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Ser 1843.1/6378  
September 5, 1996

Dear RAB Member:

Once again, the Moffett Federal Airfield (MFA) Base Closure Team and the Community Co-Chair cordially invite you to our next Restoration Advisory Board (RAB) meeting.

Please note that there is **no meeting in September**. Our last RAB meeting was held on August 8, 1996 at the City of Mountain View Police/Fire Administration Building in Mountain View, CA. The meeting summary is provided as enclosure (1).

Our next RAB meeting will again be held on the second Thursday of the month, **October 10, 1996**. **October and November** RAB meetings will be held at the **Senior Center**. A location map of the Senior Center is provided as enclosure (2). The meeting will begin promptly at 7:00 p.m. The agenda for the meeting is as follows:

7:00-7:05 PM Meeting Overview  
7:05-7:10 PM Minutes Approval  
7:10-7:30 PM Remedial Project Managers Meeting Report  
7:30-7:40 PM All Parties Meeting Report  
7:40-7:50 PM Subcommittees Report  
7:50-8:20 PM Station-wide Feasibility Study Presentation  
8:20-8:50 PM Station-wide Feasibility Study Discussion  
8:50-9:00 PM Agenda/Schedule for the Next RAB Meeting

If you have any questions or comments, please contact me at (415) 244-2563, Mr. Hubert Chan of my staff at (415) 244-2562, or Mr. Robert Moss, Moffett's Community Co-Chair, at (415) 852-6018.

Sincerely,

**ORIGINAL SIGNED BY:**  
**STEPHEN CHAO**  
BRAC Environmental Coordinator  
Moffett Federal Airfield

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**Distribution:**

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**MOFFETT FEDERAL AIRFIELD  
RESTORATION ADVISORY BOARD MEETING**

**MEETING MINUTES**

**CITY OF MOUNTAIN VIEW POLICE/FIRE ADMINISTRATION BUILDING  
1000 Villa Street  
Mountain View, California 94041**

**THURSDAY, AUGUST 8, 1996**

**I. INTRODUCTIONS AND MEETING OVERVIEW**

Mr. Stephen Chao, Navy co-chair, opened the meeting of the Moffett Federal Airfield (Moffett Field) restoration advisory board (RAB) at 7:12 p.m. Mr. Chao reviewed the following agenda items for this meeting:

- Minutes approval
- Remedial project managers' (RPM) meeting report
- Committee reports
- Presentation: "North of 101 Design"
- Discussion of North of 101 Design
- RAB quiz
- Agenda and schedule for next RAB meeting

**II. MINUTES APPROVAL**

Mr. Chao solicited comments on the minutes of the July 11, 1996 RAB meeting. There were no comments and the minutes were approved without correction.

**III. RPM MEETING REPORT**

Mr. Joseph Chou, Department of Toxics Substances Control (DTSC), provided a report of the August 7, 1996 RPM meeting held at the PRC Environmental Management (PRC) offices in San Francisco.

Mr. Chou reviewed the action items from the previous meeting. The Navy is continuing work summarizing funding requirements and priorities. This information will be contained in a letter which will be distributed to the members of the RAB. The EPA is currently producing a letter to clarify the treatment standards for the operable unit 5 (OU5) Record of Decision (ROD). The Regional Water Quality Control Board (RWQCB) also completed comments on the Site 9 Low-risk Evaluation Report and sent these to the Navy on July 22, 1996.

Mr. Chou stated that the Navy's Site 9 source control measure treatment systems were operating continuously during the past month. He also added that the Navy has delivered the draft OU1 Field Investigation Technical Memorandum to interested parties. Comments on this report are due to the Navy by September 18, 1996.

Mr. Chou reviewed the progress and status on OU1. He stated that regulatory agency comments on the draft final OU1 ROD have been sent to the Navy and the due date for the final version is September 30, 1996. The attorneys for the Navy and the regulatory agencies still need to discuss some of the potential changes to the draft final document.

Mr. Chou also discussed the status of deliverables for the station-wide activities. He stated that submission of the draft final version of the Station-wide Feasibility Study Report will be delayed because of discussions regarding the ecological assessment. The regulatory agencies will meet in September to discuss the outstanding issues and then present these issues to the Navy. The new due date for the draft final Station-wide Feasibility Study Report is November 1, 1996.

