

## BRIEFING PAPER

### STATION-WIDE FEASIBILITY STUDY REPORT MOFFETT FEDERAL AIRFIELD

#### SIGNIFICANCE

The station-wide feasibility study (FS) report presents five alternatives for the excavation and remediation of contaminated wetland sediments in the Eastern Diked Marsh and stormwater retention pond at Moffett Federal Airfield (MFA). This document was prepared applying several technical issues that have been discussed and accepted by the current regulatory agency representatives involved with MFA. However, there are technical specialists with the regulatory agencies that maintain disagreement with these technical issues at this time. As agency representatives have and will continue to change in the future, these disagreements may be raised again. The technical issues and current positions adopted in the MFA FS report are: 1) the final selection of chemicals of potential ecological concern (COPECs) and 2) allowable exposure levels (AELs) used to evaluate remediation areas.

#### SELECTION OF COPECs

Areas addressed in this FS report are wetland sediments within the Eastern Diked Marsh and stormwater retention pond. These areas are part of the storm drain system. Both human health and ecological risk were assessed. The results indicate that ecological risk is the driver for cleanup in these areas, and risk is primarily the result of polychlorinated biphenyls (PCBs) in sediment. Potential ecological risks associated with pesticides and metals were also found. However, both pesticides and metals have been ruled out for the purpose of identifying remediation areas because of high ambient concentrations and a lack of identifiable sources.

The distribution of pesticides in the northern area of the airfield is indicative of the area-wide use of pesticides to control insects in that area. For example, ambient levels of pesticides exist throughout the sediments of the Western Diked Marsh even though no Navy-related activities were conducted there. The consistent low-level detections throughout the Diked Marshes and stormwater retention pond are typical for areas with aerial distribution of pesticides and are considered ambient.

The rationale for screening out metals is also based on high ambient conditions and lack of identifiable sources, as well as the high concentrations of metals in sediments regionally from urban stormwater runoff. Remedial investigations at MFA have not identified any point source or release of metals. Spatial analyses were conducted for beryllium, arsenic, antimony, and chromium concentrations in soil and sediment samples throughout the facility. Higher detections were observed to be scattered through MFA and did not appear to be related to site activities. None of the spatial analyses identified horizontal or vertical trends that would indicate a source of metals. Furthermore, a comparison of metals concentrations in sediment data at MFA to concentrations typically detected in sediments from urban stormwater are similar.

## **ALLOWABLE EXPOSURE LEVELS AND REMEDIAL ACTIONS**

Because both metals and pesticides have been ruled out as COPECs, only PCBs were used in evaluating remediation areas. In the previous version of the FS report, the AEL was set at 127 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ), a concentration of total PCBs in sediment protective of the most sensitive indicator species (great blue heron with a diet of fish). Based on site-specific data, including a recent biological survey of the Eastern Diked Marsh and stormwater retention pond, the Navy has demonstrated that the great blue heron is not the most sensitive species present in the wetlands because no fish were found in these areas. With this information, receptor-specific exposure doses were reevaluated, and the indicator species most at risk was found to be the mallard duck (with a diet of 90 percent invertebrates and 10 percent plants). Although a range of exposure scenarios was evaluated, the AEL was set at a concentration of total PCBs in sediment that resulted in the most protective hazard quotient. As a result, an action level of 470  $\mu\text{g}/\text{kg}$  has been established and agreed to by the regulatory agencies.

The protective cleanup level of 470  $\mu\text{g}/\text{kg}$  was calculated using the following variables:

- Diet composition
- Percent contaminated food
- Ingestion rate

- Biological Technical Advisory Group (BTAG) regional toxicity reference values (TRVs)
- Exposure duration

The cleanup value of 470 µg/kg assumes a juvenile mallard with a body weight of 0.625 kilograms (kg) with 3 percent incidental ingestion of contaminated sediment and a diet composition of 90 percent invertebrates and 10 percent vegetation. Based on observations by Dr. Keith Miles of the Western Ecological Research Center of the U.S. Geological Survey (WERC-USGS), the percent of contaminated food was assumed to be 25 percent with an ingestion rate of 2 grams of food per gram body weight per day. The low BTAG TRV of 0.058 milligrams per kilogram of PCBs per day was used with an assumption for exposure duration of 100 percent.

The FS report recommends an active remediation strategy of excavation in the areas above the 470 µg/kg level and either treating the sediment or disposing of it off site. The FS report also recommends that, under the active remediation alternatives, the excavated areas in the Eastern Diked Marsh and stormwater retention pond be restored and a limited ecological monitoring program should be established to ascertain the success of the habitat restoration.

#### **ANTICIPATED AGENCY RESPONSE AND NAVY STRATEGY**

The technical approach taken in the station-wide FS provides protectiveness while reducing habitat destruction and remediation costs. From discussions with the regulatory agencies, it was decided that the goal of the cleanup effort should be to maximize the amount of contaminant removed while minimizing the amount of wetlands destroyed. Selecting PCBs as the COPECs and establishing 470 µg/kg as the AEL will attain this goal.

The FS report presents technically and legally defensible conclusions and recommendations. Both the COPECs and the AEL used to evaluate remediation areas have been accepted by the current regulators at the U.S. Environmental Protection Agency (EPA) and the California Regional Water Quality Control Board, San Francisco Bay Region. It has taken 2 years to negotiate these points with the regulators and their technical advisors. However, there are some agency technical advisors that are not in agreement with the negotiated COPECs and AEL. For example, the EPA

remedial project manager for MFA will be changing in the next month. As a result, these disagreements with technical positions may be raised again in the future by agency staff, especially as existing agency cleanup team members change. The Navy should be ready for further discussion and be able to support the selection of the COPECs and AEL.