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May 3, 1996

Dear RAB Member:

On behalf of the Moffett Federal Airfield (MFA) Base Closure Team and the Community Co-Chair, you are invited to our next Restoration Advisory Board (RAB) meeting. Your attendance is important to discuss changing holding of RAB meetings to bimonthly intervals during the summer months, or to holding meetings only as major documents are submitted.

Our last RAB meeting was held on April 11, 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, **May 9, 1996, at the City of Mountain View Police/Fire Administration Building**. The meeting will begin promptly at **7:00 p.m.** The auditorium schedule has again been confirmed for our use. The agenda for the meeting is as follows:

7:00-7:02 PM Meeting Overview
7:02-7:04 PM Minutes Approval
7:04-7:20 PM Remedial Project Managers Meeting Report
7:20-7:30 PM Subcommittee Reports
7:40-8:10 PM New RWQCB Guidance for Petroleum Cleanup Presentation
8:10-8:30 PM New RWQCB Guidance for Petroleum Cleanup Discussion
8:30-8:45 PM Frequency of RAB Meetings
8:45-8:55 PM RAB Quiz
8:55-9:00 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 this office 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

Distribution:

Moffett Federal Airfield RAB Members
Karen Huggins, ARC Ecology/ARMS Control Research Center
Gay Howard, Onizuka Air Station
Maurice Bundy, Potential RAB Member

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Montgomery Watson (Attn: Chris Peterson)

NFESC (Attn: Maureen Little)

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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**

THURSDAY, APRIL 11, 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 7:10 p.m. Mr. Chao reviewed the following agenda items for this meeting:

- Minutes approval
- Remedial project managers' (RPM) meeting report
- Committee reports
- Presentation: "Iron Curtain"
- Discussion of Iron Curtain
- Discussion of Navy funding priorities for fiscal year (FY) 1997
- Agenda and schedule for May RAB meeting

II. MINUTES APPROVAL

Mr. Chao solicited comments on the minutes of the March 14, 1996 RAB meeting. Mr. Michael Rochette, California Environmental Protection Agency (Cal/EPA) Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), noted that he had recently changed his name from Bessette. There were no other comments and the minutes were approved without changes.

III. RPM MEETING REPORT

Mr. Rochette provided a report on the April 10, 1996 RPM meeting held at the Navy's offices in San Bruno. Mr. Rochette stated that the Navy was evaluating detections of total petroleum hydrocarbons (TPH) in surface water and sediment samples collected at the Northern Channel. He also indicated that the Pioneer Room at Mountain View City Hall was the current interim location for the Moffett Field

information repository. Mr. Stewart McGee, City of Sunnyvale, added that the Sunnyvale library was willing to accept the repository but that library staff indicated to him that the city hall location was already selected. Mr. Hubert Chan, Navy, stated that he would contact the City of Sunnyvale library and correct the miscommunication. He stated that the Navy was still interested in using the Sunnyvale library because access to the Mountain View City Hall Pioneer Room was limited.

Mr. Rochette stated that the Navy's Site 9 source control measure treatment systems were operating and that minor problems had been repaired. He reported that the 567,000-gallon capacity underground storage tanks (USTs) at the Site 5 fuel farm were discussed. Two tanks are in service and two are unused and empty. The unused tanks are empty pending repair of buckling in the floors of the tanks. The buckling problem is most severe at Facility 138, also called Tank 10. Mr. Don Chuck, Navy, added that all four tanks were inspected for integrity using ultrasonic, x-ray, and magnetic flux methods and that all four tanks passed the tests. He added that the floor buckling problem does not allow adequate internal drainage of accumulated water within the tank. Mr. Rochette stated that the Navy is contacting the Defense Fuel Supply Center (DFSC), which operates the tanks, for additional information.

Mr. Rochette continued his report by summarizing recent documents discussed at the RPM meeting. He stated that the draft final phase 2 site-wide ecological assessment (SWEA) report was due on April 19, 1996. He noted that the project managers discussed developing alternatives for the draft final station-wide feasibility study (FS) report. Mr. Rochette said that the operable unit 5 (OU5) record of decision (ROD) was discussed and that the Navy was evaluating methods to discharge water collected and treated as part of the OU5 remedial system. He added that comments on the draft OU1 ROD were due on April 22, 1996. Mr. Rochette added that he planned to present the OU1 and OU5 RODs at the June 19, 1996 board meeting.

