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MOFFETT FIELD
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# FINAL

# STATIONWIDE NO ACTION SITES RECORD OF DECISION MOFFETT FEDERAL AIRFIELD

## Moffett Field, California
## (Formerly Naval Air Station Moffett Field)

(Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act)

## August 22, 2002

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## U.S. DEPARTMENT OF THE NAVY
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## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| bgs | Below ground surface |
| BRAC | Base Realignment and Closure |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CERCLIS | Comprehensive Environmental Response, Compensation and Liability Information System |
| COPEC | Chemical of potential ecological concern |
| CRP | Community relations plan |
| DDT | Dichlorodiphenyltrichloroethane |
| DoD | U.S. Department of Defense |
| EPA | U.S. Environmental Protection Agency |
| ERA | Ecological risk assessment |
| FIFRA | Federal Insecticide, Fungicide, and Rodenticide Act |
| FS | Feasibility study |
| HHRA | Human health risk assessment |
| HI | Hazard index |
| ILCR | Incremental lifetime cancer risk |
| IRP | Installation Restoration Program |
| MCL | Maximum Contaminant Level |
| MEW | Middlefield Road, Ellis Street, and Whisman Road |
| MFA | Moffett Federal Airfield |
| mg/kg | Milligram per kilogram |
| MOU | Memorandum of understanding |
| NACA | National Advisory Committee for Aeronautics |
| NAS | Naval Air Station |
| NASA | National Aeronautics and Space Administration |
| NPL | National Priorities List |
| OC | Organochlorine |
| OU | Operable unit |
| OSWER | Office of Solid Waste and Emergency Response |
| PAH | Polynuclear aromatic hydrocarbon |
| PCB | Polychlorinated biphenyl |
| RAB | Restoration advisory board |
| RI | Remedial investigation |
| ROD | Record of decision |
| RWQCB | California Regional Water Quality Control Board, San Francisco Bay Region |
| SVOC | Semivolatile organic compound |
| SVTC | Silicon Valley Toxics Coalition |
| SWEA | Site-wide ecological assessment |

## ACRONYMS AND ABBREVIATIONS (Continued)

| | |
|---|---|
| TAG | Technical assistance grant |
| TPH | Total petroleum hydrocarbons |
| TPH-e | Total petroleum hydrocarbons - extractable |
| TPH-p | Total petroleum hydrocarbons - purgeable |
| TRC | Technical review committee |
| TRV | Toxicity reference value |
| VOC | Volatile organic compound |

# 1.0 DECLARATION STATEMENT

## Site Name and Location

The site name is Moffett Federal Airfield (MFA) (formerly Naval Air Station [NAS] Moffett Field), located in Mountain View, California. Specifically, the following sites within MFA are addressed in this Record of Decision (ROD):

- Site 23 – Golf Course Fill Area 3
- Weapons Storage Bunkers
- Upland Soils (ecological risk)
- Stationwide Remedial Investigation (RI) Human Health Risk Assessment (HHRA) Exposure Area 4158

HHRA Exposure Area 4090 was also listed as a potential no action site in earlier versions of this ROD even though this area was included in the stationwide ecological assessment for wetland areas being addressed under a separate action (Site 27). As Figure 5 illustrates, half of HHRA Exposure Area 4090 includes a section of the North Patrol Road Ditch, the Northern Channel and the NASA berm that separates these two waterways. All three of these areas (the ditch, channel and berm) are currently being evaluated as a part of the Northern Channel Site 27 investigation. Because there are potential risk issues associated with this site, HHRA Exposure Area 4090 is no longer identified as a No Action Site in this ROD. Instead, this site will be addressed under the ongoing Site 27 investigation.

This federal facility is on the National Priorities List (NPL). The National Superfund Electronic Database Identification Number for MFA is 0902734 and the U.S. Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) identification number is CA2170090078. MFA has been closed as an active military facility under the Base Realignment and Closure (BRAC) program. Control of base operations was transferred to the National Aeronautics and Space Administration (NASA) on July 1, 1994.

## Statement of Basis and Purpose

This decision document presents the remedial action (no action) selected for Site 23, the Weapons Storage Bunkers, upland soils, and Exposure Area 4158 designated in the HHRA for the stationwide RI at MFA. The remedial action was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended, 42 U.S. Code Section 9601 and sections that

follow, and with the National Oil and Hazardous Substances Pollution Contingency Plan, Title 40 Code of Federal Regulations Part 300. This no action decision is supported by information contained in the administrative record for these sites. EPA and the California Regional Water Quality Control Board (RWQCB), San Francisco Bay Region concur with the selected remedy.

**Description of the Selected Remedy: No Action**

The U.S. Department of the Navy, with the concurrence of EPA and RWQCB, selected the no action alternative for the sites described in this decision document based on the evaluation of results from historical records, field investigations, laboratory analysis, and the human health and ecological risk assessments for these sites. In selecting no action for these sites, the Navy has concluded that the alternative is protective of human health and the environment.

**Declaration Statement**

Based on the evaluation of analytical data and other information detailed in the stationwide RI report (PRC 1996), the feasibility study (FS) report (TtEMI 1999), an addendum to the FS report (TtEMI 2001a), and other site documentation, the Navy has concluded that no remedial action is appropriate and will ensure protection of human health and the environment at the following stationwide no action sites:

- Site 23 - Golf Course Fill Area 3
- Weapons Storage Bunkers
- Upland Soils
- Stationwide RI HHRA Exposure Area 4158

The results of the HHRA and the ecological risk assessment (ERA) for these sites show no unacceptable risks to human health and the environment. Therefore, the Navy has determined that no action is necessary to ensure protection of human health and the environment.

Hazardous substances are not present at the stationwide no action sites at concentrations above acceptable risk levels, and a 5-year review under CERCLA Section 121(c) is not required for these sites.

## 2.0 DECISION SUMMARY FOR STATIONWIDE NO ACTION SITES

This section summarizes the basis for the no action decision for the stationwide no action sites. This section is divided into subsections as follows. Section 2.1 presents general information related to MFA, including the installation name, location, and description. Section 2.2 presents a brief history of the entire installation. Section 2.3 presents highlights of community participation. Section 2.4 presents the scope and role of the no action alternative in the overall site strategy. The current and potential future site and resource uses are discussed in Section 2.5.

The four stationwide no action sites are described in Sections 2.6 through 2.9. Information summarized in these subsections includes the site name, location, and description; site characterization; nature and extent of contamination; and summary of site risks.

Section 2.10 contains a summary of the selected remedy. Significant changes to the original proposed alternative are presented in Section 2.11. The responsiveness summary is contained in Section 3.0. The figures referenced throughout this ROD are located at the end of the report, following Section 4.0, References.

### 2.1 INSTALLATION SITE NAME, LOCATION, AND DESCRIPTION

MFA is located in California, 35 miles south of San Francisco, 10 miles north of San Jose, and about 1 mile south of the southwestern edge of San Francisco Bay, in Santa Clara County, California (Figure 1). The facility encompasses 2,200 acres in Santa Clara County; the facility address is:

Moffett Federal Airfield
Moffett Field, California 94035

MFA is bounded by Cargill saltwater evaporation ponds to the north, Stevens Creek to the west, U.S. Highway 101 (Bayshore Freeway) to the south, and the Lockheed Martin Aerospace Center to the east (Figure 2). Several industrial facilities are located south of the Bayshore Freeway. In particular, a group of companies is located in a 0.5-square-mile area, bounded by U.S. Highway 101, Middlefield Road, Ellis Street, and Whisman Road (MEW). This area is known as the MEW Superfund study area and contains three Superfund sites. MFA also borders the cities of Mountain View and Sunnyvale, California. The City of Sunnyvale is located south and east of MFA; the City of Mountain View borders MFA on the south and west. NASA's Ames Research Center is located west and north of the runways.

## 2.2 INSTALLATION HISTORY

The U.S. military continuously operated MFA as NAS Sunnyvale from its date of commission in April 1933 until it was transferred to NASA on July 1, 1994. The Navy used the station as an air base until October 1935, when it was transferred to the Army Air Corps for use as a training base. During the Army's tenure, the National Advisory Committee for Aeronautics (NACA) established Ames Research Center in December 1939 on land adjacent to MFA. The base returned to Navy control and was renamed NAS Moffett Field in April 1942. By 1950, NAS Moffett Field was the largest naval air transport base on the West Coast and became the first all-weather air station. In 1958, NACA became NASA and Ames Research Center became the NASA Ames Research Center.

Between 1973 and 1994, the mission of NAS Moffett Field involved support of antisubmarine warfare training and patrol squadrons. At one point, MFA was the largest P-3 base in the world, with nearly 100 P-3C Orion patrol aircraft. These aircraft were assigned to nine squadrons, supported by 5,500 military, 1,500 civilian, and 1,000 reservist personnel. No heavy manufacturing or major aircraft maintenance was conducted at NAS Moffett Field during the last mission; instead, mostly unit- and intermediate-level maintenance occurred. In April 1991, the station was designated for closure as an active military base under the U.S. Department of Defense (DoD) BRAC program. NASA assumed control of the base beginning in July 1994. Military housing units and associated facilities were transferred to Onizuka Air Force Base at the same time. NAS Moffett Field was then renamed MFA.

Since the early 1980s, DoD has been identifying, evaluating, and controlling the spread of contaminants from historical hazardous waste sites as part of the Installation Restoration Program (IRP) at MFA. This work is coordinated through a Federal Facility Agreement with EPA and RWQCB. The Navy is the lead agency for this work. The Navy and NASA signed a memorandum of understanding (MOU) on December 22, 1992, concerning environmental activities at the station. Under the MOU, the Navy will continue with environmental restoration and will remain responsible for remediating Navy contaminant sources. NASA is responsible for nonenvironmental operations and ongoing environmental compliance.

EPA proposed MFA as an NPL site in June 1986, and MFA was included on the NPL in July 1987. Inclusion on the NPL initiated the RI and FS process, as required by CERCLA.

The Navy began environmental studies at MFA in 1984. Twenty sites were originally identified as IRP sites at MFA. Investigations during the stationwide RI identified six additional, potentially contaminated

sites. Only three sites were assigned numbers (Sites 21 through 23), and none of the additional sites was designated as an operable unit (OU). The six additional sites, which were investigated under the CERCLA program, are (1) Site 21, (2) Site 22, (3) Site 23, (4) the Weapons Storage Bunkers, (5) the former Industrial Wastewater Flux Ponds, and (6) an ephemeral wetland located at an improperly abandoned agricultural well. Later, the Navy defined four additional sites (Sites 25 through 28), originally included as parts of other sites under previously established OUs. These sites include Site 25, the Eastern Diked Marsh and stormwater retention pond (included in OU6); Site 26, the east side aquifers (included in OU5); Site 27, the Northern Channel (included in OU6); and Site 28, the west side aquifers. All of the sites identified were investigated under the CERCLA program and are depicted in Figure 2. The current OU definitions and study areas are:

| | | |
|---|---|---|
| OU1 | – | Soils and groundwater at Sites 1 and 2 landfills |
| OU2-East | – | Soils at Sites 3, 4, 6, 7, 10 (runways), 11, and 13 |
| OU2-West | – | Soils at Sites 8, 10 (Chase Park), 14-North, 16, 17, and 18 |
| OU5 | – | Aquifers on the eastern side of MFA that are not part of the regional plume or OU1 (Site 26) |
| OU6 | – | Wetland areas, Sites 25 and 27 |
| Petroleum Sites | – | Sites 5, 9, 12, 14-South, 15, 19, 20, and 24 |
| Additional Sites | – | Sites 21, 22, 23, Weapons Storage Bunkers, upland soil areas, HHRA Exposure Area 4158, former Industrial Wastewater Flux Ponds, and the abandoned former agricultural well |

Human health and ecological risk assessments were conducted as part of the stationwide RI. A description of the methodologies for both risk assessments follows.

The stationwide HHRA was a comprehensive evaluation of potential risk associated with exposure to chemicals detected in samples collected at MFA. The HHRA evaluated potential human receptors who currently contact or could reasonably be expected to contact site-related chemicals in the future, as well as the possible routes, magnitudes, frequencies, and durations of exposure. Potential risks to human health posed by contamination at MFA were assessed using an exposure area approach. The exposure area approach identified potential receptors in a predetermined area where exposure occurs. An exposure area of one-half acre, which is consistent with the size of a typical city lot, was used at MFA for residential and occupational receptors. Recreational exposure areas were developed in the approved stationwide RI for the golf course and wetlands in OU6.

Data used in the risk assessment were collected in areas of suspected contamination during site-specific investigations before the stationwide HHRA was conducted. The data previously collected were used to evaluate risk by exposure area for the specific grid squares that overlie the sampling location. Risk was evaluated only in grids where soil, sediment, or groundwater samples (or some combination) were collected. Risk estimates were calculated from 95 percent upper confidence limit of the mean concentrations of chemicals of potential concern within the selected area. The exposure area approach was used in the HHRA presented in the stationwide RI report (PRC 1996) to characterize potential risks to human health from exposure to constituents in surface and subsurface soils. The HHRA identified all areas that posed an excess cancer risk that exceeded 1.0E-06 and adverse noncancer health effects with a hazard index (HI) greater than 1.0. As a means of estimating the potential human health risks caused by exposure to chemicals, EPA has established a target range of risk levels, which are presented as incremental lifetime cancer risks (ILCR) for carcinogens, and hazard indices for noncarcinogens. EPA considers an ILCR range of 1.0E-04 to 1.0E-06 the target range for carcinogens and regards an HI value of 1 or less for noncarcinogens as protective of human health. In certain cases, a specific risk estimate around or slightly greater than 1.0E-04 may be protective based on site-specific conditions, such as uncertainties in the nature and extent of contamination and associated risks (EPA 1991).

A site-wide ecological assessment (SWEA) was carried out in two phases to assess potential risks to flora and fauna associated with exposure to chemicals of potential ecological concern (COPEC) at MFA. The Phase I SWEA produced conceptual site models, including a description of habitats and a qualitative evaluation of chemical sources, exposure pathways, and plant and animal receptors (PRC and MW 1995a). A follow-up component to the Phase I SWEA, known as the SWEA data gap investigation, was conducted to address chemical and spatial gaps in the data presented in the Phase I SWEA report. Information collected during the SWEA data gap investigation is presented in the Phase II Site-Wide Ecological Assessment Work Plan (PRC and MW 1995b). The Phase II SWEA report described the quantitative and qualitative ecological risk assessment and included data collected during both phases (PRC and MW 1997).

As agreed upon by the Navy, EPA and RWQCB, six sites were recommended for No Action (formally referred to as No Further Action) in the 2001 Final Addendum to the Revised Final Station-wide Feasibility Study Report (TtEMI 2001a) and have been addressed separately from the IR program. These sites are: Site 23, Golf Course Fill Area 3; Weapons Storage Bunkers; Former Industrial Wastewater Flux Ponds; Former Abandoned Agricultural Well; Upland Soils (areas that support upland plant communities); Station-wide Remedial Investigation HHRA Exposure Areas 3782, 3785, 3974, 4090, and 4158. The addendum to the report provides additional documentation to support the No Action recommendations for these sites. Two of the sites, Industrial Wastewater Flux Ponds and Former Abandoned Agricultural Well,

were closed with concurrences from EPA or Santa Clara Valley Water District; therefore, they were not considered further in the CERCLA process. Three of the HHRA exposure areas, 3782, 3785, and 3974, are being addressed as part of other remedial actions or maintenance programs.

The remaining No Action Sites (Site 23-Golf Course Fill Area 3, Weapons Storage Bunkers, Upland Soils, HHRA Exposure Area 4090, and HHRA Exposure Area 4158) were included in the Proposed Plan (TtEMI 2001b). The Proposed Plan was made available to the public during a formal comment period from December 15, 2001 through January 28, 2002. A public meeting was held on January 10, 2002 and a responsiveness summary was issued on May 28, 2002. As the proposed plan and earlier versions of the ROD suggest, HHRA Exposure Area 4090 was listed as a No Action Site even though this area was included in the stationwide ecological assessment for wetland areas being addressed under a separate action (Site 27). Because there are potential risk issues associated with this site, the HHRA Exposure Area 4090 is no longer identified as a No Action Site in this ROD. Instead, this site will be addressed under the ongoing Site 27 investigation.

## 2.3 COMMUNITY PARTICIPATION

In May 1989, the Navy developed a community relations plan (CRP) for MFA. The CRP outlined specific activities to address concerns voiced by the community. Since 1993, EPA has provided a technical assistance grant (TAG) to the Silicon Valley Toxics Coalition (SVTC), a local environmental group. The TAG allowed SVTC to hire a consultant to assist in reviewing environmental documents for MFA. In addition, the Navy formed a technical review committee (TRC), which met quarterly to discuss environmental progress at the site. The TRC evolved into what is now known as the restoration advisory board (RAB). The RAB is made up of members of the TRC and the community and holds regular public meetings to discuss environmental progress at MFA.

The stationwide no action sites were characterized in the stationwide RI (PRC 1996) and the additional sites investigation phase II report (PRC 1995a). The proposed plan for the stationwide no action sites was released to the public on December 15, 2001. Copies of the proposed plan were sent to about 500 parties on the MFA mailing list. The RI report, FS report, addendum to the FS report, and proposed plan were made available to the public through both the administrative record and the information repository located at the Mountain View Public Library, Mountain View, California. The notice of availability for the proposed plan and related documents was published on December 12, 2001, in the *San Jose Mercury News* and on December 14, 2001, in the *Mountain View Voice*. A public comment period was held from December 15, 2001, through January 28, 2002. A public meeting was held on January 10, 2002. At this meeting, representatives from the Navy, EPA, and RWQCB supplied the basis for proposing no action and

accepted comments from community members. A response to comments received during this public meeting and the public comment period is included in the responsiveness summary (Section 3.0). These community participation activities fulfill the requirements of CERCLA Sections 113(k)(2)(B)(i-v) and 117(a)(2).

## 2.4 SCOPE AND ROLE OF STATIONWIDE NO ACTION SITES WITHIN SITE STRATEGY

MFA is a large, federal facility that contains numerous potential sources of contamination. As discussed in Section 2.2, 28 sites at MFA have been identified to date and RODs have been completed for most of the sites. Specifically, the following RODs have been signed or scheduled for MFA sites:

| OU Designation | OU Description | ROD Schedule |
|---|---|---|
| OU1 | Sites 1 and 2 | August 1997 |
| OU2-East | Sites 3, 4, 6, 7, 11, and 13 | December 1994 |
| OU5 (Site 26) | East Side Aquifers | June 1996 |
| Site 28 | West Side Aquifers | Covered by MEW Study Area ROD - June 1989 |
| Site 22 | Landfill | June 2002 |
| Site 27 (OU6) | Northern Channel Area | To Be Determined |
| Site 25 (OU 6) | Eastern Diked Marsh and Stormwater Retention Pond | To Be Determined |

The installation management strategy is to accelerate actions at OUs, while identifying and closing out sites that do not require action. This strategy, which uses no action RODs, allows resources to be concentrated on the OUs that require action. This ROD completes action at the remaining no action sites at MFA. The Navy anticipates two further RODs – Site 25 and Site 27 – to be completed in the future.