Mr. Chou reported on National Aeronautics and Space Administration (NASA) activities. NASA has issued a field work plan discussing the additional investigations planned at Area of Investigation 1 (AOI 1). The primary objective for this work is to determine the extent of contamination resulting from a fuel spill in 1992. NASA is currently planning to conduct the field work in September.

Mr. Chou also reported that NASA is planning the installation of monitoring wells at AOI 6. This is an area of the Lindbergh Avenue storm drain channel where samples of water collected in an excavation indicated polychlorinated biphenyls (PCBs) were detected at a concentration of 30 micrograms per liter.

Mr. Lenny Siegel of the Pacific Studies Center, asked if there is a history of PCB usage at the site. Ms. Sandy Olliges, NASA, replied that many transformers are located at Moffett Field and that these are the likely sources of any PCBs detected at AOI 6. NASA plans to install two additional groundwater monitoring wells to further evaluate PCBs in groundwater. A draft work plan for installation of these wells will be issued at the end of August 1996.

#### IV. COMMITTEE REPORTS

Mr. Chao asked the committee chairs to deliver their reports. Dr. James McClure, Harding Lawson Associates (HLA) and consultant to the Middlefield-Ellis-Whisman (MEW) companies, reported that the technical, historical, and educational (THE) committee met on August 7, 1996. He stated that the committee distributed the draft OU1 Field Investigation Technical Memorandum for review. Dr. McClure said that the primary components of this report included the results of the first phase of investigation at the data gap area south of the Site 1 landfill. Dr. McClure displayed a cross-section which portrayed the results of cone penetrometer testing (CPT) completed in the data gap area. Mr. Siegel asked if the coarse grained materials depicted on the cross section represented potential sand channels. Dr. McClure indicated that these areas were more permeable than surrounding areas and were the most likely areas for contamination to migrate within.

Ms. Leslie Byster, Silicon Valley Toxics Coalition (SVTC), asked what the range and number of detections in the chemical samples collected were. Dr. McClure responded that the maximum concentration detected was approximately 380 parts per billion of total petroleum hydrocarbons classified as diesel fuel. Ms. Byster asked what the source of this contamination was. Dr. McClure responded that the most probable source of contamination was the Site 1 landfill.

Dr. McClure ended the THE committee report by stating that the committee is planning on producing a set of comments on this report for the Navy.

There were no reports from the cost, organizational, or communications, media, and outreach committees.

## V. NORTH OF 101 DESIGN PRESENTATION AND DISCUSSION

Mr. Chao introduced Ms. Elizabeth Adams, U.S. Environmental Protection Agency (EPA), the remedial project manager for all activities on the west side of the facility. Ms. Adams discussed the parties involved in the cleanup of the regional plume and the history of investigation and remediation. Ms. Adams also discussed the requirements of all of the companies regarding the cleanup of company-specific contamination and the requirements of the companies responsible for cleanup of the regional groundwater plume. Ms. Adams summarized the present state of the regional cleanup by stating that all of the individual source cleanup plans have been approved. In addition, she added that the regional cleanup design south of Highway 101 has been approved by EPA and that the final cleanup design for north of Highway 101 should be completed soon.

Following the presentation by Ms. Adams, several RAB members asked questions. Ms. Mary Vrabel, asked if all of the companies responsible for the contamination are participating in the cleanup efforts. Ms. Adams stated that all of the responsible companies are participating in the cleanup activities. Ms. Byster asked how the EPA was planning on conducting the 5-year review of the remedy. Ms. Adams stated that the EPA was presently planning evaluating the remedy within 5 years of the system startup. Dr. McClure stated that this is consistent with recent guidance that he has read. Ms. Adams also added that the intent of the evaluation is to evaluate how well the remedy is meeting the requirements of the ROD. Ms. Vrabel asked how deep the slurry walls at the site were emplaced. Ms. Adams stated that the walls around the Raytheon property are approximately 80 feet deep and the walls around the Fairchild property are approximately 30 feet deep. Mr. Robert Strena asked if potential government budget cuts will effect the pace of the cleanup efforts. Ms. Adams replied that this action is completely funded by the individual companies. The companies also provide funds to the EPA for oversight. Mr. Bob Moss, community co-chair, asked who is in overall charge of the site. Ms. Adams replied by reiterating that site-specific work is the responsibility of the individual parties and that Intel and Raytheon are "filling in the gaps" with the regional remediation design. Mr. Moss also noted that pumping from the various extraction wells in the area could interfere with one another. Ms. Adams stated that this has been a large concern of all of the parties involved. A groundwater flow model was developed to assist in predicting potential effects due to pumping. Mr. Moss also asked how conflicts involving well placements were resolved. Mr. Jim Boarer, Smith Environmental Technologies and

consultant to the MEW companies, stated that the source control wells were proposed by each company then accepted by the other responsible parties and the EPA.

