RESPONSES TO EPA COMMENTS ON THE SITE 8 DRAFT ACTION MEMORANDUM NAVAL AIR STATION MOFFETT FIELD

GENERAL COMMENTS

1. *All appendices should include references for all data presented.*

All appendices now reference the data presented. This reference appears on the cover sheet to each appendix.

2. *The regional groundwater plume should be shown on a figure and described in the text. Groundwater flow directions should be shown both at Site 8 and with respect to the entire NAS Moffett site. Compare concentrations found at Site 8 to regional plume concentrations. This will help in the determination of the necessity of source control at the site.*

The regional VOC plume is shown in Figure 2, *Site Location map*, and is referenced in Section 2.4, *Potential or Actual Release of Contaminants* (Revised text is shown below, new text is bold). (It is not shown in the other figures, because based on the last *regional* interpretation, the plume had not reached Site 8.) Groundwater flow directions are shown on the figures.

2.4 POTENTIAL OR ACTUAL RELEASE OF CONTAMINANTS

Based on the results of previous investigations, there was a presumed release of 1,1,1-TCA from the tank/sump at Site 8, although this cannot be confirmed without more upgradient information. **The latest regional interpretation of the VOC plume (HLA, 1988), suggests that the 100 µg/L TCE contour line on the isopleth is approximately 1,000 feet upgradient of Site 8. It is possible that, given the three years that separate the MEW group results and the Site 8, Phase II investigation (IT Corp. 1990e), VOCs could have migrated as far downgradient as Site 8, especially considering the heterogeneity of the shallow permeable zones. With the exception of 1,1,1-TCA, VOCs detected in monitoring wells were less than 50 µg/L, which is less than the definable "edge" of the regional VOC plume.**

3. *The soil boring logs did not reproduce well; the document should contain easily readable boring logs.*

Better originals were used in reproducing all boring logs for the Final Action Memorandum.

SPECIFIC COMMENTS

1. *Page 6, 3rd Paragraph*

The emphasis of source control could be soil remediation if soils were determined to be significantly contaminated and a health risk to humans (i.e., from airborne contaminants). This possibility should be considered in a paragraph.

The text has been revised to incorporate the comment:

> The purpose of source control activities at Site 8, which is addressed in this AM, is to prevent vertical and areal migration of contaminants from a source (if any) at the site. The emphasis in source control is the remediation of contamination of the soils of the site (if contaminated), thus preventing groundwater contamination and reducing human health risks.

2. *Page 6, Section 2.1 Site Background*

How were the waste oils and solvents disposed of after being pumped into the transfer tank? Lindberg drainage ditch lies in close proximity to Site 8. Was it possible that the tank wastes were disposed of in Lindberg drainage ditch?

Additional text has been included to incorporate the comment:

> Reports indicate that the contents of the transfer tank were collected by a waste oil recycling company. However, it is possible that some of the waste oil may have been used for dust and weed control.

3. *Page 8, Figure 3 Site Map*

Labeled streets, Lindberg drainage ditch, Site 8 boundaries and Navy/NASA property boundaries should be on the figure. Also, is there a CPT/H8-9? Figure 3 should include all wells in the vicinity of Site 8, including all MEW wells to date.

The requested additions to the appropriate figures have been made. No HydroPunch sample was taken at CPT/HP8-9. All known monitoring wells within the limits of the figure are included.

4. *Page 10, Section 2.2.4 Base-Wide Hydrogeology*

This section should discuss tidal influence on groundwater levels.

Additional text has been included to incorporate the comment:

> The groundwater elevations in the aquifer zones may be tidally-influenced. Currently, no data have been collected (*e.g.*, water level measurements at thirty minute intervals for a 24 hour period at NAS Moffett Field or NASA Ames) which can support this suggestion. Tidal influence is a function of:
>
> - distance from San Francisco Bay;
> - heterogeneity and anisotropy of the aquifer zone(s);
> - degree of confinement of the water-bearing zone;
> - hydraulic conductivity;
> - distance from permeable, highly conductive lenses such as buried stream channels;
> - possible influence from overlying or underlying aquifer zones.

5. *Page 16, Table 2*

Phase I activities included the installation of 6 monitoring wells. This should be reflected in the table.

As part of Phase I investigations, five wells were installed by IT Corp. W08-01(A) had been installed previously by Earth Sciences Associates (ESA, 1986). This previous acitivity is now reflected in the table.

6. *Page 17, 2.3.1 Soil Analytical Results, 1st Paragraph*

Were soil samples collected from all Phase I and II monitoring wells at Site 8? Specify which wells had soil samples and include in this section soil sample results from wells in the area including such wells as MEW wells.

