MOFFETT SOLID WASTE ASSESSMENT REPORT (SWAT)
PREPARED BY RWQCB

2.0 SITE INFORMATION COMMENTS

Comment 2.1:
Provide information as to the nature of the closure at the Runway Landfill. If there is no information available regarding closure, an effort should be made during the SWAT investigation to obtain such data. If waste constituents are present in the soils currently covering the site, it would be necessary to sample and chemically analyze surface runoff from the site.

Response:
The site information provided in the SWAT Work Plan poss ly is the total data available for Site 1 (Runway Landfill) and Site 2 (Golf rse Landfill). It was taken from the Navy's 1984 Initial Assessment Study Report. The data includes information obtained from interviews, file searches and aerial photographs. While the information is obviously limited, it may be the best available.

Records of disposal and closure at both sites are incomplete. Information indicates that neither landfill was formally closed. During the SWAT investigation, attempts will be made to fill data gaps that have been identified in these comments. This will include a search for additional aerial photographs.

The source of soil cover at Site 1 can be speculated as onsite local material which was not compacted. This conclusion is based on the geologic description from boring A1-4, indicating a black clayey gravel fill, 5 feet thick, medium dense to loose.

The source of Site 2 soil cover is reported as having been imported from offsite and placed over the well to construct the golf course. The geologic description of the upper 5 feet of this fill indicates dense material, implying that it was compacted. However the compaction is probably not to the extent required for a landfill cover.

Comment 2.2:
Prior to commencing with SWAT work for the Golf Course Landfill an additional investigation should be conducted in order to clearly define the limits of the landfill area. (Specify dates of aerial photographs reviewed and include copies of these photographs).

Response:
A recent examination of aerial photographs indicated that the Site 2 landfill might not have been correctly located by Earth Science Associate (ESA) as shown in Figure 3. The landfill appears to be farther to the northwest than shown in ESA's report, and repeated in the SWAT Work Plan. A 1956 photo shows the dimensions of the landfill to be about 400 feet in the east-west direction by 500 feet in the north-south direction. The filled area is bounded by the receptor ditch on the north and a service road to the west. The photos indicate that by 1963 the landfill was covered. The road and receptor remain.

Office copier duplicates of aerial photographs that were used in the assess-

ment are included. The actual photographs will be made available if necessary. They include:

Date	Photo ID	
11-24-47	C-GS 47J210	(1 photo)
4-1-50	CIV-17G-146,147	(2 photos)
6-9-56	CIV-4R-194,195	(2 photos)
6-12-60	C & GS S6072, S6073	(2 photos)
9-28-63	CIV-6DD 5.6	(2 photos)
7-21-67	C & GS S2787	(1 photo)
4-11-80	USDA 4006085 179-80,81	(2 photos)

Comment 2.3:
Specify the location of the burn pit at the Golf Course Landfill which was used for the disposal of outdated flares and cartridge activated devices until 1971.

Response:
Examination of the photographs also indicate that there may have been two burn pits located at Site 2. The earlier location (1950's and early 1960's) was about 200 feet southwest of existing building 561. In the late 1960's it appears that the burn pit was relocated to about the central part of the landfill, which by that time had been abandoned and covered.

4.0 SCOPE OF WORK

Comment 4.1:
Without detailed subsurface information regarding lithology, ground water flow occurence and direction, the adequacy of the proposed ground water monitoring regarding whether hazardous waste is migrating from the landfill cannot be assessed.

Response:
At Site 1 (Runway Landfill), the depths and configuration of the landfill has been defined by five soil borings and 4 monitoring wells. Aquifer material was not encountered in any of the wells or soil boring locations. ESA's boring logs and subsequent mapping of the landfill showed that it extended to more than 12 feet below sea level. Air photos of the excavation of the landfill showed dry conditions. The fact that it was dry presents a strong line of evidence for a low permeability excavation around and beneath soils through borings. The single deep boring planned at each site would identify aquifers of continuity. Additional deep geologic information will be obtained from monitor well borings by drilling 20 feet deeper than the base of the aquifer to be screened.

Site 2 will require a complete revision because the location has changed. Soil borings in addition to monitor wells will be required to adequately characterize waste. Three soil borings will be placed in the fill and will be carried to five feet below base of fill. A revised way is submitted for proposed placement of wells and borings.

-COM000650

Comment 4.2:
It is not clear that the proposed upgradient well for each site is beyond the influence of the landfill.

Response:
Upgradient well locations will be identified after hydraulic gradient analyses have adequately defined the direction of ground water flow. See response to Comment 4.5.

Comment 4.3:
It is strongly recommended that additional data be acquired at each of the landfill sites prior to making determination as to the location and number of ground water monitoring wells.

Response:
See response to Comment 4.1

Comment 4.4:
It is recommended that the one deep boring at each landfill be supplemented by several additional shallower borings around the landfill perimeter. These should be placed such that permeable zones beneath the landfill can be determined and defined.

Response:
See response to Comment 4.1.

Comment 4.5:
Recommend three leachate monitoring wells be installed with each landfill during Phase I investigation stage to provide water level gradient data.

Response:
The water level gradient is believed to be influenced by density difference asociated with a fresh water lens perched upon saline to hypersaline ground water. In such an environment water levels in the monitoring wells may not be reliable for measuring of true hydraulic potential. It is therefore believed that because of the possibility of the hydraulic complexities at these fills, a more realistic approach would be to identify contamination conditions as a positive first step, then later evaluate the hydraulic gradient conditions.