Mr. Hubert Chan, U.S. Navy, then discussed the Navy contribution to the regional remediation efforts. He discussed the major cleanup activities undertaken by the Navy to control sources. Three major activities are related to the Navy's effort in remediation of the regional plume. These are the Building 88 demolition, the Site 9 source control measure, and the West-side Aquifers Treatment System (WATS) design. Mr. Chan briefly described the demolition and removal activities at Building 88 and the groundwater extraction activities of the Site 9 source control measure.

Mr. Chan then described in detail the design for the WATS. This system will include 8 groundwater extraction wells, an air stripper, and granular activated carbon. The groundwater extracted from the wells will be pumped to a central treatment facility near Hangar 1. At this facility, the water will be treated by an air stripper. The air stripper works by allowing water to flow down a system of plates and baffles while air is blown upward through the water. The contaminants in the water will volatilize into the airstream and be carried to a granular activated carbon (GAC) bed. The contaminants will then be captured by the carbon while the air is vented to the atmosphere. Mr. Chan stated that this system is expected to treat approximately 50 gallons per minute. He also stated that the system will be able to treat approximately 150 gallons per minute.

Mr. Chan also discussed the monitoring network for the WATS. He stated that a system of monitoring wells and piezometers will be used for monitoring. Groundwater levels will be measured at approximately 60 locations and groundwater samples will be collected for chemical analysis at approximately 30 locations. Mr. Chan stated that this information will be used to help evaluate the effectiveness of the system.

Following the presentation by Mr. Chan, several RAB members asked questions. Ms. Vrabel asked what was done with the GAC units when they become saturated with contaminants. Mr. Chan stated that the GAC units will be sent to a licensed facility to be regenerated. Mr. Moss asked if the various waste streams are sampled prior to disposal. Mr. Chan replied that the design includes numerous sampling ports and that an aggressive sampling plan will be developed for startup activities. Mr. Siegel asked if any efforts were made to reduce the area of the treatment system. Mr. Chao stated that the

final design of the system will minimize the area required while still allowing for access for maintenance of the system. Ms. Byster asked how long the cleanup will last. Mr. Chao replied that the estimates for cleanup times vary from 20 to 100 years. Ms. Vrabel asked how the Navy planned on disposing of the treated groundwater. Mr. Chao replied that the Navy is currently investigating the possibility of reusing the water for irrigation at the golf course. Mr. Alex Terrazas, City of Mountain View, asked what the monitoring schedule for the system was. Ms. Adams stated that the monitoring wells will be sampled semi-annually for 3 years and then annually for 2 more years. At that time, the monitoring schedule will be reevaluated.

Ms. Olliges then discussed the NASA contribution to the regional remediation efforts. She discussed the soil removal efforts completed in the fuel farm (AOI 1), north aircraft ramp (AOI 3), and north of the Navy's Site 8 (AOI 7). NASA has also completed the removal of contaminated sediments along the Lindbergh Avenue storm drain channel (AOI 6). Ms. Olliges then described the efforts of NASA to assist in the regional groundwater cleanup efforts. These efforts include the installation 4 groundwater extraction wells in the northern-most area of the regional plume. She stated that NASA is currently negotiating with the MEW companies to design, build, and operate a treatment facility for the extracted groundwater.

Mr. Moss asked if the wells to be installed by NASA would be installed in the upper aquifers. Ms. Olliges stated that all of the wells to be installed north of Highway 101 would be installed in either the A1 or A2 aquifers. Mr. Lesti asked what contaminants were to be treated in the treatment system. Ms. Olliges stated that the contaminants of most concern in the regional groundwater plume were tetrachloroethene (PCE) and trichloroethene (TCE). Mr. Terrazas asked what is the approximate annual cleanup budget for NASA at Moffett Field. Ms. Trish Morrisey, NASA, replied that the budget is approximately \$6,000,000 per year. Mr. John Young asked if any migration of the plume over time was observed. Ms. Olliges stated that the limits of the plume do not seem to be migrating, but that concentrations at some wells within the plume are increasing.