The text has been revised to incorporate the comment (new text in bold):

Soil samples to approximately five feet were collected also from all Phase I and II borings that were completed as monitoring wells.

Soil sample results from the monitoring wells are discussed in the section. Results from MEW wells are not included because these wells are not within Site 8 boundaries and thus are not relevant for source control determinations.

7. *Page 17, 3rd Paragraph and Figure 7*

The development of the baseline metal content of soils in the Draft Phase I Characterization Report is being re-evaluated due to the inherent erroneous assumptions. In the draft Phase I Report, values below the detection were not used in estimating background levels. Because values below the detection are an integral part of the normal range, they cannot be dismissed. Background values have yet to be established and will likely be less than reported in the Phase I report. Soil contamination should be re-examined in light of this fact.

The Final Phase I Characterization Report has not been published to date, hence, the newly developed baseline metal concentrations cannot be incorporated into this AM. While the values may indeed be lower than those used in the Draft Phase I Characterization Report, the conclusions drawn regarding Site 8's potential source control activities likely will not change.

8. *Page 18, Table 3*

This table needs explanation. What is the Well 18 information? What wells were sampled and at what depths in order to obtain the given information? Specify what area of the country the USGS range relates to. The table should show specific Site 8 soil information for comparison purposes.

Background information is provided for city of Mountain View Well 18, which is upgradient of NAS Moffett Field. The USGS range covers undisturbed soil samples throughout the country. Because a "background" boring was not drilled at Site 8, site-specific background information cannot be developed. (Using a statistical method with only Site 8 data, similar to what was done by IT Corp. for the entire base, is not valid because of the small sample population.)

9. *Page 19, Figure 6*

Soil sample results were not given for MEW82 and MEW92. Include results or state the reason for not including the results.

Soil sample results were not given for WO8-01 and WO8-03. Please include on the figure.

Results for SB8-08 are directed to what looks like W8-10. Please clarify.

SB8-3 detects MEK at 20 ug/kg (at 3'). Please rectify.

Results from MEW wells are not included because these wells are not within Site 8 boundaries and thus are not relevant for source control determinations. Soil samples from the boring W08-01(A) were only sampled for metals (ESA, 1986). W08-03 The results for W08-10 have been clarified in the figure. The figure now indicates that MEK was detected at 20 μg/kg at the three-foot depth of SB8-3.

10. *Page 20, Top (from the paragraph on the previous page)*

See specific comment 7. The baseline values from the Draft Phase 1 Characterization Report were used in this paragraphs's comparison; however, background values are likely to change for the final Phase I report or as more data is generated during the RI.

See response to EPA comment 7.

11. *Page 22, Table 5*

Information on MEW92 is missing.

This well was not sampled as part of the Navy RI. Results from the MEW RI have been added to Table 5. However, these are not shown graphically Figure 8) because of the difference in sampling periods (1986 versus 1989).

12. *Page 25, Figure 7*

Soil results for W8-01, MEW82, and MEW92 are missing from the figure.

Results from MEW wells are not included because these wells are not within Site 8 boundaries and thus are not relevant for source control determinations. Results from boring W08-01(A) have been included in the figure.

13. *Page 26, Figure 8*

An organic contaminant block should be shown for hydropunch CPT/H8-17. Why are results for H8-4 and H8-5 not available? Hydropunch CPT/H8-19 should show PCE at 5 ug/L. Hydropunch CPT/H8-6 should have TCE at 24 ug/L. Well W8-5 (A2) should have 1,1,1 TCA from 22-37 ug/L. Well W8-1(A2) should have 1,1,1 TCA from 6-18 ug/L. Hydropunch H8-2A is presented but H8-2B is not. Hydropunch H8-2A should not have 1,1, TCE at 19 ug/L in the block. MEW92 data should be shown on the figure.

Results for CPT/H8-17 have been included. CPT/H8-4 and CPT/H8-5 were not sampled/analyzed. Results for CPT/H8-19 and CPT/H8-6 have been corrected. Results for wells W08-05(A2) and W08-01(A2) have been corrected. Results from CPT/H8-2B have been included. Results for CPT/H8-2A have been corrected. See response to EPA comment 11.

14. *Page 28, 2nd Paragraph*

See specific comment 7 regarding the Draft Phase I Characterization Report.

See response to EPA comment 7.

15. *Page 29, Table 7*

See specific comment 7. Why is data from Site 10 (well W10-06(C) provided? This does not relate to Site 8. Site 8 information should be provided on the table for comparison.