## 2.5 CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

MFA was closed as a military base on July 1, 1994. Supervision of MFA's two runways, three aircraft hangars, and 3.5 million square feet of facilities was turned over to NASA Ames Research Center. As the new federal custodian, NASA Ames now operates the shared federal facility known as MFA. According to the MOU between NASA and the Navy, the Navy is responsible for remediating Navy contaminant sources and will continue environmental restoration activities at MFA. NASA is responsible for nonenvironmental operations and ongoing environmental compliance.

NASA is planning to develop a world-class, shared-use educational and research and development campus at Moffett Field, California, in association with government entities, academia, industry and nonprofit organizations. The NASA Ames Development Plan includes proposed development of four areas:

- NASA Research Park: A 213-acre parcel located between Ames Research Center facilities, MFA, U.S. Highway 101, and the military housing area
- Eastside/Airfield District: A 952-acre parcel that includes MFA and property located east of the airfield
- Bay View District: A 95-acre parcel located north of the Ames Research Center facilities
- Ames Research Center Facilities: A 240-acre parcel comprising the existing NASA Ames Research Center campus

Site 23 – Golf Course Fill Area 3, Weapons Storage Bunkers, and HHRA Exposure Area 4158 are located within the Eastside/Airfield District parcel. The majority of the Upland Soils area also is located within this parcel. Minor portions of the Upland Soils area are located in the NASA Research Park, Bay View, and existing Ames Campus parcels.

Surface water channels and ditches will be maintained for drainage purposes. Groundwater for the sites considered in this ROD was addressed separately as part of OU5 groundwater VOC plume or the regional groundwater VOC plume. Groundwater is not currently used at MFA. The only exception is water from a single well screened in the deep C aquifer (deeper than 155 feet below ground surface) used by NASA for fire fighting, composting, and agricultural purposes. This well is located in the northwestern corner of the Ames Research Center area and is distant from the sites discussed in this ROD. Public water is supplied to MFA from the Hetch Hetchy aqueduct owned by the City of San Francisco. Groundwater is unlikely to be used as a water supply source in the future because of poor ambient quality and low formation yield to a well. NASA's draft Programmatic Environmental Impact Statement does not consider development of groundwater as a future water supply source.

In accordance with the National Environmental Policy Act, NASA has prepared a draft Programmatic Environmental Impact Statement, dated November 2001, for the proposed NASA Ames Development Plan. The preferred alternative for the Eastside/Airfield District is to construct a 12,000-square-foot control tower. All alternatives considered proposed light industrial uses for this parcel. More information on the future of MFA is available on NASA's website: http://researchpark.arc.nasa.gov.

## 2.6 SITE 23 - GOLF COURSE FILL AREA 3

The following subsections summarize information for Site 23 - Golf Course Fill Area 3.

### 2.6.1 Site Name, Location, and Description

Site 23 is located on 2 acres, just south of the Northern Weapons Bunker area, in the western portion of the golf course (see Figure 3).

### 2.6.2 Site Characterization

Golf Course Fill Area 3 is shown in aerial photographs taken in 1977 as one of several ponds on the golf course. Three of the ponds on the golf course were dry, and some debris was visible in the area of Golf Course Fill Area 3 in an aerial photograph taken in 1987. No information on the source of the material discarded in this area could be found. However, numerous small piles of soil, concrete, disaggregated asphalt, grass clippings, and mulch were identified during a site walk conducted in March 1994. In addition, some airplane parts, consisting of several pieces of aluminum (brought to Site 23 for disposal after a plane crashed at MFA), and some electronics equipment were found in the area. A magnetometer survey of this area was conducted in 1995. The results of the survey do not indicate that significant quantities of metallic materials were buried at the site. This evidence instead suggests that the area was never trenched and was used primarily for incidental disposal of excess soil and debris from the golf course.

Four subsurface soil samples were collected at Golf Course Fill Area 3 from two soil borings (SBSW-002 and SBSW-003) as part of the stationwide RI (see Figure 4). These samples were analyzed for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), total petroleum hydrocarbons (TPH) purgeable and extractable (TPH-p and TPH-e, respectively), pesticides, polychlorinated biphenyls (PCB), and metals. Ten samples of surface debris (SSSW-1 through SSSW-10) also were collected (see Figure 4). These samples were analyzed for VOCs, SVOCs, TPH-e, TPH-p, pesticides, PCBs, and metals.

### 2.6.3 Nature and Extent of Contamination

Analytical results indicate that SVOCs and TPH were detected in both subsurface and surface soil samples. SVOCs and TPH were detected in only one of the subsurface soil samples but were detected

more frequently in surface soil samples. Detections of SVOCs reflect the presence of asphalt in the disposal area. TPH-e as motor oil also was detected in almost all samples of surface debris. The detection of TPH also reflects the presence of asphalt in the surface debris. Toluene was the only VOC detected in any samples of surface or subsurface soil. Pesticides (dieldrin, dichlorodiphenyldichloroethylene, dichlorodiphenyltrichloroethane [DDT], and chlordane) were detected in at least one sample of surface debris. These detections are likely the result of golf course maintenance and not of disposal, because pesticides were used throughout MFA for agricultural purposes in accordance with applicable laws and regulations (TtEMI 2001a). Metals were detected in soil samples from Golf Course Fill Area 3, but at concentrations that are typical and occur naturally in soils at MFA as exemplified by a background comparison in the stationwide RI (PRC 1996). A detailed description of sampling locations at Golf Course Fill Area 3 and the concentrations detected is contained in Section 4.0 of the Final Stationwide RI Report (PRC 1996). A summary of the concentrations detected is presented in Table 1 of this ROD. Additionally, groundwater was sampled in several monitoring wells located around Golf Course Fill Area 3 (PRC 1996). Groundwater in this part of MFA is addressed separately as part of OU5. OU5 includes all aquifers that are not affected by the regional plume in groundwater. As part of the RI for OU5, data for groundwater samples from all wells on the eastern side of the base, including monitoring wells near Golf Course Fill Area 3, were evaluated and are addressed in the OU5 ROD (Navy and EPA 1996). Because action for groundwater has been selected for these sites (pump and treat for the southern portion of the plume and no further action for the northern portion of the plume), the groundwater data will not be evaluated as part of Golf Course Fill Area 3.

### 2.6.4 Summary of Risk

The HHRA for Site 23 - Golf Course Fill Area 3 is documented in Appendix E of the Final Stationwide RI Report (PRC 1996). A screening-level HHRA was completed to evaluate whether the risk was acceptable for potential receptors. The methodology and results of the screening-level risk analysis for Site 23 - Golf Course Fill Area 3 are presented in Appendix C of the addendum to the stationwide FS report (TtEMI 2001a).

Carcinogenic and noncarcinogenic risks were calculated using residential, occupational, and recreational exposure scenarios. Noncancer risk under the residential exposure scenario was primarily a result of nickel and thallium. The cancer risk under the residential exposure scenario is attributed to benzo(a)pyrene.

Noncancer risk is attributed almost entirely to nickel under both the occupational and the recreational exposure scenarios. The cancer risk under both exposure scenarios is attributed to benzo(a)pyrene.

The results of the HHRA for Golf Course Fill Area 3 are as follows.

| | Total Hazard Index | Total Cancer Risk |
|---|---|---|
| **Residential Exposure Scenario** | 1.1E-01 | 2.0E-05 |
| **Occupational Exposure Scenario** | 1.8E-02 | 9.1E-10 |
| **Recreational Exposure Scenario** | 1.3E-02 | 2.6E-10 |

Based on the risk estimates, Site 23 does not pose an unacceptable human health risk. The potential carcinogenic risks for Site 23 are well below the EPA's risk management range of $10^{-4}$ to $10^{-6}$, under both occupational and recreational exposure scenarios. The potential carcinogenic risk for residents exposed to soil at Site 23 over 30 years is within EPA's risk management range. However, residential development at Site 23 is unlikely, because the site will remain a golf course under future land-use scenarios. The hazard index at Site 23 is below 1.0 and does not pose a risk for residential, occupational, or recreational users. Human health and the environment will be suitably protected without the undue restrictions of institutional controls.

Residential development is also typically prohibited in areas on or near wetlands or landfills (PRC 1996). Residential use of an area within 150 feet of a designated wetland (for example, ditches and ponds within the golf course) is subject to federal protection under the Clean Water Act, and all further development is effectively prohibited. Furthermore, under the California Coastal Act, a coastal zone that prohibits residential use is defined as property, "extending inland generally 1,000 yards from the mean high tide line" (California Public Residential Code Section 30103). Both the Northern Channel and several Cargill evaporation ponds are tidally influenced and are within 1,000 yards of Site 23.

Residential development on landfills is also typically prohibited, as supported by EPA guidance (1993):

> It is important to note that because the continued effectiveness of the containment remedy depends on the integrity of the containment system, it is likely that institutional controls will be necessary to restrict future activities at CERCLA municipal landfill after construction of the cap and associated systems. EPA has thus determined that it is not appropriate or necessary to estimate the risk associated with future residential use of the landfill source, as such use would be incompatible with the need to maintain the integrity of the containment system. (Long term waste management areas, such as municipal landfills may be appropriate, however, for recreational or other limited uses on a site-specific basis.)

Habitat in the area of Site 23 is classified as upland soil. Therefore, Site 23 was included in the ERA for upland soils and is discussed in further detail in the Section 2.8.4 of this ROD. As discussed in Section 2.8.4, the risks to ecological receptors in upland soils areas are acceptable.

## 2.7 WEAPONS STORAGE BUNKERS

The following subsections summarize information for the Weapons Storage Bunkers.

### 2.7.1 Site Name, Location, and Description

There are two groups of weapons storage bunkers: the Northern Weapons Storage Bunkers and the Southern Weapons Storage Bunkers. The weapons storage bunkers are located in two fenced areas in the northeastern portion of MFA, near the golf course (see Figure 3). The Northern Weapons Storage Bunkers cover about 5 acres and include seven high-explosive magazines. The Southern Weapons Storage Bunkers cover about 10 acres and include nine high-explosive magazines (see Figure 3).

Each magazine consists of a heavy-gauge, corrugated steel arch that forms its roof and sides. The floors of the magazines are concrete, without drains. Each magazine is about 30 feet long, 20 feet wide, and 20 feet high. The magazines are covered with soil, forming long, earth-covered bunkers. Only one magazine in the Northern Weapons Storage Bunkers is still used and stores ammunition for the California Air National Guard. The Northern Weapons Storage Bunkers contained two diesel storage tanks. One of the tanks was removed in 1992, and the other tank was removed in 1994. No source for or evidence of contamination was identified in the Southern Weapons Storage Bunkers.

### 2.7.2 Site Characterization

A discussion of the site characterization for each of the weapons bunkers follows.

<u>Northern Weapons Storage Bunkers</u>

A site inspection at the Northern Weapons Storage Bunkers in May 1994 found that the cement apron on the southern side was free of staining or significant cracking, and the buildings were released for unrestricted use (PRC 1996). The high-explosive magazines at the Northern Weapons Storage Bunkers also were investigated for radioactive contamination; however, no radioactivity was found (PRC 1996).

An inventory revealed two diesel storage tanks in this area. Tank 22 was a 600-gallon underground storage tank that held diesel fuel and was removed in 1992; Tank 102, a 55-gallon aboveground storage tank that contained diesel fuel, was removed in April 1994. Tanks 22 and 102 are evaluated and closed separately from CERCLA sites under the policy and guidance of RWQCB. Closure of Tank 22 is documented in the Phase I petroleum sites closure report (TtEMI 2000). Tank 102 is being investigated during the Phase III tank investigation. The Phase III investigation involves tanks that require further assessment for closure. This work may include document research, sampling, and geophysical surveys. The results of this work will be included in the Phase III petroleum sites closure report.

The area in the immediate vicinity of the Northern Weapons Storage Bunkers was investigated as part of field activities for the stationwide RI (PRC 1996) and the OU5 FS (PRC 1995b). Samples focused on potential contamination of groundwater by VOCs and potential contamination in soil from diesel storage tanks. Four soil samples were collected from three soil borings (SBU5-008, SBU5-009, and SBSW-001), near the Northern Weapons Storage Bunkers (see Figure 4). Samples collected from Sampling Locations SBU5-008 and SBU5-009 were analyzed only for VOCs, and the results were used to identify the extent of the plume of VOCs associated with OU5. Samples collected from Sampling Location SBSW-001 were analyzed for a full suite of contaminants (VOCs, SVOCs, TPH, pesticides, PCBs, and metals) as part of the stationwide RI (PRC 1996). In addition to soil sampling, a soil gas survey was conducted inside of the secured area of the Northern Weapons Storage Bunkers as part of a previous investigation by International Technology Corporation in 1993 (PRC 1996).

**Southern Weapons Storage Bunkers**

No soil samples were collected at the Southern Weapons Storage Bunkers, because no source for, or evidence of, soil contamination was identified. Based on the Navy's stated historical use of the bunkers, the Southern Weapons Storage Bunkers were not tested for radioactive contamination before they were transferred to the California Air National Guard in 1994. There is no reason to suspect that these facilities were used for storage of radioactive materials (PRC 1996).

Groundwater in the area of the weapons storage bunkers is addressed separately as part of OU5 (PRC 1996). OU5 includes all aquifers that are not affected by the regional plume in groundwater. As part of the RI for OU5, data for groundwater samples from all wells on the eastern side of the base, including monitoring wells near the weapons storage bunkers, were evaluated and are addressed in the OU5 ROD (Navy and EPA 1996).

### 2.7.3 Nature and Extent of Contamination

No organic compounds were detected during analysis of soil samples from boring SBSW-001 from the Northern Weapons Storage Bunkers. Soil samples were analyzed for VOCs, SVOCs, TPH, PCBs, or pesticides. The common laboratory contaminants acetone, 2-butanone, and methylene chloride were detected at low levels below the method quantitation limit in two samples and were not attributed to site contamination (PRC 1996). No VOCs were detected in the soil samples collected from Locations SBU5-008 and SBU5-009. No VOCs were found in a soil gas survey for this area. A description of sampling locations and concentrations detected in the Northern Weapons Storage Bunkers is contained in Section 4.0 of the Final Stationwide RI Report (PRC 1996). A summary of the concentrations detected at the Northern Weapons Storage Bunkers is presented in Table 2 of this ROD.

No soil samples were collected at the Southern Weapons Storage Bunkers.

### 2.7.4 Summary of Risk

Risks to potential residential receptors were evaluated as part of the stationwide HHRA using an exposure area approach. A one-half acre grid was laid over all of the sites at MFA to evaluate risk by exposure area, and the analytical data collected previously were used in the risk assessment for the specific grid square that overlies the sampling location. HHRA Exposure Area 4093 overlies Sampling Location SBSW-001. The HHRA results for the residential exposure scenario for the Northern Weapons Storage Bunkers are as follows.

| | Total Hazard Index | Total Cancer Risk |
|---|---|---|
| **Residential Exposure Scenario** | 1.6E-01 | 1.0E-05 |

The noncancer risk is posed by nickel and thallium, and the cancer risk is a result of arsenic. The noncancer risk at the Northern Weapons Storage Bunkers is below 1.0 and does not pose a risk to residential users. The potential carcinogenic risk for residents exposed to chemicals in soil at the Northern Weapons Storage Bunkers is within EPA's risk management range of $10^{-4}$ to $10^{-6}$. Arsenic concentrations detected in soil samples from the Northern Weapons Storage Bunkers are typical and occur naturally in soils at MFA as exemplified by a background comparison in the stationwide RI (PRC 1996). Residential development at the Northern Weapons Storage Bunkers is unlikely because the site will remain industrial under future land-use scenarios being considered under NASA's draft Programmatic

Environmental Impact Statement for the proposed NASA Ames Development Plan. Potential risks were not estimated for an occupational exposure scenario; however, potential risk under an occupational exposure scenario is expected to be lower than risk under a residential exposure scenario because occupational exposure assumptions for soil contact rates, exposure frequency, and exposure duration are lower than corresponding residential exposure assumptions. Human health and the environment will be suitably protected without the undue restrictions of institutional controls.

No soil samples were collected in the Southern Weapons Storage Bunkers, because no source for, or evidence of, soil contamination was identified. Therefore, no risk assessment was conducted for the Southern Weapons Storage Bunkers.

Habitat in the area of the weapons storage bunkers is classified as upland soil. The area was included in the ecological risk assessment for upland soils, which found no unacceptable ecological risks (also see Section 2.8 for discussion of upland soils). The Northern Weapons Storage Bunkers were specifically studied for ecological risk to resident burrowing owls and no adverse ecological effects were identified.

## 2.8 UPLAND SOILS (ECOLOGICAL RISK)

The following subsections summarize information for upland soils in terms of ecological risk. Human health risk in the upland soils area was evaluated during the stationwide RI (PRC 1996). As discussed in Section 2.2, the stationwide HHRA evaluated potential risks to human health posed by contamination at MFA using an exposure area approach.

### 2.8.1 Site Name, Location, and Description

Upland soils are areas of MFA that support upland plant communities and include virtually all areas at the airfield that are not covered by ditches, marshes, or wetlands (Figure 3). Human activity has been significant in these areas. Certain areas of upland soils, such as open grassy areas and the edges of golf courses and recreational fields, are actively managed as burrowing owl habitat, but the majority of upland soils areas are either paved, landscaped, or have been altered substantially by land use during the last 100 years.

### 2.8.2 Site Characterization

Upland soils have been analyzed as part of a variety of other investigations at MFA. For the SWEA, analytical data for 225 samples collected from the upper 3 feet of upland soils during previous investigations at MFA were included in the "upland soils" data set. Those contaminated areas identified in the SWEA that pose an unacceptable level of risk either have been, or are currently being addressed by selected remedial actions. A discussion of the general contamination identified in the upland soils during the SWEA follows.

### 2.8.3 Nature and Extent of Contamination

Polynuclear aromatic hydrocarbons (PAH) were detected infrequently in samples of upland soils. Detections in upland soils were all less than 1 milligram per kilogram (mg/kg) for total PAHs and were detected at six sites at MFA, two of which were landfills.

Petroleum hydrocarbons were detected infrequently in samples of upland soils. Petroleum hydrocarbons were detected in samples of upland soils at the following MFA sites: Site 1 Landfill, Golf Course Former Landfill 2 (Site 22), Site 23, Zook Road fuel spill site (Site 20), Sites 4 and 8, and Marriage Road Ditch (Site 3). With the exception of one sample, concentrations detected were less than 660 mg/kg (PRC and MW 1997).

PCBs were detected in less than 12 percent of the upland soil samples that were not collected in landfills (PRC and MW 1997). Elevated concentrations of PCBs were detected in samples collected at the former Lindbergh Avenue storm drain channel. NASA has completed remediation of the former Lindbergh Avenue storm drain channel and it was cleaned up to non-detect or below maximum contaminant levels (MCL) for residential and ecological exposure criteria. The maximum concentrations of organochlorine (OC) pesticides also were found in samples collected at the former Lindbergh Avenue storm drain channel (PRC and MW 1997). OC pesticides were detected at a maximum frequency of 26 percent in upland soils. Information indicates that pesticides were applied by the Navy and the Santa Clara County Vector Control District for agricultural use at MFA, in accordance with applicable laws and regulations.

Metals occur naturally in soil at MFA. Based on visual inspection of histograms, certain metals were elevated in a few upland soil samples (PRC and MW 1997). Outliers more than one order of magnitude

above the majority of the distribution were observed for cadmium, lead, mercury, thallium, and zinc (PRC and MW 1997).