Mr. Rochette reported that the construction of the Iron Curtain pilot test had begun. He added that details of the April 19, 1996 field trip would be presented later in the meeting. Mr. Rochette indicated that the project managers discussed funding priorities for Navy activities planned for FY 1997. He noted that this topic would also be discussed later in the meeting. Mr. Rochette stated that the National Aeronautics and Space Administration (NASA) provided an activities update. NASA activities included negotiations with the Middlefield-Ellis-Whisman (MEW) companies concerning the locations of regional groundwater extraction wells.

Mr. Rochette reported that the new RWQCB guidance for petroleum site cleanup was discussed at the RPM meeting. He said that RWQCB was reviewing the Navy's Site 9 evaluation report and developing requirements for future reports based on the revised guidance. He added that copies of RWQCB Region 2 guidance were available at the RAB meeting. Mr. Rochette emphasized that the new guidance for petroleum cleanup does not favor no action, but rather focuses more on natural degradation processes as a cleanup remedy. Dr. Jim McClure, Harding Lawson Associates and consultant to the MEW companies, asked whether RWQCB's decision on the Site 9 evaluation report would affect other UST sites not located at Moffett Field. Mr. Rochette responded that RWQCB's evaluation would apply only to Moffett Field sites.

Mr. Peter Strauss, MHB Technical Associates and consultant to the Silicon Valley Toxics Coalition (SVTC) asked whether natural degradation was an appropriate remedy if the groundwater at Moffett Field was considered a potential drinking water source. He added that requiring cleanup for solvent contamination while exempting petroleum was inconsistent. Mr. Rochette responded that petroleum was not exempted, but that natural processes could be used to achieve cleanup. He noted that conventional remedies, such as pump-and-treat systems, were not more effective after groundwater concentrations reached low, asymptotic levels. Mr. David Glick, Geoplexus and community vice chair, asked whether RWQCB or PRC Environmental Management, Inc. (PRC) prepared the Site 9 evaluation report. Mr. Rochette indicated that PRC prepared the report. Dr. McClure stated that computer software was available to aid in the risk-based corrective action (RBCA) analysis. He added that the U.S. Environmental Protection Agency (EPA) had accepted natural attenuation as the remedy for solvent-contaminated groundwater at one site. Mr. Rochette stated that he would have more information regarding RWQCB's assessment of the revised petroleum site guidance at the next RAB meeting.

IV. COMMITTEE REPORTS

Mr. Chao asked the committee chairs to deliver their reports. Dr. McClure, technical, historical, and educational (THE) committee chair, reported that the committee met on April 10, 1996 and that committee comments on the draft OU1 ROD were in preparation. He indicated that copies of a newsletter produced by the California Governor's office concerning closing military bases was

available at the RAB meeting. Dr. McClure added that new documents received by the committee included:

- Revised final OU6 remedial investigation (RI) report
- Draft OU1 remedial design and remedial action (RD/RA) work plan
- Final OU1 field work plan and responses to comments on draft work plan
- Responses to comments on the draft final station-wide RI report
- Active petroleum sites revised draft technical memorandum
- Comments from Cal/EPA concerning the draft OU5 ROD and draft OU5 RD/RA work plan

Mr. Strauss asked whether the submittal date for comments on the draft station-wide FS report had already passed. Mr. Michael Young, PRC, responded that the date had passed, but that comments received within about 1 month could still be addressed. Mr. Strauss suggested adding the comment submittal due date to the transmittal letter for each report would facilitate timely reviews. Ms. Leslie Byster, SVTC, added that resuming preparation of monthly progress reports might also be useful.

Ms. Byster, SVTC and communications, media, and outreach committee chair, reported that the committee had not met since the last RAB meeting. Ms. Christina Scott, Lockheed Martin and cost committee chair, was not present and no committee report was presented.