See response to comment 7. There are no "background" wells for Site 8. Well W10-06(C) has been used previously as a NAS Moffett Field-specific background well (IT Corp., 1990d). Because this well is screened in a deeper aquifer, the concentrations of inorganic constituents are probably lower than what would be background for A1- and A2-aquifer zone wells and are therefore, conservative values.

RESPONSES TO RWQCB COMMENTS ON THE SITE 8 DRAFT ACTION MEMORANDUM NAVAL AIR STATION MOFFETT FIELD

SPECIFIC COMMENTS

1. *Page 17, second Paragraph*

It states here that certain organic compounds found in soil, i.e. acetone, methylene chloride, and MEK, may be associated with sampling and/or analytical method contamination. Before dismissing data a quantitative comparison of concentrations in samples and in various QA/QC blanks needs to be made and only samples with a similar range of concentrations as shown in the blank should be eliminated.

The text has been revised to the following:

> These compounds are common laboratory contaminants. Their distribution suggests no areal pattern and there are no known sources of these chemicals in the area.

2. *Page 17, last Paragraph*

This references the metal background data contained in the draft Phase 1 Characterization Report. This part of the Characterization Report was extensively commented on by the agencies and is currently being revised. Any comparison of data in this Site 8 Report with conclusion of the Characterization Report should await finalization of the Characterization Report. At this time the Characterization Report should not be used to define background concentrations.

The Final Phase I Characterization Report has not been published to date, hence, the newly developed baseline metal concentrations cannot be incorporated into this AM. While the values may indeed be lower than those used in the Draft Phase I Characterization Report, the conclusions drawn regarding Site 8's potential source control activities likely will not change.

3. *Page 28, first Paragraph*

This paragraph concludes that the solvent plume from this site may not be as areally extensive as suggested by the Hydropunch data. This is based on the fact that data from one well-Hydropunch pair did not have strong agreement, and the fact that equipment blanks were not collected for Hydropunch samples. (Note that another well-HydroPunch pair, W8-5(A2) and CPT/H8-1/, showed the same four chemicals and three of the four concentrations were similar. We believe this conclusion is inappropriate and that the Hydropunch data should be considered valid until shown otherwise.

HydroPunch data are non-enforceable and are only intended to show major trends and help in monitoring well siting. Values below 100 μg/L are generally suspect. In general, the distribution of contaminants interpreted from HydroPunch samples and monitoring wells is dissimilar. As part of the North Base Area investigations, HydroPunch samples (including equipment rinsates) will be collected in the vicinity of Site 8 and can be used to assess the validity of previous HydroPunch work.

4. *Page 28, second Paragraph*

This refers to the background water data contained in the Characterization Report. Our comment is the same as for page 17, last paragraph.

See response to RWQCB comment 2.

5. *Page 28, third Paragraph*

This paragraph concludes that the plume is defined. However, different aquifers were used to reach this conclusion. The A2 aquifer was used for lateral definition and the A1 for downgradient definition. There does not appear to be lateral definition of the A1 or downgradient definition of the A2. Also, the Hydropunch data indicate that the plume is not defined.

The 1,1,1-TCA "plume" appears to be confined to the A2-permeable zone. Despite the aquifer designation associated with its well name, W08-08(A1) appears to be screened in the same permeable zone as the "A2" wells (See Figure 9, Geologic Cross-Section A-A'). Therefore, W08-08(A1) does define the downgradient extent of contamination. Likewise, W08-02(A2) is screened below the A2-permeable zone (and below other "A2" wells) and therefore, defines the vertical extent of 1,1,1-TCA.

6. *Page 31, first Paragraph*

This states that the A2 aquifer is not a potable aquifer. This Board has defined potential sources of drinking water as those aquifers which have a TDS of less than 3000 ppm and are able to be pumped at a sustained rate of 200 gallons per day. Any conclusions of whether an aquifer is potential source of drinking water should be made in comparison to our definition. This definition is part of our Basin Plan and we therefore consider it an ARAR.

The text has been revised to the following:

> Although the A2-permeable zone is defined as a potable aquifer, it is not currently (or projected to be) used for drinking water supply. No production wells screened in that aquifer exist near the site.

While the intent of the Basin Plan in protecting resources is understood, the current use of the aquifer is what is germane in consideration of source control activities.

7. *Page 31, last Paragraph*

Our position is that chemicals in groundwater are a source for further migration. Therefore we believe that interim control measures to prevent further migration are appropriate.