Mr. Elie Haddad, Smith Environmental Technologies and consultant to the MEW companies, then discussed the regional remediation efforts north of Highway 101. Mr. Haddad stated that a total of 26 extraction wells will be installed. The Navy system will include 8 wells, the NASA treatment system

will include 4 wells, and the regional treatment system will include 14 wells. Mr. Haddad explained that the regional system will include 2 air strippers similar to those described previously by Mr. Chan.

Mr. Haddad then reviewed the schedule for implementation of the regional remediation system. He stated that a revised final design was submitted to EPA in June 1996 and is currently being reviewed. Following EPA approval, a construction and operation and maintenance plan (COMP) will be prepared. He stated that he anticipated construction beginning in February 1997 and that full-scale operations will be underway in 1998.

Following the presentation, several RAB members asked questions. Mr. Michael Rochette, RWQCB, asked how the treated water would be discharged. Mr. Haddad stated that the discharge piping will go to Stephen's Creek with a valve at the NASA cooling towers to allow for reuse of the water. Mr. Rochette asked if a discharge to the POTW was considered. Mr. Boarer replied that several reuse options had been evaluated including discharge to the POTW, however, the current connection to the Palo Alto treatment plant is running at capacity and cannot accept the water. Mr. Siegel asked what percentage of time the cooling towers were used. Ms. Olliges stated that she could not give exact figures, but the cooling towers were used most of the time. Mr. Moss asked when full-scale extraction would start. Mr. Haddad stated that the startup of the system will be phased and that an estimate of the exact date would be extremely difficult, but the system should be operating at full-scale by January 1998. Ms. Vrabel asked what levels of contamination exist in the aquifers. Mr. Haddad stated that the A1 aquifer has concentrations of approximately 1 - 10 parts per million of TCE and that the A2 aquifer has concentrations of approximately 10 - 20 parts per million of TCE. Ms. Byster asked what connection there was between the remedial efforts south and north of Highway 101. Mr. Haddad stated that the treatment technologies are similar, but the areas are different. Mr. Siegel asked if there was a trigger for turning off the treatment systems. Ms. Olliges stated that the systems could be turned off when the drinking water standards were met. Dr. McClure added that specifically the systems could be turned off if the concentrations of TCE were at 5 parts per billion. Mr. Siegel asked if the systems north and south of Highway 101 would be shut off simultaneously. Mr. Haddad replied that this will need to be evaluated in the future.

Mr. Young stated that at other sites in the Bay Area the cleanup goals of drinking water standards have not been able to be reached. He explained that this has led to RWQCB development of the containment

zone policy and asked if this has been considered at this site. Mr. Haddad indicated that this had been discussed during the feasibility study. He also stated that given the limitations because of the geology at the site the focus of this action would be for contaminant mass removal. Dr. McClure also added that through mass removal the areal extent of the plume should reduce and increase the area of land with unrestricted use. Mr. Siegel asked if the regional system planned on using vapor-phase GAC to treat the off-gasses from the air stripper. Mr. Haddad responded that the first of the two air strippers will have vapor-phase GAC off-gas treatment. He stated that the second air stripper will not need any off gas treatment. Ms. Byster asked where the spent carbon units are sent for regeneration. Mr. Boarer indicated that the units will be sent to Pittsburg, Pennsylvania for regeneration. Mr. Lesti asked for a description of the piping. Mr. Haddad said that the piping for the regional system would be underground with secondary containment. Mr. Lesti asked if this would reduce the possibility for future development of the area. Ms. Morrissey indicated that many utility lines already exist in this area and the piping for the regional system will not restrict the future uses of the area. Ms. Byster asked how the potential air emissions from the air stripper were modeled. Mr. Haddad indicated that a risk assessment was completed on the predicted effluent and no unacceptable risks were found. He also stated that the monitoring plan will call for frequent monitoring of the air stripper effluent during startup activities.

## **VI. RAB QUIZ**

The RAB quiz was postponed due to lack of time.

## **VII. AGENDA AND SCHEDULE FOR THE NEXT RAB MEETING**

Mr. Chao suggested that the next RAB meeting be held in October 1996. Mr. Chao suggested that the Station-wide Feasibility Study be discussed at the next meeting. Mr. Chao set the date and time for the next meeting for October 10, 1996 at 7:00 p.m. Mr. Chao closed the meeting at 9:05 p.m.