### 2.8.4 Summary of Risk

As described in the Phase II SWEA report, the indicator receptors selected to assess potential risk associated with exposure to contamination in upland soil at MFA were the American kestrel and the burrowing owl (PRC and MW 1997). A matrix of hazard quotients was calculated to evaluate risk to these avian receptors (PRC and MW 1997). The hazard matrix was constructed by comparing the high and average dose with high and low toxicity reference values (TRV). The low TRV is a conservative (protective) value consistent with the chronic no observed adverse effects level; the high TRV is a less conservative value consistent with the lowest observed adverse effects level. The calculated risk indicates that the burrowing owl is the more sensitive avian receptor. Chemicals identified as potentially driving risk are chromium, lead, zinc, total DDT, and chlordane.

The Navy evaluated whether these chemicals are ambient or related to site activities. Ambient levels are considered to be either naturally occurring (nonanthropogenic) or anthropogenic. Anthropogenic levels are defined as concentrations of chemicals present in the environment as a result of human, nonsite sources (EPA 1989). The presence of elevated concentrations of metals and pesticides as a result of nonsite sources was evaluated to assess whether a cleanup action was necessary for upland soils.

No sources of metals releases have been identified at MFA. Spatial analyses of concentrations of several metals, including beryllium, arsenic, antimony, chromium, lead, and zinc, were conducted at MFA (PRC and IT 1994; PRC 1996; TtEMI 1999). Concentrations of each metal were mapped throughout the facility at various depth horizons to evaluate horizontal and vertical trends. Higher detections that were observed scattered throughout MFA 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.

Information indicates that pesticides were applied by the Navy and the Santa Clara County Vector Control District for agricultural use at MFA, in accordance with applicable laws and regulations. Under CERCLA Section 103(e), application of pesticides registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), is exempt from release reporting requirements. Because pesticides were applied at MFA in accordance with FIFRA, no response action is necessary to address the regular application of pesticides.

Although the SWEA indicates potential risk to the burrowing owl posed by metals and pesticides, the population at MFA is healthy compared with other burrowing owl populations in the south San Francisco Bay area (Trulio 1997). In addition, the population of breeding pairs has been stable over the past 8 years, which is attributed to MFA's management of owls and their habitat (Trulio 2001). There do not appear to be any adverse effects to the burrowing owl population at MFA. These observations indicate that the ecological risk calculated is conservative and may overestimate the risk posed by upland soils. The burrowing owl does not appear to be adversely affected by the contaminants identifies as potential risk drivers in the upland soils.

## 2.9 HUMAN HEALTH RISK ASSESSMENT EXPOSURE AREA 4158

The following subsections summarize information for HHRA Exposure Area 4158.

### 2.9.1 Site Name, Location, and Description

HHRA Exposure Area 4158 is located slightly south, but almost adjacent to IRP Site 11 - Engine Test Stand Area (see Figures 3 and 5). Samples collected as part of Site 11 investigations were collected from the center of HHRA Exposure Area 4158.

### 2.9.2 Site Characterization

HHRA Exposure Area 4158 includes 10 Site 11sampling locations: GSB11-01, GSB11-02, GSB11-03, GSB11-06 through -10, GSB11-15, and GSB11-16 (see Figure 5). Samples were collected at a depth of 0.5 to 1.5 feet below ground surface (bgs) for all sampling locations and at a second depth of 5 to 6 feet bgs at 3 of the 10 locations.

### 2.9.3 Nature and Extent of Contamination

Samples from all 10 locations were analyzed for SVOCs and metals. Samples from all 10 shallow soil locations and of the two deeper samples (GSB11-10 and GSB11-16) were analyzed for TPH. Samples from four locations were analyzed for VOCs, including one collected at 0.5 to 1.5 feet (GSB11-02) and three at 5 to 6 feet bgs. Concentrations of VOCs, SVOCs, TPH, and metals were found in some of the soil samples. A summary of the analytical data collected at Site 11 is presented in Table 3 of this ROD.

### 2.9.4 Summary of Risk

Carcinogenic and noncarcinogenic risks were calculated for Exposure Area 4158 using both residential and occupational exposure scenarios. The results of the HHRA for Exposure Area 4158 are as follows.

| | Total Hazard Index | Total Cancer Risk |
|---|---|---|
| **Residential Exposure Scenario** | 9.5E-01 | 9.2E-05 |
| **Occupational Exposure Scenario** | 1.6E-01 | 2.5E-05 |

The carcinogenic risk is attributable to benzo(a)pyrene and indeno(1,2,3-c,d)pyrene, and the noncancer risk is attributable to cadmium and manganese. Carcinogenic risks at Exposure Area 4158 are within EPA's risk management range of $10^{-4}$ to $10^{-6}$. Noncancer risks for both the residential and occupational exposure scenarios at Exposure Area 4158 are below a hazard index of 1.0 and do not pose an unacceptable risk to residential and occupational users. Residential development at Exposure Area 4158 is unlikely because under future land-use plans the site is proposed for light industrial use. The carcinogenic risk estimated for an occupational exposure scenario is likely to overestimate the actual risk that would be posed by the site in an occupational setting. The chemicals that contribute most significantly to the estimated carcinogenic risks (benzo(a)pyrene and indeno(1,2,3-cd)pyrene) are detected infrequently in soil across the site. In addition, light industrial development of the site is expected to involve the construction of buildings, pavement, and landscaped areas, thereby further reducing the potential for contact with site soils. Human health and the environment will be suitably protected without the undue restrictions of institutional controls.

Habitat in the area of the Exposure Area 4158 is classified as upland soil. The area was included in the ecological risk assessment for upland soils, which found no unacceptable ecological risks (also see Section 2.8 for discussion of upland soils).

## 2.10 SELECTED REMEDY SUMMARY

The Navy, with the concurrence of EPA and RWQCB, selected the no action alternative for Site 23, the Weapons Storage Bunkers, upland soils, and HHRA Exposure Area 4158 described in this ROD. Selection of the no action alternative is based on evaluation of results from historical records, field investigations, laboratory analysis, and the human health and ecological risk assessments for these sites.

In selecting no action for these sites, the Navy, with concurrence of EPA and RWQCB, has concluded that the alternative is protective of human health and the environment.

## 2.11 DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for "No Further Action Sites" was released to the public in December 2001. The public comment period ran from December 15, 2001, through January 28, 2002. Two comments were received at the public meeting on January 10, 2002. Three additional comments were received by facsimile, electronic mail, or U.S. Mail during the public comment period. Although the Proposed Plan was entitled No Further Action Sites, it identified "No Action" as the preferred alternative for five stationwide sites. The "No Action" remedy decision is warranted for sites where there is no current or potential threat to human health and the environment. Accordingly, the sites addressed in this ROD are "No Action" Sites.

In the Proposed Plan and in earlier drafts of this ROD, HHRA Exposure Area 4090 was listed as a potential no action site even though this area was included in the stationwide ecological assessment for wetland areas being addressed under a separate action (Site 27). As Figure 5 illustrates, half of HHRA Exposure Area 4090 includes a section of the North Patrol Road Ditch, the Northern Channel and the NASA berm that separates these two waterways. All three of these areas (the ditch, channel and berm) are currently being evaluated as a part of the Northern Channel Site 27 investigation. Because there are potential risk issues associated with this site, HHRA Exposure Area 4090 is no longer identified as a No Action Site in this ROD. Instead, this site will be addressed under the ongoing Site 27 investigation.

# 3.0 RESPONSIVENESS SUMMARY

The responsiveness summary (pages 24 through 32) has been prepared by the Navy to document public comments and questions regarding the proposed remedy for the station-wide no action sites at MFA.

## 3.1 STAKEHOLDER ISSUES AND LEAD AGENCY RESPONSES

All comments in the responsiveness summary have been identified as stakeholder issues and therefore, are included in this category.

## 3.2 TECHNICAL AND LEGAL ISSUES

No technical or legal issues were identified.

| | |
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| **Written on:** January 10, 2002 | **Received on:** January 10, 2002 |
| **From:** Libby Lucas, Los Altos, California | **Submitted Via:** Public Meeting |
| **Affiliation/Agency:** RAB Member | |

**GENERAL COMMENT**

| | |
|---|---|
| **Comment 1:** What is the cause of decline in the burrowing owl holes (72 to 19)? If this is the indicator species, is this cause for concern? Can it be said that there are no toxic conditions affecting wildlife? | **Response 1:** Dr. Lynne Trulio of San Jose State University has studied the population of burrowing owls extensively in the San Francisco Bay Area and at Moffett Federal Airfield (MFA). Dr. Trulio's burrowing owl research for the National Aeronautics and Space Administration is focused on evaluation of potential impacts to burrowing owls from the proposed development of the 1,840-acre Ames Research Center. MFA occupies approximately 770 acres of this area (Trulio 2001).<br><br>According to Figure 2 of the Burrowing Owl Habitat Management Plan, 19 active owl burrows existed as of December 2000 (Trulio 2001). According to the same figure, 53 owl burrows were occupied during 1998 and 1999, totaling 72 burrows between 1998 and 2000 (Trulio 2001). The figure illustrates distribution of breeding owls at Ames Research Center, including MFA, from 1998 to 2000. An active burrow versus an inactive burrow is not an indicator of burrowing owl declines.<br><br>In fact, according to Dr. Trulio's research, 23 to 27 pairs of owls (46 to 54 individuals) nested at Ames Research Center, which includes MFA, from 1998 to 2000. The burrowing owl population at Ames Research Center, including MFA, is the largest population in the South Bay and constitutes approximately 25 percent of the region's population of 120 owl pairs (Trulio 2001).<br><br>According to Dr. Trulio, the population of burrowing owls at MFA is healthy compared with other populations in the southern San Francisco Bay area. In fact, the population of breeding pairs of burrowing owls has been stable over the past 8 years and is not declining (Trulio 2001). Dr. Trulio attributes this stable population to MFA's management of the owls and their habitat (Trulio 2001).<br><br>The burrowing owl was identified as the indicator species for the ecological risk assessment conducted at MFA. Indicator species are animals or plants that represent either a sensitive individual or population found at the site. No evidence suggests that the burrowing owl has been affected by chemical contamination that may exist at MFA. |

References:

Trulio, Lynne. 2001a. Burrowing Owl Habitat Management Plan: Evaluation of Impacts to Burrowing Owls and Identification of Avoidance and Mitigation Measures for the NASA Ames Development Plan. March.

# RESPONSIVENESS SUMMARY

| | |
|---|---|
| **Written on:** January 10, 2002 | **Received on:** January 10, 2002 |
| **From:** Name not given, San Jose, California | **Submitted Via:** Public Meeting |
| **Affiliation/Agency:** T.H.E. P.U.B.L.I.C. | |

## GENERAL COMMENT

| | |
|---|---|
| **Comment 1:** The Weapons Storage Bunkers should be examined internally for residues. Especially for tritium or radon with attention specifically for A and B radiation. TNT exudates caused by weapon leakages may be on floors. After these reexaminations, the commenter concurs with no further action. | **Response 1:** Building 484 and the high-explosive magazines in the Northern Weapons Storage Bunkers were investigated for radioactive contamination, and no radioactive contamination was found (PRC 1996). Based on the U.S. Department of Navy's stated historical use of the bunkers, the Southern Weapons Storage Bunkers were not tested for radioactive contamination before they were transferred to the California Air National Guard in 1994 (TtEMI 2001). There is no reason to suspect that these facilities were used for storage of radioactive materials (PRC 1996). It would be reasonable to expect to find explosives residues in a weapons bunker. However, there is no reason to expect that the Navy would let their munitions become in such bad (and dangerous) condition that explosives were oozing out. The bunkers were inspected and found to be free of staining or significant cracking and, so, were released for unrestricted use (PRC 1996). Significant releases of explosives should have left some visible evidence. |

References:

PRC Environmental Management, Inc. (PRC). 1996. Final Stationwide Remedial Investigation Report, Moffett Federal Airfield, California. May.
Tetra Tech EM Inc. (TtEMI). 2001. Draft Final Addendum to the Revised Final Stationwide Feasibility Study, Moffett Federal Airfield, California. July.

**Written on:** January 28, 2002

**Received on:** January 28, 2002

**From:** L. Craig Britton, General Manager, Los Altos, California

**Submitted Via:** Facsimile

**Affiliation/Agency:** Midpeninsula Regional Open Space District

## SPECIFIC COMMENT

**Comment 1:** According to the circulating fact sheet, three levels of human exposure were considered to assess the potential for human risk based on the levels of contamination in each of the four studied sites. For Site 23, known as Golf Course Fill Area 3, there were three exposure levels used: residential, occupational, and recreational. Considering that this site is located on recreational, golf course land, residential development is unlikely, but is nonetheless worthy of consideration in the event that the land is converted into housing in the future. However, the sites known as Weapons Storage Bunkers, HHRA Exposure Area 4090 and HHRA Exposure Area 4158, do not provide the same level of human-exposure information. Given the recent preparation of the NASA Development Plan for Moffett Field, and the possibility of additional future development on these lands, all project sites should be assessed for possible human health-exposure risks in residential, occupational, and recreational settings.

A comprehensive exposure assessment that includes the three exposure risks for the sites known as Weapons Storage Bunkers, HHRA Exposure Area 4090 and HHRA Exposure Area 4158 is recommended. Even though there currently may be a very low probability that the existing uses of these sites will change, all possible human-exposure scenarios should be considered in the event that these existing land uses are indeed changed in the future.

We strongly recommend that the environmental investigations for the four sites proposed for No Further Action be revised and expanded to address the issues discussed above before the Record of Decision is made.

**Response 1:** Of the three human health risk scenarios considered at Moffett Federal Airfield (MFA), residential exposure is the most conservative because of the assumed exposure duration and frequency. Therefore, the Navy considered the following factors in the exposure scenario development process: (1) the potential for exposure to the contaminants, (2) the exposure concentration, and, (3) exposure assumptions. The third factor, exposure assumptions, is used to estimate the amount (mass) of chemicals that are taken into the body. Exposure assumptions – which include exposure frequency and duration – are markedly different for the three exposure scenarios. The table below for soil exposure pathways (the primary exposure medium at MFA for the no action sites) summarizes the assumed exposure frequency and duration for the three scenarios considered at MFA.

**EXPOSURE SCENARIO**

**Soil Exposure Pathway**

| | Exposure Frequency<br>Exposure Duration |
|---|---|
| **Residential** | 24 hours/day,<br>350 days/year<br>30 years |
| **Occupational** | 8 hours/day,<br>156 days/year |

| | |
|---|---|
| **Written on:** January 28, 2002 | **Received on:** January 28, 2002 |
| **From:** L. Craig Britton, General Manager, Los Altos, California | **Submitted Via:** Facsimile |
| **Affiliation/Agency:** Midpenninsula Regional Open Space District | |

**SPECIFIC COMMENT**

| | |
|---|---|
| | 25 years<br><br>**Recreational**<br>1 hour/day,<br>156 days/year<br>25 years<br><br>The residential exposure duration is the most conservative of the three scenarios, because exposure assumptions used to estimate chemical intake for this scenario are more conservative (that is, higher) than exposure assumptions used for the other exposure scenarios. These assumptions result in higher risks for the residential exposure scenario than for the occupational and recreational exposure scenarios. Therefore, if the risk associated with the residential exposure scenario is acceptable because it is within or below the U.S. Environmental Protection Agency's risk management range, then the risk associated with occupational and recreational exposure also would be acceptable.<br><br>The Human Health Risk Assessment (HHRA) Exposure Area 4090 was the only site where the Navy did not consider a residential exposure scenario in the proposed plan. However, because there are potential risk issues associated with this site, the HHRA Exposure Area 4090 is no longer identified as a No Action Site in this ROD. This site will be addressed under the ongoing Site 27 investigation of the Northern Channel area. |

**Written on:** January 28, 2002

**Received on:** January 28, 2002

**From:** Libby Lucas, Los Altos, California

**Submitted Via:** E-mail

**Affiliation/Agency:** RAB Member

## SPECIFIC COMMENT

**Comment 1:** In regards the Moffett Federal Airfield Proposed Plan for No Further Action Sites, I do not agree with the evaluation that no further action is necessary for toxic remedial efforts on the Upland Soils area and HHRA Exposure Area 4090.

In the public relations summary of potentially contaminated sites that circulated a decade ago, the contamination hot spots listed within your upland soil boundary area were:

1. Runway landfill; solvents, oils
2. Golf Course landfill; transformer oil (PCB's), solvents (Area 4090)
3. Marriage Road Ditch; solvents, fuels, paints
4. Former industrial wastewater surface impoundments; solvents, fuels, oils
5. Fuel farm french drains; volatile organics
6. Runway Apron; solvents, oils, fuels, paints
7. Unpaved areas surrounding Hangars 2 and 3; paints, oils, solvents, fuels
8. Waste oil transfer area; transformer oil (PCB's), solvents
9. Old fuel farm; paints, oils, solvents
10. Chase Park area (and runway); oils, fuels, solvents
11. Engine test stand area; oils, metals
12. Firefighting training area; fuels, solvents, firefighting agents
13. Equipment parking area (B-142)
14. Abandoned tanks (Nos. 19, 20, 67, & 68); tank contents unknown (19,20 gone)
15. Nine sumps and oil/water separators; oils, neutralized battery acid
16. PW steam rack sump No. 60; petroleum hydrocarbons
17. Paint shop sump No. 61; paints, solvents
18. Dry cleaners sump No. 66; solvents
19. Leaking tanks (Nos. 2,14,43, & 53); fuels, solvents, oils, paint, battery acid

It should be stated to what level these sites have been cleaned of contamination, for human health standards, and for environmental critical species health criteria.

As the underground pumping of the toxic plume lies directly underneath this upland

**Response 1:** To ensure a complete response, the Navy's response has been divided into three sections corresponding to the list of potentially contaminated sites, the groundwater plume, and human health risk assessment (HHRA) Exposure Area 4090.

1. Moffett Federal Airfield (MFA) was divided into upland and wetland areas based on U.S. Fish and Wildlife Service and U.S. Army Corps of Engineers classifications of upland and wetland plant communities for the site-wide ecological assessment (SWEA) (PRC and MW 1997). In the proposed plan for no action sites, upland soils were evaluated only in terms of the ecological risk component. However, upland soils have been analyzed as part of a variety of other investigations at MFA. The 19 potentially contaminated sites listed by the commenter are the original Installation Restoration Program (IRP) sites identified at MFA and lie within the upland soil boundary identified in Figure 2 of the proposed plan. These sites have been investigated under either the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as part of the IRP, or for petroleum related sites, under the State of California Leaking Underground Fuel Tank program. The attached Table 1 outlines the status of each of the 19 sites listed in the comment. The sites have a signed record of decision (ROD), are closed petroleum sites, or currently are being investigated, as indicated in the attached table.