V. IRON CURTAIN PRESENTATION AND DISCUSSION

Mr. Chao presented information concerning the Iron Curtain treatment technology for volatile organic compounds (VOCs) in groundwater. The presentation included discussion of dense nonaqueous phase liquids (DNAPLs) and the inability of conventional technologies to reach cleanup goals for VOC-contaminated groundwater. Mr. Chao described the reaction cell and the chemical reaction that degrades the VOCs. He summarized laboratory tests conducted at the University of Waterloo and field tests conducted at Borden Air Force Base (both in Canada). Mr. Chao also discussed laboratory studies PRC completed using groundwater from Moffett Field. He described various implementation styles including permeable trenches, reaction cells, and funnel and gate configurations. Mr. Chao summarized the advantages of the Iron Curtain technology which include significantly lower operation

and maintenance (O&M) costs and applicability to sites with heterogeneous geology. Mr. Chao concluded his presentation by describing some Iron Curtain systems already in operation.

Mr. Chao said that the RAB field tour of the Iron Curtain pilot test site at Moffett Field would be held April 19, 1996 at 10:00 a.m. Mr. Paul Lesti added that he could arrange for media coverage of the tour if the Navy was interested. Mr. Chao replied that he would speak with Mr. Thomas Harney of the communications, media, and outreach committee. Mr. Strauss asked whether DNAPLs were present at Moffett Field. Mr. Chao responded that DNAPLs are difficult to locate, but their presence at Moffett Field could be expected based on the solubilities of the VOCs and their observed concentrations in groundwater samples. Mr. Strauss asked whether the Navy planned to replace the pump-and-treat system with the Iron Curtain for remediation of the west side aquifers at Moffett Field. Mr. Chao replied that the Iron Curtain system initially would be only an enhancement to the planned pump-and-treat system. He added that construction of the Navy and MEW pump-and-treat systems will begin in 1996 and that evaluation of the Iron Curtain pilot system will continue for 1 year. Mr. Chao stated that an economic evaluation would be needed to assess whether to construct a full-scale Iron Curtain system if the pump-and-treat systems are ineffective,.

Mr. Strauss asked whether the MEW companies considered using the Iron Curtain technology. Dr. McClure responded that the MEW companies were concerned with potential loss of effectiveness due to the high total dissolved solids (TDS) content in groundwater and the subsequent high iron replacement and O&M costs. He added that, because relatively few performance data are available, the MEW companies were reluctant to use the Iron Curtain technology for a full-scale system.

Mr. Strauss asked whether the pump-and-treat systems installed upgradient from the Iron Curtain pilot test would clean the groundwater faster. Mr. Chao responded that time estimates for cleanup are similar for both technologies (more than 50 years to cleanup). Mr. Michael Gill, EPA, stated that pump-and-treat would not be effective if attainment of the maximum contaminant level (MCL) treatment goals were the only criterion. However, pump-and-treat systems reduce contaminant mass. Dr. McClure added that the cleanup time varies depending on location within the contaminant plume. For example, the edges of a plume are cleaned to below MCLs early in the treatment process while the center of the plume requires much more time.

Ms. Cynthia Sievers asked how TDS levels affect the performance of the Iron Curtain. Mr. Chao replied that increased TDS levels may encourage formation of scale on the iron particles and reduce the iron surface area available for the detoxification reaction. He added that mechanical mixing can be used to mitigate this problem. Mr. Strauss asked whether the Iron Curtain has any effect on TPH compounds. Mr. Chao responded that fuel-related hydrocarbons pass through the system unchanged. Mr. Lesti asked what royalty the patent holder (Envirometal Technologies, Inc.) charged to use the technology and whether this cost might become prohibitive. Mr. Chao responded that the fee is project specific and that Envirometal is currently seeking only enough funds from royalties to continue research into the technology.

VI. DISCUSSION OF NAVY FUNDING PRIORITIES FOR FY 1997

Mr. Chao opened discussion of funding priorities for FY 1997 by presenting a summary of the FY 1996 and 1997 budgets. He stated that the FY 1996 budget was approximately \$5.75 million and included funds for the west side aquifers groundwater cleanup, capping the OU1 Site 2 landfill, O&M of existing source control measures, and other activities such as data management and preparation of the business plan. Mr. Chao noted that bases closed under phase 2 of the Base Realignment and Closure (BRAC 2) program, including Moffett Field and Hunter's Point, received only a small portion of their requested budgets for FY 1997. Mr. Chao said that he requested approximately \$11 million for Moffett Field but received only about \$2.8 million. These funds address both hazardous waste and compliance programs (for example, UST closures) so that the budget for Moffett Field cleanup actions for FY 1997 is approximately \$1.4 million. The list of cleanup projects is termed the execution plan.

