



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

17 August 2001

Sandy Olliges  
Environmental Services Office  
National Aeronautics and Space Administration  
Ames Research Center  
M/S 218-1 Building 218, Room 205  
Moffett Field, CA 94035-1000

Subject: Preliminary Draft Human Health Risk Assessment  
NASA Research Park, Moffett Field CA

Dear Ms. Olliges:

Thank you for providing an opportunity for the U.S. Environmental Protection Agency to review the Preliminary Draft Human Health Risk Assessment, NASA Research Park, dated July 5, 2001. Because of the uncertainties associated with flux measurements and groundwater/vadose zone/indoor air modelling, EPA recommends that NASA take a precautionary approach and install passive soil gas collection and venting into the building plans for this redevelopment effort. This, plus other general and specific comments regarding the document are attached.

Please call me at (415) 744-2387 if clarification or further discussion of any of these comments is needed.

Sincerely,

*Carmen White*

Carmen White, EPA  
Remedial Project Manager

cc: Adriana Constantinescu, RWQCB  
Jeffrey Kellam, ASTDR  
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**Preliminary Draft Human Health Risk Assessment  
NASA Research Park  
Moffett Field, CA**

**General Comments**

1. The Human Health Risk Assessment (HHRA) did flux measurements in several areas of the base that are proposed to be redeveloped as the NASA Research Park. Flux measurements are quite sensitive to spatial constraints and subsurface structure. Since the subsurface is not uniform and extensive development has taken place in the area, the relevance of the analytical results to future conditions is questionable. Preferential pathways for venting the soil gas may exist around the selected location points, and, even if these locations were representative of current conditions, redevelopment plans will disturb the future gas flow patterns. For clarity, please expand the uncertainty discussion on sample location and flux sampling error.
2. Previous indoor air measurements presented in HLA "Indoor Air Quality Investigation" dated 14 July 2000 should be checked to confirm that there is no current problem in those buildings sampled.
3. The conclusion of this study that there is little risk to future residents is not well supported since there is still significant groundwater contamination in a shallow aquifer. Concentrations of trichloroethene range from ND to greater than 5 ppm. Since there will be elevated concentrations in the ground water for some time, it would be prudent to install passive soil gas collection/venting into the building plans to protect future occupants.

**Specific Comments**

1. **Section 3.2 COPC Selection, p. 9.** Frequency of detection should not be used to sort chemicals of potential concern. A better procedure is to use a concentration/toxicity screen such as the PRG tables.
2. **Sections 3.2 COPC Selection, p. 10.** Selection of soil contaminants should include all chemicals detected and could be screened using the PRG tables.
3. **Section 4.7.1 General Exposure Assumptions, p. 17.** Standard body weight assumption for an adult is 70 kilograms.
4. **Section 4.7.1 General Exposure Assumptions, p. 17.** A residential scenario using 30 years should also be included as a reference point for comparison to previous documents and as a basis for unrestricted land use determinations.

5. **Section 4.7.2 Exposure parameters and Equations for Incidental Soil Ingestion, p. 20.** Incidental soil ingestion for the construction worker and outdoor maintenance worker should be 480 mg/day by default.
6. **Section 4.7.5 Calculation of VOC Air Concentrations, p. 26.** The uncertainty discussion should also be added that residential properties typically have a much lower air exchange rate.
7. **Section 7.6 Flux Measurements, p. 50.** Based on the use of this report, a second collection effort may not be warranted.
8. **Section 7.7 Calculation of Airborne VOC concentrations, p. 51.** Up-to-date ambient air concentrations can be obtained from the California Air Resources Board website for the local air monitoring stations. These values are slightly less than those presented in Table 44.