2. The aquifers under MFA have been divided into the west side aquifers and the east side aquifers (Operable Unit [OU] 5). In October 1992, U.S. Environmental Protection Agency (EPA) determined that the regional volatile organic compound plume emanating from the Middlefield-Ellis-Whisman (MEW) Superfund site south of MFA (PRC 1996) affected aquifers on the western side of MFA. Therefore, the EPA determined that the west side aquifers were subject to the 1989 ROD written for the MEW site directing the remediation of these aquifers. A ROD was signed for OU5 in June 1996 (Navy and EPA 1996). The contaminated groundwater in the west side aquifers is currently treated by a treatment system operated by MEW and the Navy's West Side Aquifers Treatment System

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| **Written on:** January 28, 2002 | **Received on:** January 28, 2002 |
| **From:** Libby Lucas, Los Altos, California | **Submitted Via:** E-mail |
| **Affiliation/Agency:** RAB Member | |

**SPECIFIC COMMENT**

| | |
|---|---|
| soil boundary, it should be stated what levels of toxic chemicals and substances remain. What is their direction of movement, up and/or down, sideways, Baywards? What is the rate of speed of their migration? What is the dilution level? When will acceptable levels for underground aquifer water quality be reached, as per Regional Water Quality Control Board's San Francisco Bay Basin Plan?<br><br>The wetlands identified in Area 4090 of the Patrol Road Ditch should be cleaned up to highest wetlands criteria for the welfare of wildlife of this high-caliber habitat that interfaces with endangered species wetlands and marshes of the South Bay. Has this been done to this standard?<br><br>These above-mentioned action sites should be removed from inclusion in this 'no further action plan' until further documentation and remedial action is taken to bring them into full compliance with highest environmental standards. | (WATS). The National Aeronautics and Space<br><br>Administration is also building a third treatment system that will treat these aquifers. The contaminated groundwater in the east side aquifers is being treated by the Navy's East-side Aquifer Treatment System (EATS). More information on the groundwater treatment systems is available in the MFA site information repository.<br><br>3. Because there are potential risk issues associated with this site, the HHRA Exposure Area 4090 is no longer identified as a No Action Site in this ROD. Instead, this site will be addressed under the ongoing Site 27 investigation. |

References:

PRC Environmental Management, Inc. (PRC) and Montgomery Watson (MW). 1997. Final Phase II Site-Wide Ecological Assessment Report, Moffett Federal Airfield, California. July.

PRC. 1996. Final Stationwide Remedial Investigation Report, Moffett Federal Airfield, California. May.

U.S Department of the Navy and U.S. Environmental Protection Agency (EPA). 1996. Final OU5 Record of Decision, Moffett Federal Airfield, California. June.

**Written on:** January 24, 2002

**Received on:** January 28, 2002

**From:** Peter M. Strauss, San Francisco, California

**Submitted Via:** U.S. Mail

**Affiliation/Agency:** Silicon Valley Toxics Coalition (SVTC)

## SPECIFIC COMMENT

**Comment 1:** The Proposed Plan for No Further Action (NFA) Sites at Moffett include Site 23 golf course, weapons bunkers, upland soils, and two Stationwide RI Exposure areas. At this time, SVTC believes that the latter two categories should be withdrawn from the proposed plan. Our reasons are as follows:

1. Upland soils are all areas not defined as wetland, except for the many individual sites. The map (Figure 2) delineates the boundary of Upland Soils for nearly the entire MFA. It also includes a jut of land north of the eastern and western diked marshes, which is the approximate location of the proposed Bay Trail extension. It also appears from the map that some of the area delineated as Upland Soils is wetland, including areas just adjacent to the northern end of the runways.

   If new construction for housing is to occur at Moffett, which is being considered by NASA, analysis and perhaps remediation of some upland soils needs to occur. Although soil has been fairly well characterized in areas suspected of contamination (i.e., the sites), there was less emphasis on the southern parts of Moffett. The Baseline Health Risk Assessment had large areas on the west side where no data was collected. We assume that cleaning up upland soils on the west side of MFA is the Navy's responsibility. Therefore, there should be a mechanism to investigate soil where new construction may take place before the Navy is relieved of liability.

   In addition, the Navy has not signed the Navy has not signed the "carve out" agreement that NASA and MEW signed. (Allocation and Settlement Agreement for MEW Remedial Program Management between the United States Department of the Navy and Fairchild Semiconductor Corporation, Raytheon Company and Intel Corporation, transmitted to the Navy February 25, 2000). This proposal delineates responsibility for cleaning up groundwater among parties. Under the proposed carve out agreement, the Navy would be responsible for a groundwater cleanup from under Hanger 1 to McCord Avenue, a large part of the NASA Research Park parcel, and the entire east side of MFA. SVTC doesn't know what the Navy's objection is to signing this agreement. However,

**Response 1:** The Navy's response addresses the three points listed in the comment related to (1) upland soils, (2) human health risk assessment (HHRA) Exposure Area 4090, and (3) HHRA Exposure Area 4158.

1. During the site-wide ecological assessment (SWEA), Moffett Federal Airfield (MFA) was divided into upland and wetland areas based on U.S. Fish and Wildlife Service and U.S. Army Corps of Engineers classifications of upland and wetland plant communities (PRC and MW 1997). In the proposed plan for no action sites, upland soils were evaluated only in terms of the ecological risk component. Figure 2 of the proposed plan is a graphical, not-to-scale representation of the upland soil boundary that delineates the upland from wetland areas.

   In 1984, the Navy completed an initial assessment study (IAS) of MFA (NEESA 1984). The Navy identified and assessed sites that posed potential threats to human health and the environment. Nine sites initially were identified at MFA that may have received hazardous wastes materials. Nineteen sites subsequently were identified as potentially contaminated and were included in the Installation Restoration Program (IRP), including the nine sites identified in the IAS and 10 sites added during subsequent investigations (PRC 1996).

   The IAS and subsequent investigations were designed to distinguish, based on historical use of the site and the preliminary data collected, between sites that posed little or no threat to human health and the environment and sites that may pose a threat and require further investigation. Once the 19 sites were identified, the U.S. Environmental Protection Agency (EPA) proposed MFA as a National Priorities List (NPL) site and it was placed on the NPL in 1987. (See the attached Table 1 for a list of the 19 sites and the status of investigation and clean up.) Placement on the NPL initiated the Remedial Investigation (RI)/Feasibility Study (FS) process under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Data

**Written on:** January 24, 2002

**Received on:** January 28, 2002

**From:** Peter M. Strauss, San Francisco, California

**Submitted Via:** U.S. Mail

**Affiliation/Agency:** Silicon Valley Toxics Coalition (SVTC)

## SPECIFIC COMMENT

SVTC is concerned that if there were soil contamination associated with groundwater contamination in contested areas, there would not be a clear path for identifying the responsible party. SVTC calls on all parties to sign a comprehensive allocation agreement. We believe that it is necessary prior to any new construction at Moffett.

For these reasons, we respectfully request that Upland Soils be removed from the NFA proposal.

2. Eliminating the Exposure area (4090) in the wetland area from further action raises concerns. Although the occupational exposure scenario for the North Patrol Road ditch is less than EPA regulatory requirements, this area is close to near B-191. B-191 feeds water from the drainage network at Moffett into the Northern Channel. The Northern Channel is being investigated for effects on both human and ecological receptors. It is possible that the excavation or dredging of the Northern Patrol Road Ditch would be part of the remedy, and it is not clear that ecological receptors do not use the ditch for food. As mentioned in the plan, this area is "still being addressed under a separate action". Consequently, this exposure area should not be removed until the Northern Channel investigation is complete.

3. Eliminating Exposure area 4158 from consideration (slightly south of the engine test stand - Site 11) is not recommended until the entire NASA redevelopment plan is finalized and land-use for this area is firmly established. We note that the occupational and residential risks are in the range of $1 \times 10^{-5}$. SVTC believes that exposing people to cancer risks greater than $10^{-6}$ is unacceptable, and every effort should be made to decrease this risk to a de minimus level. Additionally, the Bay Trail is planned to go very close to this area, and recreational and ecological risks should also be considered before eliminating this area from further consideration.

collected during the initial studies were used to plan the RI/FS, which

was coordinated through the Federal Facility Agreement. Subsequent stationwide investigations conducted under CERCLA have resulted in a total of 28 sites. EPA and the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) approved the Final Stationwide RI in 1996. In addition, there is a 1992 Memorandum of Understanding (MOU) between the Navy and the National Aeronautics and Space Administration (NASA) that outlines the Navy's and NASA's responsibilities related to environmental restoration of MFA (Navy and NASA 1992). The Navy clarified environmental responsibilities for transfer of MFA in a MOU clarification letter sent to NASA in 1993 (Navy 1993).

In the proposed plan for no action sites, upland soils were evaluated only in terms of the ecological risk component. Soil contamination that may affect groundwater has been addressed on a site-by-site or Operable Unit (OU) basis. The 1996 OU5 Record of Decision (ROD) addresses groundwater in the east side aquifers (Navy and EPA 1996). The 1989 MEW ROD addresses groundwater in the west side aquifers.

2. Because there are potential risk issues associated with this site, the HHRA Exposure Area 4090 is no longer identified as a No Action Site in this ROD. Instead, this site will be addressed under the ongoing Site 27 investigation.

3. Cancer and noncancer risks for both residential and occupational exposure scenarios at HHRA Exposure Area 4158 are within or below EPA's allowable range. Both EPA and RWQCB have concurred with the final remedy for this site.

Exposure assumptions used to estimate chemical intake for the residential scenario at HHRA Exposure Area 4158 are more conservative (that is, higher) than exposure assumptions used for occupational or recreational exposure scenarios. These assumptions result in higher risks for the residential exposure scenario than for the occupational and recreational exposure

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| **Written on:** January 24, 2002 | **Received on:** January 28, 2002 |
| **From:** Peter M. Strauss, San Francisco, California | **Submitted Via:** U.S. Mail |
| **Affiliation/Agency:** Silicon Valley Toxics Coalition (SVTC) | |

| SPECIFIC COMMENT | |
|---|---|
| | exposure scenarios. These assumptions result in higher risks for the residential exposure scenario than for the occupational and recreational exposure scenarios. Therefore, if the risk associated with the residential exposure scenario is within or below EPA's acceptable risk range, then the risk associated with recreational exposure also would be acceptable.<br><br>Ecological risk was evaluated for HHRA Exposure Area 4158 as part of the SWEA for upland soils. No ecological risk was identified for upland soils. |

References:

Navy Energy and Environmental Support Activity (NEESA). 1984. Initial Assessment Study of NAS Moffett Field. March.

PRC Environmental Management, Inc. (PRC) and Montgomery Watson (MW). 1997. Final Phase II Site-Wide Ecological Assessment Report, Moffett Federal Airfield, California. July.

PRC. 1996. Final Stationwide Remedial Investigation Report, Moffett Federal Airfield, California. May.

U.S. Department of the Navy. 1993. Letter from Henry Gee clarifying environmental responsibilities for transfer of Moffett Federal Airfield, California. October 4.

Navy and U.S. Environmental Protection Agency (EPA). 1996. Final OU5 Record of Decision, Moffett Federal Airfield, California. June.

Navy and National Aeronautics and Space Administration (Navy and NASA). 1992. Memorandum of Understanding Between Department of the Navy and National Aeronautics and Space Administration Regarding Moffett Field, California. December 22.

## STATIONWIDE NO ACTION SITES RECORD OF DECISION
## IDENTIFICATION AND STATUS OF IRP OR PETROLEUM SITES
## MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| Potentially Contaminated Sites from Comment | Corresponding IRP or Petroleum Site | Operable Unit | Status* |
|---|---|---|---|
| Runway landfill; solvents, oils | Site 1 – Runway Landfill | 1 | ROD – August 1997 |
| Golf Course landfill; transformer oil (PCB's), solvents (Area 4090) | Site 2 – Golf Course Former Landfill 1 | 1 | ROD – August 1997 |
| Marriage Road Ditch; solvents, fuels, paints | Site 3 – Marriage Road Ditch | 2-East | ROD – December 1994 |
| Former industrial wastewater surface impoundments; solvents, fuels, oils | Site 4 – Former Wastewater Holding Pond | 2-East | ROD – December 1994 |
| Fuel farm French drains; volatile organics | Petroleum Site 5 – Fuel Farm | Petroleum Site | Ongoing |
| Runway Apron; solvents, oils, fuels, paints | Site 6 – Runway Apron | 2-East | ROD – December 1994 |
| Unpaved areas surrounding Hangars 2 and 3; paints, oils, solvents, fuels | Site 7 – Hangars 2 and 3 | 2-East | ROD – December 1994 |
| Waste oil transfer area; transformer oil (PCB's), solvents | Site 8 – Waste Oil Transfer Area (Tank 78) | 2-West Petroleum Site | Tank Closed November 2000 |
| Old fuel farm; paints, oils, solvents | Petroleum Site 9 – Old Fuel Farm | Petroleum Site | Ongoing |
| Chase Park area (and runway); oils, fuels, solvents | Site 10 – Chase Park and Runway | 2-West and East Petroleum Site | Closed Tanks 15 & 55 August 2000 |
| | | | Ongoing Tanks 104, 132, & 133 |
| Engine test stand area; oils, metals | Site 11 – Engine Test Area | 2-East | ROD – December 1994 |
| Firefighting training area; fuels, solvents, firefighting agents | Petroleum Site 12 – Fire Fighting Training Area | Petroleum Site | Ongoing |
| Equipment parking area (B-142) | Site 13 – Equipment Parking Area | 2-East | ROD - December 1994 |
| Abandoned tanks (Nos. 19, 20, 67, & 68); tank contents unknown (19,20 gone) | Petroleum Site 14 South – Tanks 19 and 20 | Petroleum Site | Ongoing |
| | Site 14 North – Tanks 67 and 68 | 2-West | Closed Tank 67 - June 2000, Tank 68 - Feb. 2001 |
| Nine sumps and oil/water separators; oils, neutralized battery acid | Petroleum Site 15 – Four Sumps, Two Oil/Water Separators, Three USTs, and One Drain | Petroleum Site | Closed Tank 64 - August 2000 |
| | | | Ongoing Tanks 25, 26, 54, 58, 62, 62A, 63, and 130 |

## STATIONWIDE NO ACTION SITES RECORD OF DECISION (Continued)
## IDENTIFICATION AND STATUS OF IRP OR PETROLEUM SITES
## MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| Potentially Contaminated Sites from Comment | Corresponding IRP or Petroleum Site | Operable Unit | Status* |
|---|---|---|---|
| | | | Tank 59 - CANG |
| PW steam rack sump No. 60; petroleum hydrocarbons | OU2-West-Site 16 – PW Steam Rack (Sump 60) | 2-West Petroleum Site | Closed 1993 |
| Paint shop sump No. 61; paints, solvents | OU2-West-Site 17 – Paint Shop (Sump 61) | 2-West | Closed 1993 |
| Dry cleaners sump No. 66; solvents | OU2-West-Site 18 – Dry Cleaners' (Sump 66) | 2-West | Closed 1994 |
| Leaking tanks (Nos. 2,14,43, & 53); fuels, solvents, oils, paint, battery acid | Petroleum Site 19 – Tanks 2, 14, 43, and 53 | Petroleum Site | Tanks 14 & 53 - Dec. 2000, Tank 2 - Jan. 2001, Tank 43 - Feb. 2001 |

**Notes:**

*Status of site indicates date of signed Record of Decision, date of tank closure, or ongoing investigation.

| | |
|---|---|
| CANG | California Air National Guard |
| IRP | Installation Restoration Program |
| OU | Operable unit |
| PCB | Polychlorinated biphenyl |
| PW | Public Works |
| ROD | Record of Decision |
| UST | Underground storage tank |

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Navy Energy and Environmental Support Activity (NEESA). 1984. Initial Assessment Study of NAS Moffett Field. March.

PRC. 1995a. Additional Sites Investigation, Phase II, Draft Final Report, Moffett Federal Airfield, California. August.

PRC. 1995b. Operable Unit 5, Final Feasibility Study Report, Moffett Federal Airfield, California. August.

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Trulio, Lynne. 1997. Written Communication with Stephen Chao, Base Realignment and Closure Environmental Coordinator, U.S. Department of the Navy. June.

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EPA. 1993. Office of Solid Waste and Emergency Response (OSWER) Presumptive Remedy for CERCLA Municipal Landfill Sites. EPA 540-F-93-035. September.

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Navy and EPA. 1996. Final OU5 Record of Decision, Moffett Federal Airfield, California. June.

Navy and National Aeronautics and Space Administration (Navy and NASA). 1992. Memorandum of Understanding Between Department of the Navy and National Aeronautics and Space Administration Regarding Moffett Field, California. December 22.

