality Summary of the report and explain why the samples were not reanalyzed as a result of a known calibration problem. Please address the calibration problems observed for sample IDs #C01120, A01113, A02113, A03106, A03113, A02106, A04113, A05106, A05113, A06106, A06113, A08113, and C05096. In the Data Quality Summary of the report, explain why these calibration occurrences are acceptable and why the samples were not reanalyzed.

3. Appendix C

Sample ID #A10120RE shows a detection limit of 58 μg/kg. Sample ID #A09120, with similar percentage moisture and similar dilution factor, shows a detection limit of 11 μg/kg. Specifically, address why Sample ID #A10120RE was unable to obtain the lower detection limit.

4. Page 30, Section 5.3

The performance by the analytical lab (Mid-Pacific Environmental Laboratories) is poor in regards to meeting quantitation limits specified by the Contract Laboratory Program. Due to the failure to meet the required quantitation limits, continual use of a "J" qualifier was employed. In the majority of occurrences, elevated detection limits were not due to increasing the dilution factor. A discussion should be provided to clarify JMM's statement on page 30 of the report that "all results, other than those listed above were considered valid and usable for all purposes" in light of poor performance by the analytical laboratory to meet required quantitation limits.

5. Page 25, Section 5.1

The QC Sampling and Analysis Activities section on page 25 introduces field quality control sampling; however, this section does not discuss the results of this program. Include a section which discusses quality control results of field equipment rinsate blank samples, trip blank

samples, and field duplicate samples. The reviewer is not familiar with the use of trip blanks for soil sampling programs; however, page 25 states that trip blank samples were included.

6. Appendix C

Please provide photocopies of the field-sample chain-of-custody forms in an appendix to the report. Review of the chain-of-custody forms is necessary as a quality control check. Inclusion of these forms is necessary for report completeness.

Section 4.0, Compounds of Concern

7. Page 22, Section 4.0

The final sentence of section 4.0 states "the K_d values and the corresponding aqueous-phase concentrations are presented in Table 10." Present an example in the written text of the calculations required to arrive at a C_w value for one of the organic compounds listed in Table 10. Clarify why the range of values of methylene chloride that could partition into groundwater (105-680 μg/L) is greater than the maximum value detected in soil at the site (6.0 μg/kg).

It is recommended that additional organic compounds detected in the soil during the investigation be included in Table 10. Please add diesel, motor oil, and kerosene. Why are values for acetone missing from Table 10? Include the values used for f_{oc} as an addendum to Table 10.

8. Page 22, Section 4.0

To further summarize compounds of concern by location, please prepare a table for each site that lists each compound detected in the soil at that site. Include a column that quantifies the potential to leach into groundwater at that site for each listed compound. Compare this value with water quality standards by including columns listing EPA maximum contaminant levels (MCLs) and state of California primary and secondary

MCLs. Utilize these new tables by referencing the values in the site specific discussions for Sections 4.1, 4.2, and 4.3. The purpose for adding these tables to the report is to qualify whether detected soil concentrations will partition into groundwater for each compound and at which locations.

9. Table 6

Metals contamination in soil is not adequately addressed in the Compounds of Concern section of the report. A discussion of potential impact by metals on groundwater quality and a health-based risk assessment of metals in soil must be included in the report. Table 6 presents a summary of inorganic constituents detected at the Patrol Road Ditch and Golf Course Landfill Sites. Arsenic, cadmium, chromium, copper, iron, lead, magnesium, manganese, mercury, nickel, silver, and zinc were detected at elevated or above background concentrations.

10. Page 21, Section 4.0

To support JMM's conclusions a table will be required. Include metals of concern per site and expected partitioning into groundwater. Qualify why a metal is or is not a chemical of concern (low frequency of detection, essential nutrient, low potential to partition into groundwater). Then include columns for total threshold limit concentration (TTLC) and MCL values. A comparison of the results of this table should be discussed in the Section 6.0 "Conclusions and Recommendations" for the Patrol Road Ditch Site and the Golf Course Landfill Site.

11. Page 17, Section 3.1

Correct the statement "no organic compounds, including TPH, were detected in samples collected during the most recent round of groundwater analytical data for Site 12 wells." This is a misleading statement. Historic sampling events have detected gasoline, diesel, JP5, and oil and grease in the Site 12 monitoring wells. This information should also be included under the Zook Road Conclusions and Recommendations Section to

support the need for the installation of one monitoring well downgradient of SBZR-Z.

Zook Road Fuel Spill Site

12. Page 16, Section 3.1

Two typographical errors require correction for clarification in the Zook Road Fuel Spill Site sections. Page 16, 2nd paragraph, states that "Toluene and xylene were also detected in SBZR-20...." This should read SBZR-2D. Figure 10 is missing a heading for the chart of soil sample SBZR-3.

13. Page 31, Section 6.0

Relatively high concentrations of TPH-kerosene were detected in soil samples at the Zook Road Fuel Spill Site. Lower levels of TPH-diesel and TPH-motor oil were also detected. These results indicate that the area sampled is impacted by petroleum hydrocarbons.

Additional soil sample collection is recommended for the Zook Road Fuel Spill Site by JMM (refer to page 31). Qualify this recommendation by stating that one purpose for additional soil sampling is to define the boundary of soil contamination. A correlation between Zook Road soil sample results and previous soil sample results from site 12 and the NASA Fuel Farm must be discussed in the Conclusions and Recommendations section for the Zook Road Fuel Spill Site. This discussion will support the statement (page 31, paragraph 2) "Additional tests may be required to assess the applicability of these soils for Site 12 treatability."