As discussed in the Monthly Managers' Meeting on April 23, 1990, the intent of source control is to prevent the present or future migration into the environment of contaminants potentially associated with Site 8 at NAS Moffett Field. However, based on the site characterization a source has not been identified at Site 8, and therefore removal actions are not warranted. Further remedial actions may be necessary to remove relatively low concentrations of chlorinated solvents from shallow groundwater at the site. Additional site characterization and permanent remedial actions may be implemented in subsequent RI/FS phases, as appropriate. Site 8 remains an IRP site; a record of decision has not been written stating that no further investigations are necessary, rather Site 8 is no longer considered appropriate for source control measures. Navy is currently defining operable units and Site 8 may be a candidate to be included.

8. *Page 32, first Paragraph*

We concur that interim measures are not intended to be a final solution for groundwater remediation. We also concur that area wide remedial measures may be more efficient. However, we do not believe that source control should be limited to removal actions. As noted above preventing the further migration of contaminated groundwater is also all appropriate interim action.

See response to RWQCB comment 7.

RESPONSES TO DHS COMMENTS ON THE SITE 8 DRAFT ACTION MEMORANDUM

GENERAL COMMENTS

1. *The data generated from tank and sump removals are not available for review. The results of the removal investigation may indicate the need for further investigation.*

   Previous investigations are outlined in the Confirmation Study (ESA, 1986). A PCB was detected in a grab sample (7.8 mg/kg) and Arochlor 1260 was detected in a surface soil sample (25 mg/kg). Neither of these results were confirmed in the other five borings drilled by ESA, nor in two phases of the RI.

2. *An explanation is needed as to why there are only two A1 aquifer monitoring wells which are located 1000 feet apart (Figure 10). As of now the investigation results are inconclusive and do not support the recommended postponement of the removal action.*

   This AM is based on previous investigations, hence, rationale for well location selection cannot be addressed here. The "A2" wells were screened in the first encountered permeable zones, as recorded in the field. Subsequent CPT work has revealed a thin (less than about five feet thick) permeable zone (A1) located above the A2-permeable zone. This zone, as well as the aquitard separating A1 and A2-permeable zones is thin and laterally discontinuous. The A2-permeable zone is the one in which solutes are expected to migrate. In addition, Hydropunch samples were collected from the A1-permeable zone in some cases. Because an interpretation of area distribution of VOCs using these data does not suggest a source at Site 8, existing data are sufficient to support the recommendation of the AM.

3. *The recent discovery of DCE plume on the NASA and Moffett Field property boundary stretching to the marshlands suggests a possible connection to the west side of site 8. There should be further investigation.*

   As part of the North Base Area investigations, HydroPunch samples will be collected in the vicinity of Site 8 and can be used to assess the validity of previous HydroPunch work and the possible connection of chlorinated solvents detected in the URS study to Site 8.

4. *The high level of TCE at CPT/H-8 needs further interpretation as to its origin, extent, and remediation.*

   There is nothing to suggest that there is a local source of TCE near CPT/H8-1. HydroPunch samples are collected from a sampling device that has not been completed, developed, and purged in the same manner as monitoring wells and data generated from these samples should only be viewed as qualitative indicators of contaminants. Oftentimes suspended solids (with sorbed contaminants) are introduced into the sample bottle because of the nature of the sampling devise, and therefore the analytical result may suggest a much greater concentration than is in groundwater. In addition, the TCE concentration from the HydroPunch sample collected from CPT/H8-1 is isolated. Recommendations and decision concerning site remediation cannot be made from a single, unconfirmed value.

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9 May 1991

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Contract No: N62474-88-D-5086
CTO 0030

File: 2738.0037/2.1

Subject: NAS Moffett Field Remedial Investigation/Feasibility Study Responses to Agency Comments on Draft Action Memoranda for Site 8—Waste Oil Transfer Area

Dear Steph:

Please find enclosed three copies of the Responses to Agency Comments on Draft Action Memoranda for Site 8—Waste Oil Transfer Area at NAS Moffett Field. These responses explain how the comments were addressed and incorporated into the Final Action Memorandum, which you received on 2 May 1991. This document is in partial fulfillment of Contract No. N62474-88-D-5086, Contract Task Order 0030. If you have any questions, please call me.

Sincerely,

**JAMES M. MONTGOMERY,
CONSULTING ENGINEERS, INC.**

Joseph P LeClaire

Joseph P LeClaire, Ph.D.
Supervising Environmental Scientist

cc:	Lewis Mitani	Environmental Protection Agency	(2 copies) – 1118	1117
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