# FIGURES

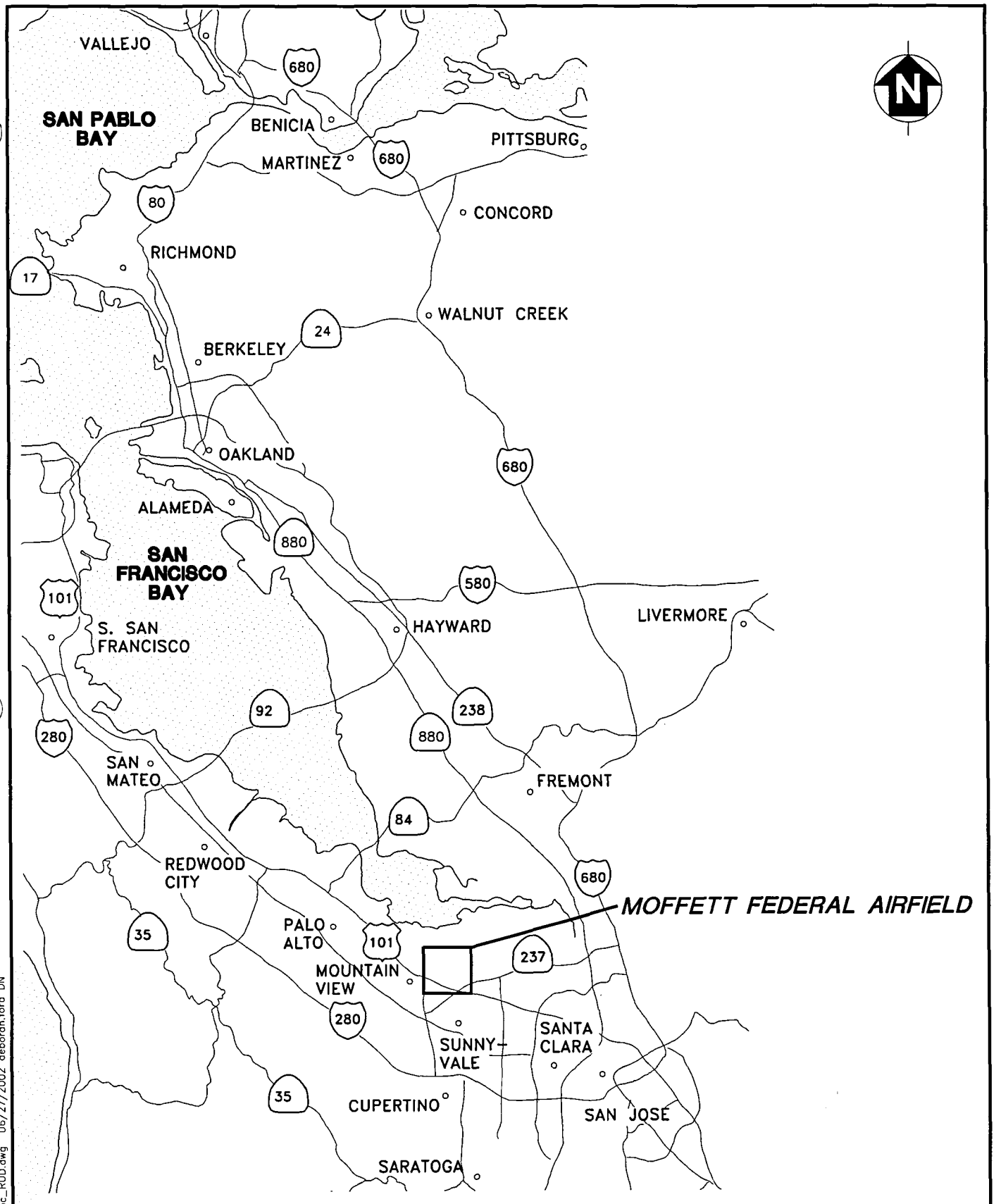


FIGURE 1
MOFFETT FEDERAL AIRFIELD
ROD FOR STATIONWIDE
NO ACTION SITES
REGIONAL LOCATION MAP

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| SITE NO. | SITE NAME |
|---|---|
| 1 | RUNWAY LANDFILL (OU1) |
| 2 | GOLF COURSE LANDFILL (OU1) (CONSOLIDATED AT SITE 1) |
| 3 | MARRIAGE ROAD DITCH (OU2-EAST) |
| 4 | FORMER INDUSTRIAL WASTEWATER SURFACE IMPOUNDMENTS (OU2-EAST) |
| 5 | FUEL FARM FRENCH DRAINS (PETROLEUM SITES) |
| 6 | RUNWAY APRON (OU2-EAST) |
| 7 | HANGARS 2 AND 3 AND SURROUNDING UNPAVED AREAS (OU2-EAST) |
| 8 | WASTE OIL TRANSFER AREA (OU2-WEST) |
| 9 | OLD FUEL FARM (PETROLEUM SITES) |
| 10 | CHASE PARK AREA (OU2-WEST) AND RUNWAYS (OU2-EAST) |
| 11 | ENGINE TEST STAND AREA (OU2-EAST) |
| 12 | FIRE FIGHTING TRAINING AREA (PETROLEUM SITES) |
| 13 | EQUIPMENT PARKING AREA (OU2-EAST) |
| 14 | TANKS 19, 20, 67, AND 68 (REMOVED) (PETROLEUM SITES) |
| 15 | NINE SUMPS AND OIL/WATER SEPARATORS (PETROLEUM SITES) |
| 16 | PW STEAM RACK SUMP NO. 60 (REMOVED) (OU2-WEST) |
| 17 | PAINT SHOP SUMP NO. 61 (REMOVED) (OU2-WEST) |
| 18 | DRY CLEANERS SUMP NO. 66 (REMOVED) (OU2-WEST) |
| 19 | TANKS 2, 14, 43, AND 53 (REMOVED) (PETROLEUM SITES) |
| 20 | ZOOK ROAD FUEL SPILL |
| 21 | PATROL ROAD DITCH |
| 22 | GOLF COURSE LANDFILL #2 |
| 23 | GOLF COURSE FILL AREA #3 |
| 24 | ACTIVE PETROLEUM SITES (HSRF, FUEL PIER, HANGAR 1 PITS) |
| 25 | EASTERN DIKED MARSH AND STORMWATER RETENTION POND (OU6) |
| 26 | EAST SIDE AQUIFERS |
| 27 | NORTHERN CHANNEL (OU6) |
| 28 | WEST SIDE AQUIFERS |

**LEGEND**

- MFA BOUNDARY
- RI/FS SITE
- EVAPORATION POND
- WETLAND
- SITE 26
- SITE 28
- NASA/AMES RESEARCH CENTER BOUNDARY
- REGIONAL GROUNDWATER VOC PLUME

600' 0 600' 1200'
SCALE: 1" = 1200'

FIGURE 2
MOFFETT FEDERAL AIRFIELD
ROD FOR STATIONWIDE NO ACTION SITES
GENERALIZED LOCATION MAP

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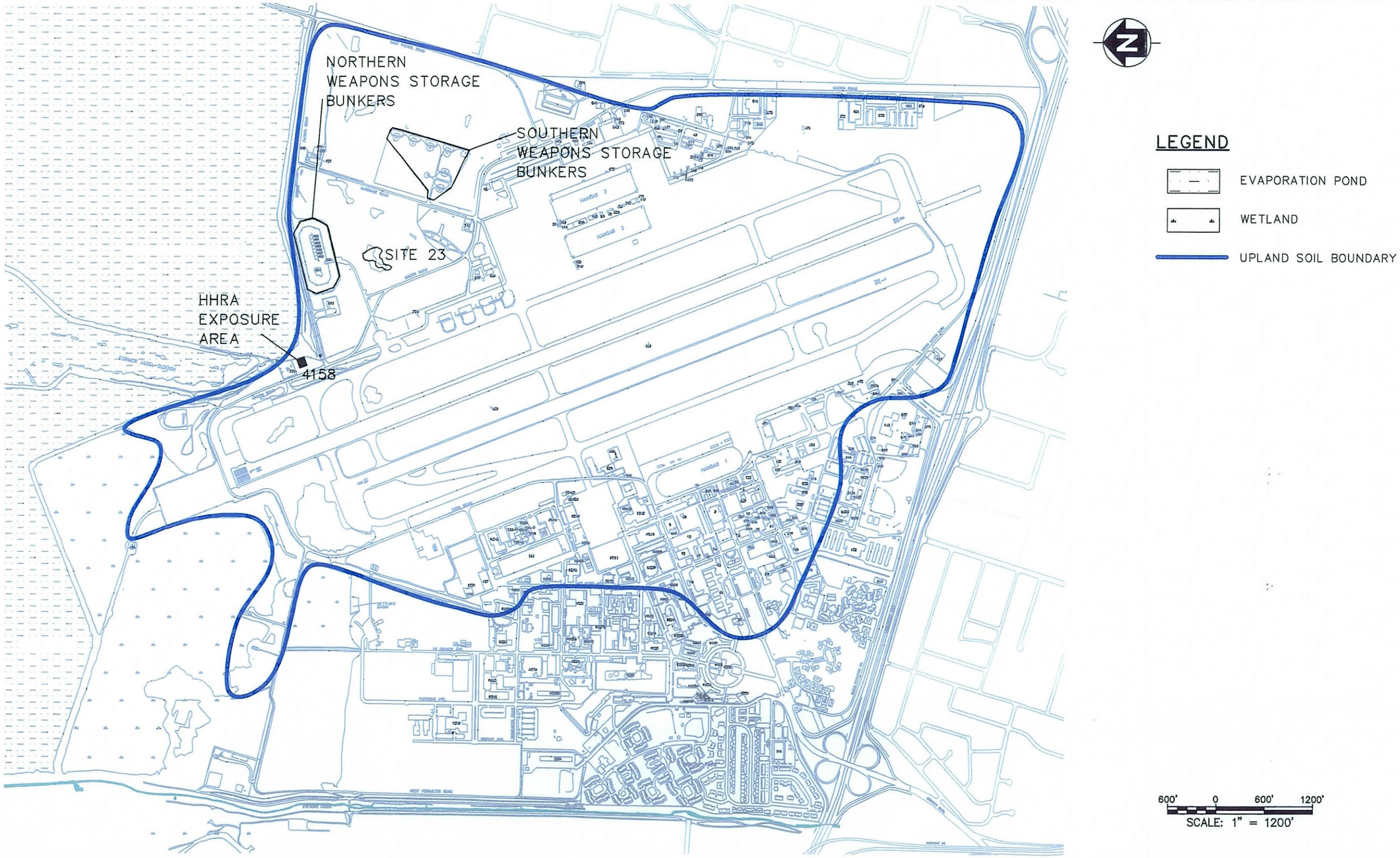


FIGURE 3
MOFFETT FEDERAL AIRFIELD
ROD FOR STATIONWIDE NO ACTION SITES
SITE LOCATION MAP

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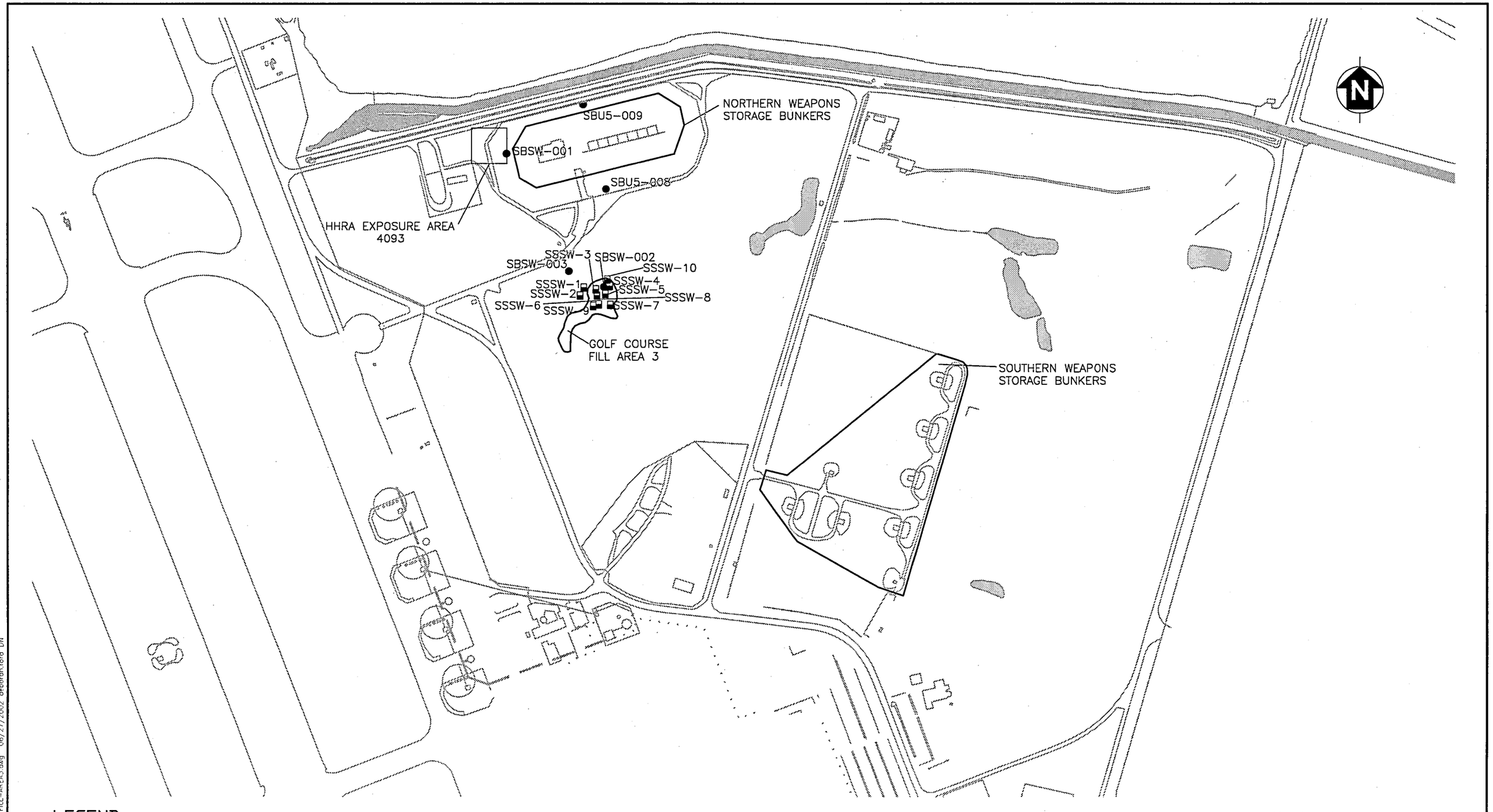


## LEGEND

- ● SBSW-001 SOIL SAMPLE LOCATION
- ■ SSSW-1 SURFACE SOIL SAMPLE LOCATION
- SURFACE WATER BODY

200' 0 200' 400'
SCALE: 1" = 400'

FIGURE 4
MOFFETT FEDERAL AIRFIELD
ROD FOR STATIONWIDE NO ACTION SITES
WEAPONS BUNKERS AND
GOLF COURSE FILL AREA 3 BORING
AND SOIL SAMPLING LOCATION MAP

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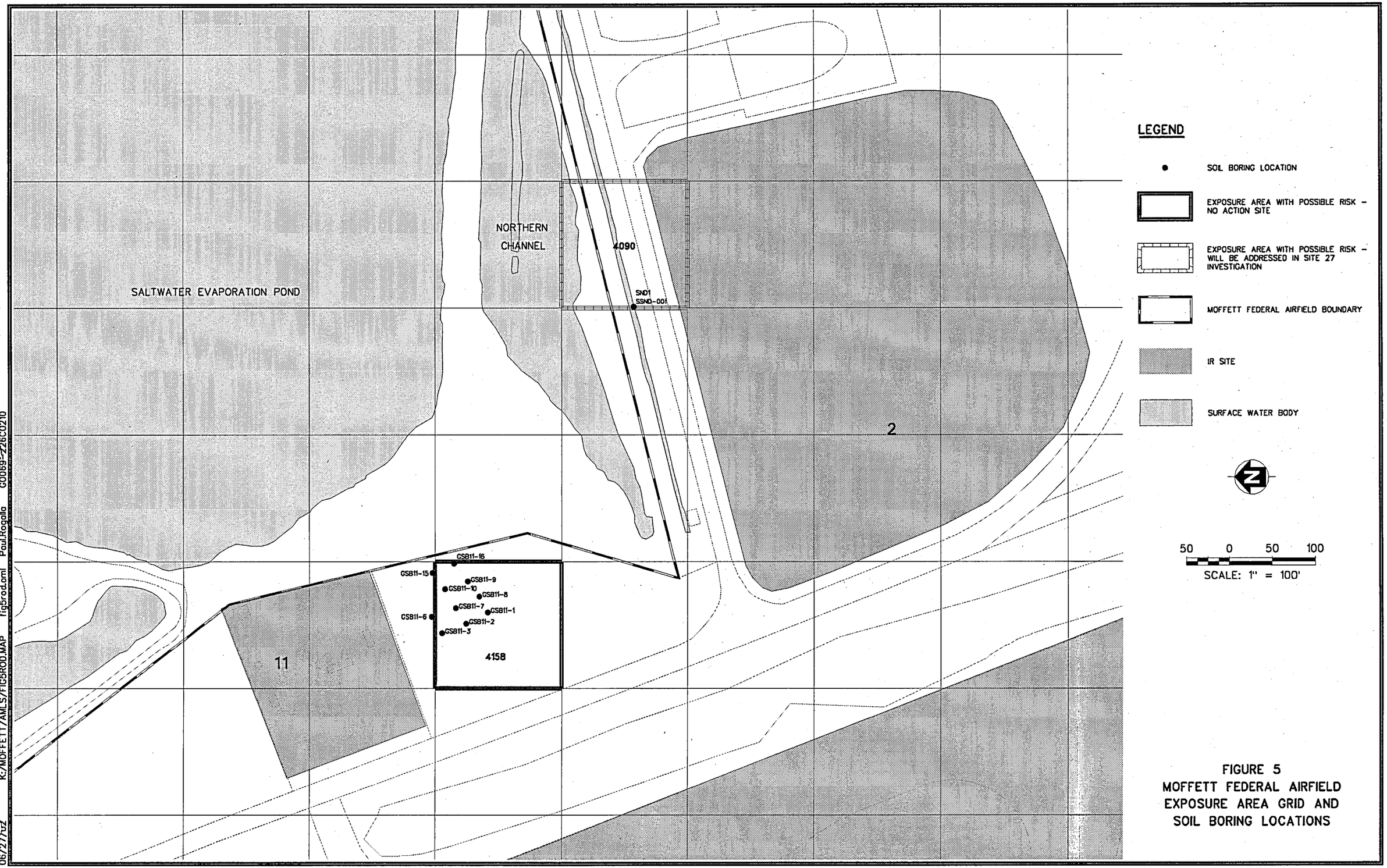


FIGURE 5
MOFFETT FEDERAL AIRFIELD
EXPOSURE AREA GRID AND
SOIL BORING LOCATIONS

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# TABLES

# TABLE 1
## STATIONWIDE NO ACTION SITES RECORD OF DECISION
## SUMMARY OF SOIL SAMPLING DATA FOR SITE 23 - GOLF COURSE FILL AREA 3
## MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| METALS | ALUMINUM | 16 | 16 | 14583.13 | 23400.00 | 8360.00 | mg/kg |
| | ANTIMONY | 6 | 5 | 1.94 | 6.70 | 0.49 | mg/kg |
| | ARSENIC | 16 | 16 | 3.42 | 5.10 | 1.80 | mg/kg |
| | BARIUM | 16 | 15 | 214.02 | 754.00 | 73.30 | mg/kg |
| | BERYLLIUM | 16 | 6 | 0.35 | 0.87 | 0.33 | mg/kg |
| | CADMIUM | 16 | 1 | 0.31 | 2.00 | 2.00 | mg/kg |
| | CALCIUM | 16 | 15 | 59917.50 | 115000.00 | 3600.00 | mg/kg |
| | CHROMIUM | 16 | 15 | 49.75 | 72.10 | 24.50 | mg/kg |
| | COBALT | 16 | 16 | 12.94 | 17.60 | 7.50 | mg/kg |
| | COPPER | 16 | 16 | 28.37 | 39.80 | 19.60 | mg/kg |
| | IRON | 16 | 16 | 22325.00 | 31400.00 | 13000.00 | mg/kg |
| | LEAD | 16 | 10 | 131.58 | 1890.00 | 5.20 | mg/kg |
| | MAGNESIUM | 16 | 16 | 14429.38 | 29100.00 | 7610.00 | mg/kg |
| | MANGANESE | 16 | 16 | 383.50 | 609.00 | 223.00 | mg/kg |
| | MERCURY | 16 | 7 | 0.09 | 0.51 | 0.05 | mg/kg |
| | MOLYBDENUM | 16 | 0 | -- | -- | -- | mg/kg |
| | NICKEL | 16 | 15 | 54.38 | 81.50 | 37.20 | mg/kg |
| | POTASSIUM | 16 | 15 | 1525.25 | 2490.00 | 738.00 | mg/kg |
| | SELENIUM | 16 | 1 | 0.26 | 0.44 | 0.44 | mg/kg |
| | SILVER | 16 | 0 | -- | -- | -- | mg/kg |
| | SODIUM | 16 | 10 | 654.80 | 2900.00 | 22.60 | mg/kg |
| | THALLIUM | 16 | 1 | 0.26 | 0.76 | 0.76 | mg/kg |
| | VANADIUM | 16 | 16 | 50.48 | 68.70 | 25.10 | mg/kg |
| | ZINC | 16 | 12 | 59.69 | 157.00 | 39.30 | mg/kg |
| PESTICIDES/PCBs | 4,4'-DDD | 15 | 0 | -- | -- | -- | ug/kg |
| | 4,4'-DDE | 15 | 3 | 4.85 | 6.10 | 1.80 | ug/kg |
| | 4,4'-DDT | 15 | 3 | 6.54 | 18.00 | 11.00 | ug/kg |
| | ALDRIN | 15 | 0 | -- | -- | -- | ug/kg |
| | ALPHA-BHC | 15 | 0 | -- | -- | -- | ug/kg |
| | ALPHA-CHLORDANE | 15 | 6 | 19.91 | 230.00 | 0.30 | ug/kg |
| | AROCLOR-1016 | 15 | 0 | -- | -- | -- | ug/kg |
| | AROCLOR-1221 | 15 | 0 | -- | -- | -- | ug/kg |

