National Aeronautics and
Space Administration

Ames Research Center
Moffett Field, CA 94035-1000

DQH:218-1

OCT 10 1995

Reply to Attn of:

Mr. Stephen Chao
Department of the Navy
Engineering Field Activity West
900 Commodore Way, Building 101
San Bruno, California 94066-0720

Dear Mr. Chao:

This letter contains NASA's comments that were not addressed on the *Moffett Federal Airfield, Moffett Field California, Additional Sites Investigation Phase II Draft Report,* dated June 15, 1995 and NASA's comments on the *Moffett Federal Airfield, Moffett Field California, Additional Sites Investigation Phase II Draft Final Report,* dated August 21, 1995 as described below. Comments dated from June 15, 1995 are in italics.

General Comments/Questions:

1. *Page 4, Section 1.3 Geology*
It would be helpful to have a figure that graphically displays the aquifers (i.e. A, B, C), aquifer zones (A1, A2, B2 and B3) and aquitards in cross section.

2. *Page 5, Section 1.4 Terrestrial Ecology, 2nd para.*
The burrowing owl is a California species of special concern and a candidate 2 species for Federal listing.

... 3rd para.
The California black rail is not found at Moffett (U.S. Fish and Wildlife Service, Black Rail Survey, 1993).

The San Francisco forktail damselfly is not listed as endangered. It was previously a Candidate 2 species, but has received downgraded status from the U.S. Fish and Wildlife Service (personal communication Harding-Smith, 1995, U.S.F.W.S.).

Other Species on Moffett but not included in this section are the black shouldered kite (California fully protected, endangered species), the loggerhead shrike and salt marsh yellow throat (Candidate 2 species), and the horned lark and American white pelican (California State species of special concern).

3. *Page 8, Section 1.5.1 Zook Road Fuel Spill Site, 3rd para.*
The relevance of the NASA fuel farm site to the Zook Road Fuel spill site is not stated. And although petroleum contamination has been identified at the NASA fuel farm there is no evidence (from Navy or NASA monitoring or sampling events) that any contamination from the NASA fuel farm has migrated downgradient from the site. Even OVA readings from the soil borings taken upgradient of the Zook Road site as part of this investigation indicate that "hydrocarbon concentrations in the soil quickly diminished with distance from SBZR-2A and SBZR-2D (pages 8 and 9, Section 1.5.1).

The VOC's detected in the soils are at a depth coincident with ground water levels at the NASA fuel farm and are probably from the regional VOC plume which extends through this site.

4. Page 9, Section 1.5.3
The addition of "is" and "to" would aid in reading the following sentence. "Base personnel reported that this former landfill area <is> likely <to> contain a variety of waste materials although there are no base records on the actual sources of the waste."

5. *Pages 13-14, Section 2.2 Cone Penetrometer Testing, 3rd para.*
Were some pore pressure dissipation tests conducted more than once on a single CPT? If so, which CPTs had duplicating tests? Why were the tests duplicated? (Seventeen tests were performed with pore pressure dissipation test conducted at 11 of the 15 CPT points.)

6. Page 16, Section 2.4.1.1 Soil Reconnaissance Borings
Delete duplicate text, "boring" in third sentence.

7. *Page 20, Section 2.7 Aquifer Testing*
Why were no observation wells used during the tests? They could have been used to indicate any effect on the "perched" water (monitoring wells WG2-3 and WG2-2) within the landfill, especially since each well was tested individually. Were any calculations made to determine the radius of influence during drawdown?

8. *Page 21, Section 2.8 Surveying of Investigation Sites*
USGS benchmark H111 is not shown on Figure 1 as indicated and would be more informative if plotted on Figure 2.

9. *Page 22, Section 3.0 Investigation Results, 2nd para.*
Delete duplicate text, "posted on the results" in first sentence.

10. Page 22, Section 3.0 Investigation Results, 3rd para.
Delete "s" from metals in the fifth sentence: "Because of the large number of detection's of metals, metal results for soil and ground water samples are not posted...".

11. *Page 24, Section 3.1.1 Site Lithology, 3rd para and Plate 1*
The zone of soil discoloration in the unsaturated soil is a little misleading as shown in the cross-sections on Plate 1 since the "green" color is only shown for the clay soil type. Either color all soil discoloration green or change the legend box to reflect diagonal lines only for the soil discoloration (no green color).

12. Page 28, Section 3.1.4.1 Organic Constituents in Ground water, 3rd para.
Please include concentration values for 1,1-DCA found in WZR-1 at 7J µg/L and vinyl chloride found in WZR-1 and WZR-2 at 30 µg/L and 6 µg/L, respectively.

13. *Page 31-32, Section 3.3.1 Site Lithology, 3rd para and Plate 2.*
On Plate 2, the monitoring well location nearest to point D on the plan view is indicated as "WGC2-1/SBGC2-12" but in cross-section D-D' is shown as "WGC2-1 (SBGC2-6)". In addition, monitoring well WGC2-7 is indicated as "SBGC2-12" on the plan view (i.e. there are two SBGC2-12's at different locations shown on the plan view).

3rd para.
The height of landfill is measured from what reference point; ags, msl, perimeter elevation of the landfill?

14. Page 36, Section 3.3.3.1 Organic Constituents and Radionuclides in Soils, 1st para.
The first paragraph is confusing. It is difficult to follow what constituents are found where and in what concentrations. A rewrite as follows will be more clear. Detections of TPH-E in soil samples are presented in Figure 15 and Table 12. TPH-E, quantified as motor oil, was found in soil samples collected from surface and near surface sampling intervals at all soil borings except SBGC2-6, at concentrations ranging from 40 mg/kg (SBGC2-8 at 0 to 0.5 feet bgs [duplicate]) to 360 mg/kg (SBGC2-8 at 1 to 1.5 feet bgs). TPH-E, quantified as diesel, JP-5 and kerosene was found in samples collected from landfill refuse at SBC2-8 at concentrations ranging 130 mg/kg at 15 - 15.5 feet bgs for Kerosene to 730 mg/kg at 10 -10.5 feet bgs for JP-5. TPH-E, quantified as other heavy TPH components, was found in SBGC2-6, SBGC2-7, SBGC2-8, SBGC2-10 and SBGC2-12 ranging from 2.5 mg/kg at the surface in SBGC2-10 to 2000 mg/kg at 10 - 10.5 feet bgs in SBGC2-8.

6th para.
The gross alpha and gross beta radionuclides were sampled in two separate sampling events; July 27, 1994 and February 24, 1995. It is unclear in the report the high readings were from the July 27, 1994 sampling event and the lower readings were from the February 24, 1995 sampling event. The results for the second sampling event, February 24, 1995, for the gross alpha and gross beta radionuclides are not included in either Table 12 or Appendix D nor are they referenced.

15. Page 58, Section 5.3 Golf Course Landfill 2, 2nd para.
The inclusion of the sampling event dates for the radionuclides would be helpful. An explanation or accounting for the drastic reduction in radioactivity counts between the two sampling dates would be helpful.

Thank you for the opportunity to comment on these draft plans.

Please call me at (415) 604-3355 if you have any questions or comments.

Sincerely,

Sandra Olliges

Sandra Olliges
Environmental Program Manager

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