Mr. Chao reported that the BRAC cleanup team (BCT) had discussed priorities for the available FY 1997 funds and had initially selected the following items:

- OU5 pump-and-treat system
- RD for golf course landfills 2 and 3
- Constructibility design review for OU1 and OU5
- Business plan update

Mr. Chao said that construction of the OU5 remedial system would require \$1.0 to \$1.2 million. He added that remedial designs and constructibility reviews were expected to cost less than \$250,000 each

and that the business plan update was estimated to cost less than \$50,000. Mr. Chao added that the following projects remained unfunded for FY 1997:

- OU1 Site 1 landfill cap
- Outfall area RD (based on results of the SWEA)
- RA oversight for OU1 and OU5 activities

Mr. Chao noted that the estimated cost for the Site 1 cap was \$5.2 to \$5.6 million. He added that the outfall area RD was expected to cost less than \$1.3 million and that RA oversight activities were estimated to cost less than \$150,000. Mr. Chao solicited comments on the execution plan and indicated that he needed any input by April 30, 1996 to prepare the final execution plan for Navy headquarters.

Ms. Sievers asked whether this information had been presented to the cities of Mountain View and Sunnyvale. Mr. Chao responded that he had presented the data only to the RAB. Mr. Glick asked whether PRC or another firm would conduct RA oversight activities. Mr. Hubert Chan, Navy, replied that PRC would do this work. Mr. Glick added that the estimated costs allowed few alternatives to the proposed execution plan. Dr. McClure stated that congressional funding priorities are the central issue and more funds should be allocated to Department of Defense (DoD) environmental programs. Ms. Sievers noted that the local congressional representative was holding a meeting at the Mountain View City Hall on Saturday, April 13, 1996. Mr. Gill stated that the regulators' responsibility was to ensure the Navy requested adequate funds for cleanup and not to allow the budget to establish the cleanup schedule. Mr. Chao indicated that full funding was requested and the amounts granted were as he presented. He added that he will have plans prepared to use additional money if other funds become available.

Mr. Glick asked whether the \$2.8 million was scheduled, rather than actual, allocated, funding. Mr. Chao responded that this was correct. He added that the \$2.8 million represented the maximum amount he expected to receive and that scheduled funding was not always fully allocated. Ms. Sievers asked whether risks at the outfall areas were large. Mr. Chao replied that the SWEA does not yet indicate definite risks at the outfall areas. He added that the detected chemicals are sorbed to sediments and are not migrating. Mr. Glick commented that the only choice involved potentially replacing the OU5 remedial system with the outfall area RD. He added that the outfall areas may be more important

because surface water moves rapidly compared to groundwater which moves slowly. Mr. Chao indicated that the cost estimate for the outfall areas was very rough and that the level of need is largely unknown. Mr. Strauss asked whether sufficient funds would ever be available to construct the OU1 Site 1 landfill cap. Mr. Chao responded that the FY 1998 budget is currently unconstrained and he has approximately \$10 million scheduled for all activities.

VII. ANNOUNCEMENTS

Mr. Lesti announced the following meetings for interested RAB members:

- California RAB community members caucus, April 24, 1996 from noon to 6:00 p.m. at 833 Market Street in downtown San Francisco
- Cal/EPA base closures environmental advisory group meeting, April 25, 1996 from 9:30 a.m. to 4:30 p.m. at 425 Market Street in downtown San Francisco

Mr. Lesti added that a signup sheet for the newly formed Alliance for a New Moffett Field was available at the meeting. He indicated that the group would focus on reuse issues for Moffett Field.

VIII. AGENDA AND SCHEDULE FOR MAY RAB MEETING

Mr. Gill suggested holding RAB meetings at bimonthly intervals during the summer months or holding meetings as major documents are submitted. Mr. Harney indicated that he was interested in activities of other RABs in the San Francisco Bay area. Mr. Chao noted that the next RAB meeting was scheduled for May 9, 1996, and closed the meeting at 9:25 p.m.