# TABLE 1
## STATIONWIDE NO ACTION SITES RECORD OF DECISION
## SUMMARY OF SOIL SAMPLING DATA FOR SITE 23 - GOLF COURSE FILL AREA 3
## MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| PESTICIDES/PCBs | AROCLOR-1232 | 15 | 0 | -- | -- | -- | ug/kg |
| | AROCLOR-1242 | 15 | 0 | -- | -- | -- | ug/kg |
| | AROCLOR-1248 | 15 | 0 | -- | -- | -- | ug/kg |
| | AROCLOR-1254 | 15 | 0 | -- | -- | -- | ug/kg |
| | AROCLOR-1260 | 15 | 0 | -- | -- | -- | ug/kg |
| | AZINPHOS-METHYL | 1 | 0 | -- | -- | -- | ug/kg |
| | BETA-BHC | 15 | 0 | -- | -- | -- | ug/kg |
| | BOLSTAR | 1 | 0 | -- | -- | -- | ug/kg |
| | CHLORPYRIFOS | 1 | 0 | -- | -- | -- | ug/kg |
| | COUMAPHOS | 1 | 0 | -- | -- | -- | ug/kg |
| | DELTA-BHC | 15 | 0 | -- | -- | -- | ug/kg |
| | DEMETON | 1 | 0 | -- | -- | -- | ug/kg |
| | DIAZINON | 1 | 0 | -- | -- | -- | ug/kg |
| | DICHLOROVOS | 1 | 0 | -- | -- | -- | ug/kg |
| | DIELDRIN | 15 | 1 | 4.02 | 2.50 | 2.50 | ug/kg |
| | DISULFOTON | 1 | 0 | -- | -- | -- | ug/kg |
| | ENDOSULFAN I | 15 | 0 | -- | -- | -- | ug/kg |
| | ENDOSULFAN II | 15 | 0 | -- | -- | -- | ug/kg |
| | ENDOSULFAN SULFATE | 15 | 0 | -- | -- | -- | ug/kg |
| | ENDRIN | 15 | 0 | -- | -- | -- | ug/kg |
| | ENDRIN ALDEHYDE | 15 | 0 | -- | -- | -- | ug/kg |
| | ENDRIN KETONE | 15 | 0 | -- | -- | -- | ug/kg |
| | EPN | 1 | 0 | -- | -- | -- | ug/kg |
| | ETHOPROP | 1 | 0 | -- | -- | -- | ug/kg |
| | FENSULFOTHION | 1 | 0 | -- | -- | -- | ug/kg |
| | FENTHION | 1 | 0 | -- | -- | -- | ug/kg |
| | GAMMA-BHC (LINDANE) | 15 | 0 | -- | -- | -- | ug/kg |
| | GAMMA-CHLORDANE | 15 | 4 | 3.84 | 19.00 | 0.35 | ug/kg |
| | HEPTACHLOR | 15 | 0 | -- | -- | -- | ug/kg |
| | HEPTACHLOR EPOXIDE | 15 | 0 | -- | -- | -- | ug/kg |
| | MALATHION | 1 | 0 | -- | -- | -- | ug/kg |
| | MERPHOS | 1 | 0 | -- | -- | -- | ug/kg |

# TABLE 1
## STATIONWIDE NO ACTION SITES RECORD OF DECISION
## SUMMARY OF SOIL SAMPLING DATA FOR SITE 23 - GOLF COURSE FILL AREA 3
## MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| PESTICIDES/PCBs | METHOXYCHLOR | 15 | 0 | -- | -- | -- | ug/kg |
| | METHYL PARATHION | 1 | 0 | -- | -- | -- | ug/kg |
| | MEVINPHOS | 1 | 0 | -- | -- | -- | ug/kg |
| | NALED | 1 | 0 | -- | -- | -- | ug/kg |
| | PHORATE | 1 | 0 | -- | -- | -- | ug/kg |
| | RONNEL | 1 | 0 | -- | -- | -- | ug/kg |
| | TETRACHLORVINPHOS | 1 | 0 | -- | -- | -- | ug/kg |
| | TOKUTHION | 1 | 0 | -- | -- | -- | ug/kg |
| | TOTAL AROCLOR | 16 | 0 | -- | -- | -- | ug/kg |
| | TOTAL CHLORDANE | 16 | 7 | 22.38 | 234.55 | 0.65 | ug/kg |
| | TOTAL DDT | 16 | 4 | 15.21 | 33.00 | 7.00 | ug/kg |
| | TOXAPHENE | 15 | 0 | -- | -- | -- | ug/kg |
| | TRICHLORONATE | 1 | 0 | -- | -- | -- | ug/kg |
| SVOAs | 1,2,4-TRICHLOROBENZENE | 15 | 0 | -- | -- | -- | ug/kg |
| | 1,2-DICHLOROBENZENE | 15 | 0 | -- | -- | -- | ug/kg |
| | 1,3-DICHLOROBENZENE | 15 | 0 | -- | -- | -- | ug/kg |
| | 1,4-DICHLOROBENZENE | 15 | 0 | -- | -- | -- | ug/kg |
| | 2,2'-OXYBIS(1-CHLOROPROPANE) | 15 | 0 | -- | -- | -- | ug/kg |
| | 2,4,5-TRICHLOROPHENOL | 15 | 0 | -- | -- | -- | ug/kg |
| | 2,4,6-TRICHLOROPHENOL | 15 | 0 | -- | -- | -- | ug/kg |
| | 2,4-DICHLOROPHENOL | 15 | 0 | -- | -- | -- | ug/kg |
| | 2,4-DIMETHYLPHENOL | 15 | 0 | -- | -- | -- | ug/kg |
| | 2,4-DINITROPHENOL | 15 | 0 | -- | -- | -- | ug/kg |
| | 2,4-DINITROTOLUENE | 15 | 0 | -- | -- | -- | ug/kg |
| | 2,6-DINITROTOLUENE | 15 | 0 | -- | -- | -- | ug/kg |
| | 2-CHLORONAPHTHALENE | 15 | 0 | -- | -- | -- | ug/kg |
| | 2-CHLOROPHENOL | 15 | 0 | -- | -- | -- | ug/kg |
| | 2-METHYLNAPHTHALENE | 15 | 0 | -- | -- | -- | ug/kg |
| | 2-METHYLPHENOL | 15 | 0 | -- | -- | -- | ug/kg |
| | 2-NITROANILINE | 15 | 0 | -- | -- | -- | ug/kg |
| | 2-NITROPHENOL | 15 | 0 | -- | -- | -- | ug/kg |
| | 3,3'-DICHLOROBENZIDINE | 15 | 0 | -- | -- | -- | ug/kg |

# TABLE 1
## STATIONWIDE NO ACTION SITES RECORD OF DECISION
## SUMMARY OF SOIL SAMPLING DATA FOR SITE 23 - GOLF COURSE FILL AREA 3
## MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| SVOAs | 3-NITROANILINE | 15 | 0 | -- | -- | -- | ug/kg |
| | 4,6-DINITRO-2-METHYLPHENOL | 15 | 0 | -- | -- | -- | ug/kg |
| | 4-BROMOPHENYL-PHENYLETHER | 15 | 0 | -- | -- | -- | ug/kg |
| | 4-CHLORO-3-METHYLPHENOL | 15 | 0 | -- | -- | -- | ug/kg |
| | 4-CHLOROANILINE | 15 | 0 | -- | -- | -- | ug/kg |
| | 4-CHLOROPHENYL-PHENYLETHER | 15 | 0 | -- | -- | -- | ug/kg |
| | 4-METHYLPHENOL | 15 | 0 | -- | -- | -- | ug/kg |
| | 4-NITROANILINE | 15 | 0 | -- | -- | -- | ug/kg |
| | 4-NITROPHENOL | 15 | 0 | -- | -- | -- | ug/kg |
| | ACENAPHTHENE | 15 | 1 | 228.60 | 29.00 | 29.00 | ug/kg |
| | ACENAPHTHYLENE | 15 | 0 | -- | -- | -- | ug/kg |
| | ANTHRACENE | 15 | 1 | 229.33 | 40.00 | 40.00 | ug/kg |
| | BENZO(A)ANTHRACENE | 15 | 7 | 242.00 | 980.00 | 22.00 | ug/kg |
| | BENZO(A)PYRENE | 15 | 7 | 288.13 | 1600.00 | 26.00 | ug/kg |
| | BENZO(B)FLUORANTHENE | 15 | 7 | 344.87 | 2300.00 | 19.00 | ug/kg |
| | BENZO(G,H,I)PERYLENE | 15 | 2 | 275.00 | 810.00 | 100.00 | ug/kg |
| | BENZO(K)FLUORANTHENE | 15 | 5 | 235.33 | 690.00 | 26.00 | ug/kg |
| | BIS(2-CHLOROETHOXY)METHANE | 15 | 0 | -- | -- | -- | ug/kg |
| | BIS(2-CHLOROETHYL)ETHER | 15 | 0 | -- | -- | -- | ug/kg |
| | BIS(2-ETHYLHEXYL)PHTHALATE | 15 | 6 | 217.80 | 230.00 | 80.00 | ug/kg |
| | BUTYLBENZYLPHTHALATE | 15 | 0 | -- | -- | -- | ug/kg |
| | CARBAZOLE | 15 | 0 | -- | -- | -- | ug/kg |
| | CHRYSENE | 15 | 7 | 261.53 | 1200.00 | 34.00 | ug/kg |
| | DIBENZO(A,H)ANTHRACENE | 15 | 1 | 243.33 | 250.00 | 250.00 | ug/kg |
| | DIBENZOFURAN | 15 | 0 | -- | -- | -- | ug/kg |
| | DIETHYLPHTHALATE | 15 | 0 | -- | -- | -- | ug/kg |
| | DIMETHYLPHTHALATE | 15 | 0 | -- | -- | -- | ug/kg |
| | DI-N-BUTYLPHTHALATE | 15 | 0 | -- | -- | -- | ug/kg |
| | DI-N-OCTYLPHTHALATE | 15 | 0 | -- | -- | -- | ug/kg |
| | FLUORANTHENE | 15 | 7 | 243.47 | 920.00 | 24.00 | ug/kg |
| | FLUORENE | 15 | 0 | -- | -- | -- | ug/kg |
| | HEXACHLOROBENZENE | 15 | 0 | -- | -- | -- | ug/kg |

# TABLE 1
## STATIONWIDE NO ACTION SITES RECORD OF DECISION
## SUMMARY OF SOIL SAMPLING DATA FOR SITE 23 - GOLF COURSE FILL AREA 3
## MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| SVOAs | HEXACHLOROBUTADIENE | 15 | 0 | -- | -- | -- | ug/kg |
| | HEXACHLOROCYCLOPENTADIENE | 15 | 0 | -- | -- | -- | ug/kg |
| | HEXACHLOROETHANE | 15 | 0 | -- | -- | -- | ug/kg |
| | INDENO(1,2,3-CD)PYRENE | 15 | 2 | 273.87 | 810.00 | 83.00 | ug/kg |
| | ISOPHORONE | 15 | 0 | -- | -- | -- | ug/kg |
| | NAPHTHALENE | 15 | 0 | -- | -- | -- | ug/kg |
| | NITROBENZENE | 15 | 0 | -- | -- | -- | ug/kg |
| | N-NITROSO-DI-N-PROPYLAMINE | 15 | 0 | -- | -- | -- | ug/kg |
| | N-NITROSODIPHENYLAMINE | 15 | 0 | -- | -- | -- | ug/kg |
| | PENTACHLOROPHENOL | 15 | 0 | -- | -- | -- | ug/kg |
| | PHENANTHRENE | 15 | 7 | 185.07 | 200.00 | 27.00 | ug/kg |
| | PHENOL | 15 | 0 | -- | -- | -- | ug/kg |
| | PYRENE | 15 | 8 | 258.80 | 1100.00 | 23.00 | ug/kg |
| TOC | TOTAL ORGANIC CARBON | 2 | 2 | 4950.00 | 6100.00 | 3800.00 | mg/kg |
| TPH-EXT | DIESEL RANGE ORGANICS | 1 | 0 | -- | -- | -- | mg/kg |
| | | 14 | 0 | -- | -- | -- | ug/kg |
| | JP4 RANGE ORGANICS | 1 | 0 | -- | -- | -- | mg/kg |
| | JP5 RANGE ORGANICS | 14 | 0 | -- | -- | -- | ug/kg |
| | KEROSENE RANGE ORGANICS | 1 | 0 | -- | -- | -- | mg/kg |
| | | 14 | 0 | -- | -- | -- | ug/kg |
| | MOTOR OIL RANGE ORGANICS | 1 | 0 | -- | -- | -- | mg/kg |
| | | 14 | 10 | 236678.57 | 1600000.00 | 21000.00 | ug/kg |
| TPH-PRG | GASOLINE RANGE ORGANICS | 1 | 0 | -- | -- | -- | mg/kg |
| | | 14 | 0 | -- | -- | -- | ug/kg |
| VOAs | 1,1,1-TRICHLOROETHANE | 16 | 0 | -- | -- | -- | ug/kg |
| | 1,1,2,2-TETRACHLOROETHANE | 16 | 0 | -- | -- | -- | ug/kg |
| | 1,1,2-TRICHLOROETHANE | 16 | 0 | -- | -- | -- | ug/kg |
| | 1,1-DICHLOROETHANE | 16 | 0 | -- | -- | -- | ug/kg |
| | 1,1-DICHLOROETHENE | 16 | 0 | -- | -- | -- | ug/kg |
| | 1,2-DICHLOROETHANE | 16 | 0 | -- | -- | -- | ug/kg |
| | 1,2-DICHLOROETHENE (TOTAL) | 16 | 0 | -- | -- | -- | ug/kg |
| | 1,2-DICHLOROPROPANE | 16 | 0 | -- | -- | -- | ug/kg |

# TABLE 1
## STATIONWIDE NO ACTION SITES RECORD OF DECISION
## SUMMARY OF SOIL SAMPLING DATA FOR SITE 23 - GOLF COURSE FILL AREA 3
## MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| VOAs | 2-BUTANONE | 16 | 0 | -- | -- | -- | ug/kg |
| | 2-HEXANONE | 16 | 0 | -- | -- | -- | ug/kg |
| | 4-METHYL-2-PENTANONE | 16 | 0 | -- | -- | -- | ug/kg |
| | ACETONE | 16 | 1 | 19.47 | 19.00 | 19.00 | ug/kg |
| | BENZENE | 26 | 1 | 3.61 | 5.00 | 5.00 | ug/kg |
| | BROMODICHLOROMETHANE | 16 | 0 | -- | -- | -- | ug/kg |
| | BROMOFORM | 16 | 0 | -- | -- | -- | ug/kg |
| | BROMOMETHANE | 16 | 0 | -- | -- | -- | ug/kg |
| | CARBON DISULFIDE | 16 | 0 | -- | -- | -- | ug/kg |
| | CARBON TETRACHLORIDE | 16 | 0 | -- | -- | -- | ug/kg |
| | CHLOROBENZENE | 16 | 0 | -- | -- | -- | ug/kg |
| | CHLOROETHANE | 16 | 0 | -- | -- | -- | ug/kg |
| | CHLOROFORM | 16 | 0 | -- | -- | -- | ug/kg |
| | CHLOROMETHANE | 16 | 0 | -- | -- | -- | ug/kg |
| | CIS-1,3-DICHLOROPROPENE | 16 | 0 | -- | -- | -- | ug/kg |
| | DIBROMOCHLOROMETHANE | 16 | 0 | -- | -- | -- | ug/kg |
| | ETHYLBENZENE | 26 | 0 | -- | -- | -- | ug/kg |
| | METHYLENE CHLORIDE | 16 | 0 | -- | -- | -- | ug/kg |
| | STYRENE | 16 | 0 | -- | -- | -- | ug/kg |
| | TETRACHLOROETHENE | 16 | 0 | -- | -- | -- | ug/kg |
| | TOLUENE | 26 | 11 | 4.38 | 9.80 | 2.00 | ug/kg |
| | TRANS-1,3-DICHLOROPROPENE | 16 | 0 | -- | -- | -- | ug/kg |
| | TRICHLOROETHENE | 16 | 0 | -- | -- | -- | ug/kg |
| | VINYL CHLORIDE | 16 | 0 | -- | -- | -- | ug/kg |
| | XYLENE (TOTAL) | 26 | 0 | -- | -- | -- | ug/kg |

Note:

1 To calculate the average concentration, one-half the quantitation limit was used for nondetect results. Average values that exceed the maximum detected concentrations are a result of nondetect values with quantitation limits that are greater than the maximum detected value.

BTEX Benzene, toluene, ethylbenzene, and zylene

DDD Dichlorodiphenyldichloroethane

# TABLE 1
## STATIONWIDE NO ACTION SITES RECORD OF DECISION
## SUMMARY OF SOIL SAMPLING DATA FOR SITE 23 - GOLF COURSE FILL AREA 3
## MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| DDE | Dichlorodiphenyldichloroethylene | | | | | | |
| DDT | Dichlorodiphenyltrichloroethane | | | | | | |
| µg/kg | Micrograms per kilogram | | | | | | |
| mg/kg | Milligrams per kilogram | | | | | | |
| SVOA | Semivolatile organic analytes | | | | | | |
| TPHEXT | Total petroleum hydrocarbons extractables | | | | | | |
| TPHPRG | Total petroleum hydrocarbons purgables | | | | | | |
| VOA | Volatile organic analytes | | | | | | |

Summary data from stationwide sampling locations SBSW-002, SBSW-003, SSSW-001 through SSSW-010, SBFGP-002 and SBFGP-003.