For evaluating contamination monitoring wells would be placed on four sides and in the center of landfill. During drilling (auger method, uppermost aquifer) water samples would be collected for density and conductivity measurements for the purpose of establishing density profiles of ground water which would later be used to assess the hydraulic gradient.

Comment 4.6:
For determination of ground water flow patterns and direction, ground water monitoring well elevations should be surveyed to a common datum. Water levels in the wells should be measured at an appropriate frequency such that seasonal variation in the ground water flow patterns at each site can be determined.

Response:
All wells will be surveyed to a common datum, and water level measurements will be made monthly. Because the water levels could be subject to tidal

COM000650

influence, they will be monitored continuously for a week to enable correlation of ground water level with prevailing San Francisco Bay operated tide gauge data.

Comment 4.7:
Specify the location and number of surface water samples to be taken to determine if surface water has been contaminated by hazardous substances leaking from the landfill.

Response:
Direct surface water sampling associated with either landfill is not feasible because there are no drainage courses associated with either landfill; runoff is by sheet flow, at times when sufficient excess rainfall over infiltration occurs. Inasmuch as the refuse buried in the runway landfill is below sea level, chemical analysis of any runoff that could be captured would probably not be relevant to the buried waste.

At the golf course landfill, a receptor drain north of the landfill will be sampled for surface water and sediment. The sampling point is where the receptor drain exits the Navy property to the east and discharge is pumped into Guadalupe Slough.

Comment 4.8:
Specify the analytical methods to be used to analyze soil, ground water, surface water and leachate samples.

Response:
Analytical methods for samples collected during this investigation are shown on Table 4-11 of the Sample and Analysis Plan (attachment).

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TABLE 4-11

ANALYTICAL METHODS FOR SAMPLES COLLECTED DURING REMEDIAL INVESTIGATION NAS MOFFETT FIELD

Parameter	Method Number: Waters	Method Number: Soils
pH	150.1[1]	9040[2]
Specific Conductance	120.1[1]	9050[2]
Total Dissolved Solids (TDS)	160.1[1]	--
Major Anions		
- Fluoride	300.0[1]	300.0[1]
- Nitrate	300.0[1]	300.0[1]
- Sulfate	300.0[1]	300.0[1]
Bicarbonate/carbonate	310.1[1]	310.1[1]
Major Cations		
- Calcium	CLP[3]	CLP[3]
- Magnesium	CLP[3]	CLP[3]
- Potassium	CLP[3]	CLP[3]
- Sodium	CLP[3]	CLP[3]
Volatile Organic Priority Pollutants (VOCs)	CLP[3]	CLP[3]
Base, Neutral, and Acid Extractable Priority Pollutants (BNAs)	CLP[3]	CLP[3]
Polychlorinated Biphenyls (PCBs)	CLP[3]	CLP[3]
Priority Pollutant Metals		
Aluminum	CLP[3]	CLP[3]
Antimony	CLP[3]	CLP[3]
Arsenic	CLP[3]	CLP[3]
Barium	CLP[3]	CLP[3]
Beryllium	CLP[3]	CLP[3]
Cadmium	CLP[3]	CLP[3]
Calcium	CLP[3]	CLP[3]
Chromium	CLP[3]	CLP[3]
Cobalt	CLP[3]	CLP[3]
Copper	CLP[3]	CLP[3]

TABLE 4-11 (cont'd)

ANALYTICAL METHODS FOR SAMPLES COLLECTED DURING REMEDIAL INVESTIGATION NAS MOFFETT FIELD

Parameter	Method Number: Waters	Method Number: Soils
Iron	CLP[3]	CLP[3]
Lead	CLP[3]	CLP[3]
Magnesium	CLP[3]	CLP[3]
Manganese	CLP[3]	CLP[3]
Mercury	CLP[3]	CLP[3]
Nickel	CLP[3]	CLP[3]
Potassium	CLP[3]	CLP[3]
Selenium	CLP[3]	CLP[3]
Silver	CLP[3]	CLP[3]
Sodium	CLP[3]	CLP[3]
Thallium	CLP[3]	CLP[3]
Vanadium	CLP[3]	CLP[3]
Zinc	CLP[3]	CLP[3]
Misc. Parameters		
Cyanide	CLP[3]	CLP[3]
Phenols	9065[2]	9065[2]
Chloride	300.0[1]	300.0[1]
Total Petroleum Hydrocarbons	SFBA[4]	SFBA[4]
Tetraethyl Lead	SFBA[4]	SFBA[4]
2,3,7,8-TCDD/Furan	613[5]	EPA Reg. VII[6]

REFERENCES

[1]"Methods for Chemical Analysis of Water and Wastes," EPA-600/4-79-020, latest revision.

[2]"Test Methods for Evaluating Solid Waste," EPA, SW-846, 2nd revision.

[3]US EPA Contract Laboratory Program

[4]"Guidelines for Addressing Fuel Leaks," California Regional Water Quality Control Board, San Francisco Bay Region, September, 1985, Attachment 2, Revision 1.

[5]EPA Method 613 "Methods for Organic Chemical Analysis of Municipal and Industrial Waste Waters" EPA-600/4-82-057

[6]U.S.EPA Region VII "Methods for Analysis of Dioxin and Furans".