14. Page 31, Section 6.0

A limited discussion of fate and transport of TPH is presented in the Conclusions and Recommendations section. Please expand on these concepts. A presentation of physical and chemical properties of the petroleum

hydrocarbons detected will enable a more complete discussion of the persistence of these compounds at this site.

15. Page 31, Section 6.0

Please justify your recommendation that one groundwater monitoring well be installed upgradient of contaminated soils encountered at SBZR-2 (page 31, paragraph 2). What purpose would this well serve if groundwater is found not to be impacted, upon analysis of samples drawn from a monitoring well installed downgradient from the known soil contamination?

Patrol Road Ditch Site

16. Appendix C

It appears that sample No. B01095, which corresponds to SBPR-2-0.0-1.0-101 (per a COC number referenced on an analytical data sheet in Appendix C), gives a result of 50 μg/L TPH-gasoline. Chain-of-custody documentation is not included in the report, which makes it difficult to verify a particular sample result with the analysis data sheet. This water sample is qualified with a J qualifier. Please address this gasoline detection in the text under Section 4.2, Compounds of Concern, Patrol Road Ditch Site. A table showing both the sample's field identification numbers and the sample's laboratory designated numbers should be provided to facilitate review and cross-reference.

17. Page 31, Section 6.0

As stated in the Conclusions and Recommendations section for the Patrol Road Ditch Site, resampling of the soil will be necessary due to TPH-motor oil being detected in the method blank. No conclusions can be stated other than the fact that organics have been detected at this site. It is advised that VOCs, BNAs, and TPH be recommended for analysis during the resampling of this site. In addition, an analysis for chromium VI should be recommended for all three soil samples due to a relatively high detected concentration of chromium in sample SBPR-2-0.0'-1.0'.

18. Table 4

Iron was detected at a maximum concentration of 34,600 mg/Kg at the site. Please discuss the high levels of iron detected in the five samples at the Patrol Road Ditch Site relative to background levels. Discuss the mobility and health and environmental risk aspects of this element.

Golf Course Landfill Site

19. Tables 6 and 8

Table 8 presents arsenic concentrations from 15 soil samples at the Golf Course Landfill Site ranging from 1.3 to 6.8 mg/Kg. Table 6 states that the range for arsenic is 1.3 to 3.6. Please correct this inconsistency. In the text under Section 3.3.3, "Inorganic Constituents in Soil Samples," arsenic is not discussed. Arsenic is a Class A carcinogen. Please add arsenic under the category "concentration that slightly exceeded the background values...."

20. Page 24, Section 4.3

Section 4.3, Compounds of Concern, Golf Course Landfill Site, states in paragraph three "a number of pesticides and PCBs were detected in soils at this site...most of these compounds are relatively immobile in the soil water matrix...." This statement may be accurate; however, Table 14 clearly shows that PCBs and pesticides are detected at the three-to-four foot and five-to-six foot depths. This may be due to disposal or mixing patterns. Please address these concentrations of PCBs and pesticides detected at deeper intervals and their potential impact on groundwater quality.

21. Page 32, Section 6.0

Please include a recommendation to further identify the boundaries of soil contamination at the Golf Course Landfill Site. If JMM is concluding that all soil at the Golf Course Landfill Site is contaminated by heptachlor,

alpha- and gamma-chlordane, and PCBs, discuss and justify this conclusion. A map is required to show the limits of contamination. The purpose of this requirement is to assist the feasibility study for this site.

22. Page 32, Section 6.0

Five monitoring wells are recommended to be installed at the Golf Course Landfill Site. Please recommend in the report that at the time of monitoring well installation, soil samples be taken and analyzed for volatile organic compounds, semivolatile organic compounds (SVOCs), TPHs, priority pollutant metals (total and dissolved), organochlorine pesticides, and PCBs. This will assist in further defining the concentration contours of soil contaminants at the Golf Course Landfill Site. In the text, please justify each monitoring well location. Include the screening interval and proposed well depth. Clarify within which water-bearing zone you intend to place each monitoring well and why, or why not, a well will be installed in deeper zones. A map showing the proposed monitoring well locations is required.

23. Page 32, Section 6.0

Please clarify the purpose for installing an upgradient well. As presented, to monitor for upgradient sources is not a justifiable reason for installing an upgradient well at this time. Recommending that an upgradient well be used to determine background water quality would be important. Please evaluate the possibility of recommending the use of MW3-11 as an upgradient background well.

REFERENCES

California SWRCB. 1989. *LUFT Field Manual Revision*. March 1989.

California Regional Water Quality Control Board, San Francisco Bay Region. 1990. *Tri-regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites*. August 1990.

Dragun, James. 1988. *The Soil Chemistry of Hazardous Materials*. Hazardous Materials Control Research Institute, Silver Springs, Maryland.

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U.S. EPA. 1991. *User's Guide to the Contract Laboratory Program*. EPA/540/P-91/002, January 1991.

U.S. EPA 1991. Risk Assessment Guidance: Human Health Evaluation Manual, Part B: Development of Risk-Based Preliminary Remediation Goals. OSWER Directive 9285-7-01B, December 1991.