# TABLE 2
## STATIONWIDE NO ACTION SITES RECORD OF DECISION
## SUMMARY OF SOIL SAMPLING DATA FOR THE WEAPONS STORAGE BUNKERS
## MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| VOAs | | | | | | | |
| | 1,1,1-TRICHLOROETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | 1,1,2,2-TETRACHLOROETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | 1,1,2-TRICHLOROETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | 1,1-DICHLOROETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | 1,1-DICHLOROETHENE | 4 | 0 | -- | -- | -- | µg/kg |
| | 1,2-DICHLOROETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | 1,2-DICHLOROETHENE (TOTAL) | 4 | 0 | -- | -- | -- | µg/kg |
| | 1,2-DICHLOROPROPANE | 4 | 0 | -- | -- | -- | µg/kg |
| | 2-BUTANONE | 4 | 0 | -- | -- | -- | µg/kg |
| | 2-HEXANONE | 4 | 0 | -- | -- | -- | µg/kg |
| | 4-METHYL-2-PENTANONE | 4 | 0 | -- | -- | -- | µg/kg |
| | ACETONE | 4 | 0 | -- | -- | -- | µg/kg |
| | BENZENE | 4 | 0 | -- | -- | -- | µg/kg |
| | BROMODICHLOROMETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | BROMOFORM | 4 | 0 | -- | -- | -- | µg/kg |
| | BROMOMETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | CARBON DISULFIDE | 4 | 0 | -- | -- | -- | µg/kg |
| | CARBON TETRACHLORIDE | 4 | 0 | -- | -- | -- | µg/kg |
| | CHLOROBENZENE | 4 | 0 | -- | -- | -- | µg/kg |
| | CHLOROETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | CHLOROFORM | 4 | 0 | -- | -- | -- | µg/kg |
| | CHLOROMETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | CIS-1,3-DICHLOROPROPENE | 4 | 0 | -- | -- | -- | µg/kg |
| | DIBROMOCHLOROMETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | ETHYLBENZENE | 4 | 0 | -- | -- | -- | µg/kg |
| | METHYLENE CHLORIDE | 4 | 0 | -- | -- | -- | µg/kg |
| | STYRENE | 4 | 0 | -- | -- | -- | µg/kg |
| | TETRACHLOROETHENE | 4 | 0 | -- | -- | -- | µg/kg |
| | TOLUENE | 4 | 0 | -- | -- | -- | µg/kg |
| | TRANS-1,3-DICHLOROPROPENE | 4 | 0 | -- | -- | -- | µg/kg |
| | TRICHLOROETHENE | 4 | 0 | -- | -- | -- | µg/kg |
| | VINYL CHLORIDE | 4 | 0 | -- | -- | -- | µg/kg |
| | XYLENE (TOTAL) | 4 | 0 | -- | -- | -- | µg/kg |

# TABLE 2
## STATIONWIDE NO ACTION SITES RECORD OF DECISION
## SUMMARY OF SOIL SAMPLING DATA FOR THE WEAPONS STORAGE BUNKERS
## MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| SVOAs | | | | | | | |
| | 1,2,4-TRICHLOROBENZENE | 2 | 0 | -- | -- | -- | µg/kg |
| | 1,2-DICHLOROBENZENE | 2 | 0 | -- | -- | -- | µg/kg |
| | 1,3-DICHLOROBENZENE | 2 | 0 | -- | -- | -- | µg/kg |
| | 1,4-DICHLOROBENZENE | 2 | 0 | -- | -- | -- | µg/kg |
| | 2,2'-OXYBIS(1-CHLOROPROPANE) | 2 | 0 | -- | -- | -- | µg/kg |
| | 2,4,5-TRICHLOROPHENOL | 2 | 0 | -- | -- | -- | µg/kg |
| | 2,4,6-TRICHLOROPHENOL | 2 | 0 | -- | -- | -- | µg/kg |
| | 2,4-DICHLOROPHENOL | 2 | 0 | -- | -- | -- | µg/kg |
| | 2,4-DIMETHYLPHENOL | 2 | 0 | -- | -- | -- | µg/kg |
| | 2,4-DINITROPHENOL | 2 | 0 | -- | -- | -- | µg/kg |
| | 2,4-DINITROTOLUENE | 2 | 0 | -- | -- | -- | µg/kg |
| | 2,6-DINITROTOLUENE | 2 | 0 | -- | -- | -- | µg/kg |
| | 2-CHLORONAPHTHALENE | 2 | 0 | -- | -- | -- | µg/kg |
| | 2-CHLOROPHENOL | 2 | 0 | -- | -- | -- | µg/kg |
| | 2-METHYLNAPHTHALENE | 2 | 0 | -- | -- | -- | µg/kg |
| | 2-METHYLPHENOL | 2 | 0 | -- | -- | -- | µg/kg |
| | 2-NITROANILINE | 2 | 0 | -- | -- | -- | µg/kg |
| | 2-NITROPHENOL | 2 | 0 | -- | -- | -- | µg/kg |
| | 3,3'-DICHLOROBENZIDINE | 2 | 0 | -- | -- | -- | µg/kg |
| | 3-NITROANILINE | 2 | 0 | -- | -- | -- | µg/kg |
| | 4,6-DINITRO-2-METHYLPHENOL | 2 | 0 | -- | -- | -- | µg/kg |
| | 4-BROMOPHENYL-PHENYLETHER | 2 | 0 | -- | -- | -- | µg/kg |
| | 4-CHLORO-3-METHYLPHENOL | 2 | 0 | -- | -- | -- | µg/kg |
| | 4-CHLOROANILINE | 2 | 0 | -- | -- | -- | µg/kg |
| | 4-CHLOROPHENYL-PHENYLETHER | 2 | 0 | -- | -- | -- | µg/kg |
| | 4-METHYLPHENOL | 2 | 0 | -- | -- | -- | µg/kg |
| | 4-NITROANILINE | 2 | 0 | -- | -- | -- | µg/kg |
| | 4-NITROPHENOL | 2 | 0 | -- | -- | -- | µg/kg |
| | ACENAPHTHENE | 2 | 0 | -- | -- | -- | µg/kg |
| | ACENAPHTHYLENE | 2 | 0 | -- | -- | -- | µg/kg |
| | ANTHRACENE | 2 | 0 | -- | -- | -- | µg/kg |
| | BENZO(A)ANTHRACENE | 2 | 0 | -- | -- | -- | µg/kg |

# TABLE 2
## STATIONWIDE NO ACTION SITES RECORD OF DECISION
## SUMMARY OF SOIL SAMPLING DATA FOR THE WEAPONS STORAGE BUNKERS
## MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| SVOAs | BENZO(A)PYRENE | 2 | 0 | -- | -- | -- | µg/kg |
| | BENZO(B)FLUORANTHENE | 2 | 0 | -- | -- | -- | µg/kg |
| | BENZO(G,H,I)PERYLENE | 2 | 0 | -- | -- | -- | µg/kg |
| | BENZO(K)FLUORANTHENE | 2 | 0 | -- | -- | -- | µg/kg |
| | BIS(2-CHLOROETHOXY)METHANE | 2 | 0 | -- | -- | -- | µg/kg |
| | BIS(2-CHLOROETHYL)ETHER | 2 | 0 | -- | -- | -- | µg/kg |
| | BIS(2-ETHYLHEXYL)PHTHALATE | 2 | 0 | -- | -- | -- | µg/kg |
| | BUTYLBENZYLPHTHALATE | 2 | 0 | -- | -- | -- | µg/kg |
| | CARBAZOLE | 2 | 0 | -- | -- | -- | µg/kg |
| | CHRYSENE | 2 | 0 | -- | -- | -- | µg/kg |
| | DIBENZO(A,H)ANTHRACENE | 2 | 0 | -- | -- | -- | µg/kg |
| | DIBENZOFURAN | 2 | 0 | -- | -- | -- | µg/kg |
| | DIETHYLPHTHALATE | 2 | 0 | -- | -- | -- | µg/kg |
| | DIMETHYLPHTHALATE | 2 | 0 | -- | -- | -- | µg/kg |
| | DI-N-BUTYLPHTHALATE | 2 | 0 | -- | -- | -- | µg/kg |
| | DI-N-OCTYLPHTHALATE | 2 | 0 | -- | -- | -- | µg/kg |
| | FLUORANTHENE | 2 | 0 | -- | -- | -- | µg/kg |
| | FLUORENE | 2 | 0 | -- | -- | -- | µg/kg |
| | HEXACHLOROBENZENE | 2 | 0 | -- | -- | -- | µg/kg |
| | HEXACHLOROBUTADIENE | 2 | 0 | -- | -- | -- | µg/kg |
| | HEXACHLOROCYCLOPENTADIENE | 2 | 0 | -- | -- | -- | µg/kg |
| | HEXACHLOROETHANE | 2 | 0 | -- | -- | -- | µg/kg |
| | INDENO(1,2,3-CD)PYRENE | 2 | 0 | -- | -- | -- | µg/kg |
| | ISOPHORONE | 2 | 0 | -- | -- | -- | µg/kg |
| | NAPHTHALENE | 2 | 0 | -- | -- | -- | µg/kg |
| | NITROBENZENE | 2 | 0 | -- | -- | -- | µg/kg |
| | N-NITROSO-DI-N-PROPYLAMINE | 2 | 0 | -- | -- | -- | µg/kg |
| | N-NITROSODIPHENYLAMINE | 2 | 0 | -- | -- | -- | µg/kg |
| | PENTACHLOROPHENOL | 2 | 0 | -- | -- | -- | µg/kg |
| | PHENANTHRENE | 2 | 0 | -- | -- | -- | µg/kg |
| | PHENOL | 2 | 0 | -- | -- | -- | µg/kg |
| | PYRENE | 2 | 0 | -- | -- | -- | µg/kg |

# TABLE 2
## STATIONWIDE NO ACTION SITES RECORD OF DECISION
## SUMMARY OF SOIL SAMPLING DATA FOR THE WEAPONS STORAGE BUNKERS
## MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| TPH-EXT | | | | | | | |
| | DIESEL RANGE ORGANICS | 2 | 0 | -- | -- | -- | µg/kg |
| | JP5 RANGE ORGANICS | 2 | 0 | -- | -- | -- | µg/kg |
| | KEROSENE RANGE ORGANICS | 2 | 0 | -- | -- | -- | µg/kg |
| | MOTOR OIL RANGE ORGANICS | 2 | 0 | -- | -- | -- | µg/kg |
| TPH-PRG | | | | | | | |
| | GASOLINE RANGE ORGANICS | 2 | 0 | -- | -- | -- | µg/kg |
| | | | | | | | |
| PESTICIDES/PCBs | | | | | | | |
| | 4,4'-DDD | 2 | 0 | -- | -- | -- | µg/kg |
| | 4,4'-DDE | 2 | 0 | -- | -- | -- | µg/kg |
| | 4,4'-DDT | 2 | 0 | -- | -- | -- | µg/kg |
| | ALDRIN | 2 | 0 | -- | -- | -- | µg/kg |
| | ALPHA-BHC | 2 | 0 | -- | -- | -- | µg/kg |
| | ALPHA-CHLORDANE | 2 | 0 | -- | -- | -- | µg/kg |
| | AROCLOR-1016 | 2 | 0 | -- | -- | -- | µg/kg |
| | AROCLOR-1221 | 2 | 0 | -- | -- | -- | µg/kg |
| | AROCLOR-1232 | 2 | 0 | -- | -- | -- | µg/kg |
| | AROCLOR-1242 | 2 | 0 | -- | -- | -- | µg/kg |
| | AROCLOR-1248 | 2 | 0 | -- | -- | -- | µg/kg |
| | AROCLOR-1254 | 2 | 0 | -- | -- | -- | µg/kg |
| | AROCLOR-1260 | 2 | 0 | -- | -- | -- | µg/kg |
| | BETA-BHC | 2 | 0 | -- | -- | -- | µg/kg |
| | DELTA-BHC | 2 | 0 | -- | -- | -- | µg/kg |
| | DIELDRIN | 2 | 0 | -- | -- | -- | µg/kg |
| | ENDOSULFAN I | 2 | 0 | -- | -- | -- | µg/kg |
| | ENDOSULFAN II | 2 | 0 | -- | -- | -- | µg/kg |
| | ENDOSULFAN SULFATE | 2 | 0 | -- | -- | -- | µg/kg |
| | ENDRIN | 2 | 0 | -- | -- | -- | µg/kg |
| | ENDRIN ALDEHYDE | 2 | 0 | -- | -- | -- | µg/kg |
| | ENDRIN KETONE | 2 | 0 | -- | -- | -- | µg/kg |
| | GAMMA-BHC (LINDANE) | 2 | 0 | -- | -- | -- | µg/kg |
| | GAMMA-CHLORDANE | 2 | 0 | -- | -- | -- | µg/kg |
| | HEPTACHLOR | 2 | 0 | -- | -- | -- | µg/kg |

# TABLE 2
## STATIONWIDE NO ACTION SITES RECORD OF DECISION
## SUMMARY OF SOIL SAMPLING DATA FOR THE WEAPONS STORAGE BUNKERS
## MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| PESTICIDES/PCBs | HEPTACHLOR EPOXIDE | 2 | 0 | -- | -- | -- | µg/kg |
| | METHOXYCHLOR | 2 | 0 | -- | -- | -- | µg/kg |
| | TOTAL AROCLOR | 2 | 0 | -- | -- | -- | µg/kg |
| | TOTAL CHLORDANE | 2 | 0 | -- | -- | -- | µg/kg |
| | TOTAL DDT | 2 | 0 | -- | -- | -- | µg/kg |
| | TOXAPHENE | 2 | 0 | -- | -- | -- | µg/kg |
| | | | | | | | |
| METALS | | | | | | | |
| | ALUMINUM | 2 | 2 | 16,450.00 | 20,800.00 | 12,100.00 | mg/kg |
| | ANTIMONY | 2 | 2 | 0.60 | 0.66 | 0.53 | mg/kg |
| | ARSENIC | 2 | 2 | 3.45 | 3.90 | 3.00 | mg/kg |
| | BARIUM | 2 | 2 | 163.70 | 231.00 | 96.40 | mg/kg |
| | BERYLLIUM | 2 | 2 | 0.57 | 0.73 | 0.41 | mg/kg |
| | CADMIUM | 2 | 0 | -- | -- | -- | mg/kg |
| | CALCIUM | 2 | 2 | 24,600.00 | 26,700.00 | 22,500.00 | mg/kg |
| | CHROMIUM | 2 | 2 | 51.45 | 60.70 | 42.20 | mg/kg |
| | COBALT | 2 | 2 | 11.75 | 12.70 | 10.80 | mg/kg |
| | COPPER | 2 | 2 | 26.35 | 30.00 | 22.70 | mg/kg |
| | IRON | 2 | 2 | 23,900.00 | 27,200.00 | 20,600.00 | mg/kg |
| | LEAD | 2 | 0 | -- | -- | -- | mg/kg |
| | MAGNESIUM | 2 | 2 | 14,300.00 | 18,600.00 | 10,000.00 | mg/kg |
| | MANGANESE | 2 | 2 | 281.00 | 300.00 | 262.00 | mg/kg |
| | MERCURY | 2 | 0 | -- | -- | -- | mg/kg |
| | MOLYBDENUM | 2 | 0 | -- | -- | -- | mg/kg |
| | NICKEL | 2 | 2 | 56.35 | 64.50 | 48.20 | mg/kg |
| | POTASSIUM | 2 | 2 | 1,395.00 | 1,460.00 | 1,330.00 | mg/kg |
| | SELENIUM | 2 | 0 | -- | -- | -- | mg/kg |
| | SILVER | 2 | 0 | -- | -- | -- | mg/kg |
| | SODIUM | 2 | 1 | 1,205.50 | 2,210.00 | 2,210.00 | mg/kg |
| | THALLIUM | 2 | 1 | 0.44 | 0.62 | 0.62 | mg/kg |

# TABLE 2
## STATIONWIDE NO ACTION SITES RECORD OF DECISION
## SUMMARY OF SOIL SAMPLING DATA FOR THE WEAPONS STORAGE BUNKERS
## MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| METALS | VANADIUM | 2 | 2 | 51.50 | 59.80 | 43.20 | mg/kg |
| | ZINC | 2 | 0 | -- | -- | -- | mg/kg |

Note:

[1] To calculate the average concentration, one-half the quantitation limit was used for nondetect results. Average values that exceed the maximum detected concentrations are a result of nondetect values with quantitation limits that are greater than the maximum detected value.

| | |
|---|---|
| BTEX | Benzene, toluene, ethylbenzene, and xylene |
| DDD | Dichlorodiphenyldichloroethane |
| DDE | Dichlorodiphenyldichloroethylene |
| DDT | Dichlorodiphenyltrichloroethane |
| µg/kg | Micrograms per kilogram |
| mg/kg | Milligrams per kilogram |
| SVOA | Semivolatile organic analytes |
| TPHEXT | Total petroleum hydrocarbons extractables |
| TPHPRG | Total petroleum hydrocarbons purgables |
| VOA | Volatile organic analytes |

TABLE 3
STATIONWIDE NO ACTION SITES RECORD OF DECISION
SUMMARY OF SOIL SAMPLING DATA FOR HUMAN HEALTH RISK ASSESSMENT EXPOSURE AREA 4158
MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| VOCs | | | | | | | |
| | 1,1,1-TRICHLOROETHANE | 4 | 2 | 2.63 | 3.00 | 2.00 | µg/kg |
| | 1,1,2,2-TETRACHLOROETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | 1,1,2-TRICHLOROETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | 1,1-DICHLOROETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | 1,1-DICHLOROETHENE | 4 | 0 | -- | -- | -- | µg/kg |
| | 1,2-DICHLOROETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | 1,2-DICHLOROETHENE (TOTAL) | 4 | 0 | -- | -- | -- | µg/kg |
| | 1,2-DICHLOROPROPANE | 4 | 0 | -- | -- | -- | µg/kg |
| | 2-BUTANONE | 4 | 0 | -- | -- | -- | µg/kg |
| | 2-HEXANONE | 4 | 0 | -- | -- | -- | µg/kg |
| | 4-METHYL-2-PENTANONE | 4 | 0 | -- | -- | -- | µg/kg |
| | ACETONE | 4 | 0 | -- | -- | -- | µg/kg |
| | BENZENE | 4 | 0 | -- | -- | -- | µg/kg |
| | BROMODICHLOROMETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | BROMOFORM | 4 | 0 | -- | -- | -- | µg/kg |
| | BROMOMETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | CARBON DISULFIDE | 4 | 0 | -- | -- | -- | µg/kg |
| | CARBON TETRACHLORIDE | 4 | 0 | -- | -- | -- | µg/kg |
| | CHLOROBENZENE | 4 | 0 | -- | -- | -- | µg/kg |
| | CHLOROETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | CHLOROFORM | 4 | 0 | -- | -- | -- | µg/kg |
| | CHLOROMETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | CIS-1,3-DICHLOROPROPENE | 4 | 0 | -- | -- | -- | µg/kg |
| | DIBROMOCHLOROMETHANE | 4 | 0 | -- | -- | -- | µg/kg |
| | ETHYLBENZENE | 4 | 0 | -- | -- | -- | µg/kg |
| | METHYLENE CHLORIDE | 4 | 0 | -- | -- | -- | µg/kg |
| | STYRENE | 4 | 0 | -- | -- | -- | µg/kg |
| | TETRACHLOROETHENE | 4 | 0 | -- | -- | -- | µg/kg |
| | TOLUENE | 4 | 0 | -- | -- | -- | µg/kg |
| | TRANS-1,3-DICHLOROPROPENE | 4 | 0 | -- | -- | -- | µg/kg |
| | TRICHLOROETHENE | 4 | 0 | -- | -- | -- | µg/kg |
| | VINYL ACETATE | 4 | 0 | -- | -- | -- | µg/kg |
| | VINYL CHLORIDE | 4 | 0 | -- | -- | -- | µg/kg |
| | XYLENES (TOTAL) | 4 | 0 | -- | -- | -- | µg/kg |

TABLE 3
STATIONWIDE NO ACTION SITES RECORD OF DECISION
SUMMARY OF SOIL SAMPLING DATA FOR HUMAN HEALTH RISK ASSESSMENT EXPOSURE AREA 4158
MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| SVOAs | | | | | | | |
| | 1,2,4-TRICHLOROBENZENE | 13 | 0 | -- | -- | -- | µg/kg |
| | 1,2-DICHLOROBENZENE | 13 | 0 | -- | -- | -- | µg/kg |
| | 1,3-DICHLOROBENZENE | 13 | 0 | -- | -- | -- | µg/kg |
| | 1,4-DICHLOROBENZENE | 13 | 0 | -- | -- | -- | µg/kg |
| | 2,2'-OXYBIS(1-CHLOROPROPANE) | 13 | 0 | -- | -- | -- | µg/kg |
| | 2,4,5-TRICHLOROPHENOL | 13 | 0 | -- | -- | -- | µg/kg |
| | 2,4,6-TRICHLOROPHENOL | 13 | 0 | -- | -- | -- | µg/kg |
| | 2,4-DICHLOROPHENOL | 13 | 0 | -- | -- | -- | µg/kg |
| | 2,4-DIMETHYLPHENOL | 13 | 0 | -- | -- | -- | µg/kg |
| | 2,4-DINITROPHENOL | 13 | 0 | -- | -- | -- | µg/kg |
| | 2,4-DINITROTOLUENE | 13 | 0 | -- | -- | -- | µg/kg |
| | 2,6-DINITROTOLUENE | 13 | 0 | -- | -- | -- | µg/kg |
| | 2-CHLORONAPHTHALENE | 13 | 0 | -- | -- | -- | µg/kg |
| | 2-CHLOROPHENOL | 13 | 0 | -- | -- | -- | µg/kg |
| | 2-METHYLNAPHTHALENE | 13 | 0 | -- | -- | -- | µg/kg |
| | 2-METHYLPHENOL | 13 | 0 | -- | -- | -- | µg/kg |
| | 2-NITROANILINE | 13 | 0 | -- | -- | -- | µg/kg |
| | 2-NITROPHENOL | 13 | 0 | -- | -- | -- | µg/kg |
| | 3,3'-DICHLOROBENZIDINE | 13 | 0 | -- | -- | -- | µg/kg |
| | 3-NITROANILINE | 13 | 0 | -- | -- | -- | µg/kg |
| | 4,6-DINITRO-2-METHYLPHENOL | 13 | 0 | -- | -- | -- | µg/kg |
| | 4-BROMOPHENYL-PHENYL ETHER | 13 | 0 | -- | -- | -- | µg/kg |
| | 4-CHLORO-3-METHYLPHENOL | 13 | 0 | -- | -- | -- | µg/kg |
| | 4-CHLOROANILINE | 13 | 0 | -- | -- | -- | µg/kg |
| | 4-CHLOROPHENYL-PHENYL ETHER | 13 | 0 | -- | -- | -- | µg/kg |
| | 4-METHYLPHENOL | 13 | 0 | -- | -- | -- | µg/kg |
| | 4-NITROANILINE | 13 | 0 | -- | -- | -- | µg/kg |
| | 4-NITROPHENOL | 13 | 0 | -- | -- | -- | µg/kg |
| | ACENAPHTHENE | 13 | 0 | -- | -- | -- | µg/kg |
| | ACENAPHTHYLENE | 13 | 0 | -- | -- | -- | µg/kg |
| | ANTHRACENE | 13 | 0 | -- | -- | -- | µg/kg |
| | BENZO(A)ANTHRACENE | 13 | 2 | 858.08 | 310.00 | 140.00 | µg/kg |
| | BENZO(A)PYRENE | 13 | 3 | 871.15 | 300.00 | 100.00 | µg/kg |
| | BENZO(B)FLUORANTHENE | 13 | 5 | 834.23 | 420.00 | 120.00 | µg/kg |

TABLE 3
STATIONWIDE NO ACTION SITES RECORD OF DECISION
SUMMARY OF SOIL SAMPLING DATA FOR HUMAN HEALTH RISK ASSESSMENT EXPOSURE AREA 4158
MOFFETT FEDERAL AIRFIELD, CALIFORNIA

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| SVOAs | BENZO(G,H,I)PERYLENE | 13 | 3 | 883.46 | 380.00 | 120.00 | µg/kg |
| | BENZO(K)FLUORANTHENE | 13 | 2 | 874.23 | 220.00 | 130.00 | µg/kg |
| | BENZOIC ACID | 13 | 1 | 4,414.77 | 42.00 | 42.00 | µg/kg |
| | BENZYL ALCOHOL | 13 | 0 | -- | -- | -- | µg/kg |
| | BIS(2-CHLOROETHOXY)METHANE | 13 | 0 | -- | -- | -- | µg/kg |
| | BIS(2-CHLOROETHYL)ETHER | 13 | 0 | -- | -- | -- | µg/kg |
| | BIS(2-ETHYLHEXYL)PHTHALATE | 13 | 6 | 820.69 | 190.00 | 49.00 | µg/kg |
| | BUTYLBENZYLPHTHALATE | 13 | 0 | -- | -- | -- | µg/kg |
| | CHRYSENE | 13 | 5 | 821.54 | 430.00 | 61.00 | µg/kg |
| | DIBENZO(A,H)ANTHRACENE | 13 | 0 | -- | -- | -- | µg/kg |
| | DIBENZOFURAN | 13 | 0 | -- | -- | -- | µg/kg |
| | DIETHYLPHTHALATE | 13 | 0 | -- | -- | -- | µg/kg |
| | DIMETHYLPHTHALATE | 13 | 0 | -- | -- | -- | µg/kg |
| | DI-N-BUTYLPHTHALATE | 13 | 1 | 904.15 | 59.00 | 59.00 | µg/kg |
| | DI-N-OCTYLPHTHALATE | 13 | 0 | -- | -- | -- | µg/kg |
| | FLUORANTHENE | 13 | 5 | 880.62 | 950.00 | 63.00 | µg/kg |
| | FLUORENE | 13 | 0 | -- | -- | -- | µg/kg |
| | HEXACHLOROBENZENE | 13 | 0 | -- | -- | -- | µg/kg |
| | HEXACHLOROBUTADIENE | 13 | 0 | -- | -- | -- | µg/kg |
| | HEXACHLOROCYCLOPENTADIENE | 13 | 0 | -- | -- | -- | µg/kg |
| | HEXACHLOROETHANE | 13 | 0 | -- | -- | -- | µg/kg |
| | INDENO(1,2,3-CD)PYRENE | 13 | 2 | 886.15 | 120.00 | 95.00 | µg/kg |
| | ISOPHORONE | 13 | 0 | -- | -- | -- | µg/kg |
| | NAPHTHALENE | 13 | 0 | -- | -- | -- | µg/kg |
| | NITROBENZENE | 13 | 0 | -- | -- | -- | µg/kg |
| | N-NITROSO-DI-N-PROPYLAMINE | 13 | 0 | -- | -- | -- | µg/kg |
| | N-NITROSODIPHENYLAMINE | 13 | 2 | 872.31 | 91.00 | 84.00 | µg/kg |
| | PENTACHLOROPHENOL | 13 | 0 | -- | -- | -- | µg/kg |
| | PHENANTHRENE | 13 | 1 | 896.54 | 450.00 | 450.00 | µg/kg |
| | PHENOL | 13 | 0 | -- | -- | -- | µg/kg |
| | PYRENE | 13 | 5 | 875.00 | 820.00 | 120.00 | µg/kg |
| TPH- EXT | | | | | | | |
| | OIL AND GREASE | 12 | 11 | 86.83 | 380.00 | 2.00 | µg/kg |

**TABLE 3**
**STATIONWIDE NO ACTION SITES RECORD OF DECISION**
**SUMMARY OF SOIL SAMPLING DATA FOR HUMAN HEALTH RISK ASSESSMENT EXPOSURE AREA 4158**
**MOFFETT FEDERAL AIRFIELD, CALIFORNIA**

| ANALYTICAL GROUP | CHEMICAL NAME | NUMBER OF SAMPLES | NUMBER OF DETECTS | AVERAGE[1] | MAXIMUM | MINIMUM | UNITS |
|---|---|---|---|---|---|---|---|
| METALS | | | | | | | |
| | ALUMINUM | 13 | 13 | 19,730.77 | 23,100.00 | 12,800.00 | mg/kg |
| | ANTIMONY | 13 | 8 | 11.12 | 21.00 | 8.00 | mg/kg |
| | ARSENIC | 13 | 13 | 5.55 | 8.20 | 3.70 | mg/kg |
| | BARIUM | 13 | 13 | 146.15 | 188.00 | 106.00 | mg/kg |
| | BERYLLIUM | 13 | 0 | -- | -- | -- | mg/kg |
| | CADMIUM | 13 | 3 | 0.74 | 1.60 | 1.30 | mg/kg |
| | CALCIUM | 13 | 13 | 22,605.38 | 47,300.00 | 9,570.00 | mg/kg |
| | CHROMIUM | 13 | 13 | 71.22 | 85.80 | 44.80 | mg/kg |
| | COBALT | 13 | 13 | 16.86 | 24.60 | 9.70 | mg/kg |
| | COPPER | 13 | 13 | 48.01 | 56.50 | 37.30 | mg/kg |
| | IRON | 13 | 13 | 35,000.00 | 59,300.00 | 22,400.00 | mg/kg |
| | LEAD | 13 | 13 | 31.85 | 79.50 | 11.60 | mg/kg |
| | MAGNESIUM | 13 | 13 | 14,538.46 | 18,300.00 | 10,300.00 | mg/kg |
| | MANGANESE | 13 | 13 | 565.00 | 662.00 | 363.00 | mg/kg |
| | MERCURY | 13 | 8 | 0.28 | 1.40 | 0.20 | mg/kg |
| | NICKEL | 13 | 13 | 74.21 | 90.60 | 48.00 | mg/kg |
| | POTASSIUM | 13 | 13 | 2,403.85 | 3,400.00 | 1,590.00 | mg/kg |
| | SELENIUM | 13 | 0 | -- | -- | -- | mg/kg |
| | SILVER | 13 | 6 | 0.72 | 1.70 | 0.90 | mg/kg |
| | SODIUM | 13 | 13 | 698.77 | 2,020.00 | 298.00 | mg/kg |
| | THALLIUM | 13 | 0 | -- | -- | -- | mg/kg |
| | VANADIUM | 13 | 13 | 67.26 | 106.00 | 42.00 | mg/kg |
| | ZINC | 13 | 13 | 82.02 | 105.00 | 60.00 | mg/kg |

Notes:

[1] To calculate the average concentration, one-half the quantitation limit was used for nondetect results. Average values that exceed the maximum detected concentrations are a result of nondetect values with quantitation limits that are greater than the maximum detected value.

µg/kg Micrograms per kilogram
mg/kg Milligrams per kilogram
TPH Total petroleum hydrocarbons
SVOA Semivolatile organic analytes
VOC Volatile organic compounds

Only VOCs, SVOAs, TPH, and metals were detected in soil samples.

# APPENDIX A

## ADMINISTRATIVE RECORD INDEX
## FOR NO ACTION SITES
## MOFFETT FEDERAL AIRFIELD
## MOFFETT FIELD, CALIFORNIA

MOFFETT FEDERAL AIRFIELD

ADMINISTRATIVE RECORD FILE INDEX - UPDATE (SORTED BY RECORD DATE/RECORD NUMBER)

No Action Sites

| UIC No. / Rec. No.<br>Doc. Control No.<br>Record Type<br>Contr./Guid. No.<br>Approx. # Pages | Prc. Date<br>Record Date<br>CTO No.<br>EPA Cat. # | Author Affil.<br>Author<br>Recipient Affil.<br>Recipient | Subject | Classification | Keywords | Sites | Location<br>Box No. |
|---|---|---|---|---|---|---|---|
| N00296 / 000279<br><br>LTR<br>NONE<br>0001<br>WP | 11-22-1999<br>**03-03-1988**<br>00000<br>00.0 | NAVY | PLANNING DOCUMENTS FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY | ADMIN RECORD | FS<br>RI | OU 5 | IRON MOUNTAIN<br>37041264 |
| N00296 / 002316<br><br>RPT<br>N62474-88-D-5086<br>0314 | 11-22-1999<br>**08-21-1995**<br>00236<br>00.0 | PRC<br>YOUNG, MICHAEL N<br>NAVY<br>CHAO, STEPHEN | ADDITIONAL SITES INVESTIGATION (SI), PHASE II, DRAFT FINAL REPORT | INFO REPOSITORY | SI | | IRON MOUNTAIN<br>37041306 |
| N00296 / 002330<br><br>RPT<br>N62474-88-D-5086<br>0000 | 11-22-1999<br>**08-31-1995**<br>00236<br>00.0 | PRC<br>O'DWYER, DEIRDRE<br>NAVY<br>CHAO, STEPHEN G. | FINAL OPERABLE UNIT 5 (OU 5) FEASIBILITY STUDY (FS) REPORT | ADMIN RECORD | FS<br>OU | OU 5 | IRON MOUNTAIN<br>37041306 |
| N00296 / 002335<br><br>RPT<br>N62474-88-D-5086<br>0260 | 11-22-1999<br>**09-11-1995**<br>00236<br>00.0 | PRC<br>YOUNG, MICHAEL N<br>NAVY<br>CHAO, STEPHEN G. | FINAL PHASE II SITE-WIDE ECOLOGICAL ASSESSMENT WORK PLAN (SWEA/WP) | ADMIN RECORD | SWEA<br>WP | OU 1<br>OU 5 | IRON MOUNTAIN<br>37041307 |
| N00296 / 002380<br><br>LTR<br>NONE<br>0001 | 11-22-1999<br>**11-07-1995**<br><br>00000<br>00.0 | USEPA<br>GILL, MICHAEL D.<br><br>MONTGOMERY WATSON<br>BITTNER, CHRISTO | RESPONSE TO MEETING REQUEST IN REGARDS TO DERIVING TOXIC REFERENCE VALUES FOR PHASE II SITE WIDE ECOLOGICAL ASSESSMENT (SWEA) | INFO REPOSITORY | SWEA | BASEWIDE | IRON MOUNTAIN<br>37041308 |

| UIC No. / Rec. No.<br>Doc. Control No.<br>Record Type<br>Contr./Guid. No.<br>Approx. # Pages | Prc. Date<br>Record Date<br>CTO No.<br>EPA Cat. # | Author Affil.<br>Author<br>Recipient Affil.<br>Recipient | Subject | Classification | Keywords | Sites | Location<br>Box No. |
|---|---|---|---|---|---|---|---|
| N00296 / 002842<br><br>RPT<br>N62474-88-D-5086<br>0500 | 11-22-1999<br>**05-21-1996**<br><br>00236<br><br>00.0 | PRC<br>YOUNG, MICHAEL<br>N<br>N<br><br>NAVY<br>CHAO, STEPHEN<br>G. | FINAL STATIONWIDE REMEDIAL INVESTIGATION (RI) REPORT, VOLUME 1: SECTIONS 1 THROUGH 4 - TEXT, TABLES, FIGURES, AND PLATES | ADMIN RECORD | RI | BASEWIDE | IRON MOUNTAIN<br>37041313 |
| N00296 / 002843<br><br>RPT<br>N62474-88-D-5086<br>0500 | 11-22-1999<br>**05-21-1996**<br><br>00236<br><br>00.0 | PRC<br>YOUNG, MICHAEL<br>N<br>N<br><br>NAVY<br>CHAO, STEPHEN<br>G. | FINAL STATIONWIDE REMEDIAL INVESTIGATION (RI) REPORT, VOLUME 2: SECTIONS 5 AND 6 - TEXT, TABLES, FIGURES, AND PLATES | ADMIN RECORD | RI | BASEWIDE | IRON MOUNTAIN<br>37041313 |
| N00296 / 002844<br><br>RPT<br>N62474-88-D-5086<br>0500 | 11-22-1999<br>**05-21-1996**<br><br>00236<br>00.0 | PRC<br>YOUNG, MICHAEL<br>N<br>N<br>NAVY<br>CHAO, STEPHEN<br>G. | FINAL STATIONWIDE REMEDIAL INVESTIGATION (RI) REPORT, VOLUME 3: APPENDIX A | ADMIN RECORD | RI | BASEWIDE | IRON MOUNTAIN<br>37041313 |
| N00296 / 002845<br><br>RPT<br>N62474-88-D-5086<br>0500 | 11-22-1999<br>**05-21-1996**<br><br>00236<br>00.0 | PRC<br>YOUNG, MICHAEL<br>N<br>N<br>NAVY<br>CHAO, STEPHEN<br>G. | FINAL STATIONWIDE REMEDIAL INVESTIGATION (RI) REPORT, VOLUME 4: APPENDIX A (CONTINUED) AND B | ADMIN RECORD | RI | BASEWIDE | IRON MOUNTAIN<br>37041314 |
| N00296 / 002846<br><br>RPT<br>N62474-88-D-5086<br>0500 | 11-22-1999<br>**05-21-1996**<br><br>00236<br>00.0 | PRC<br>YOUNG, MICHAEL<br>N<br>N<br>NAVY<br>CHAO, STEPHEN<br>G. | FINAL STATIONWIDE REMEDIAL INVESTIGATION (RI) REPORT, VOLUME 5: APPENDIX C - SECTIONS C1 THROUGH C3 | ADMIN RECORD | RI | BASEWIDE | IRON MOUNTAIN<br>37041314 |

| UIC No. / Re[illegible]o. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages | Prc. Date Record Date CTO No. EPA Cat. # | Author Affil. Author Recipient Affil. Recipient | Subject | Classification | | Keywords | Sites | Location Box No. |
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| N00296 / 002847<br>RPT<br>N62474-88-D-5086<br>0500 | 11-22-1999<br>**05-21-1996**<br>00236<br>00.0 | PRC<br>YOUNG, MICHAEL<br>N<br>N<br>NAVY<br>CHAO, STEPHEN<br>G. | FINAL STATIONWIDE REMEDIAL INVESTIGATION (RI) REPORT, VOLUME 6: APPENDIX C - SECTIONS C4 THROUGH C6 | ADMIN RECORD | RI | | BASEWIDE | IRON MOUNTAIN<br>37041314 |
| N00296 / 002848<br>RPT<br>N62474-88-D-5086<br>0500 | 11-22-1999<br>**05-21-1996**<br>00236<br>00.0 | PRC<br>YOUNG, MICHAEL<br>N<br>N<br>NAVY<br>CHAO, STEPHEN<br>G. | FINAL STATIONWIDE REMEDIAL INVESTIGATION (RI) REPORT, VOLUME 7: APPENDIX C - SECTION C6 (CONTINUED) | ADMIN RECORD | RI | | BASEWIDE | IRON MOUNTAIN<br>37041314 |
| N00296 / 002849<br>RPT<br>N62474-88-D-5086<br>0500 | 11-22-1999<br>**05-21-1996**<br>00236<br>00.0 | PRC<br>YOUNG, MICHAEL<br>N<br>N<br>NAVY<br>CHAO, STEPHEN<br>G. | FINAL STATIONWIDE REMEDIAL INVESTIGATION (RI) REPORT, VOLUME 8: APPENDIX C - SECTIONS C6 (CONTINUED) THROUGH C7 | ADMIN RECORD | RI | | BASEWIDE | IRON MOUNTAIN<br>37041314 |
| N00296 / 002850<br>RPT<br>N62474-88-D-5086<br>0500 | 11-22-1999<br>**05-21-1996**<br>00236<br>00.0 | PRC<br>YOUNG, MICHAEL<br>N<br>N<br>NAVY<br>CHAO, STEPHEN<br>G. | FINAL STATIONWIDE REMEDIAL INVESTIGATION (RI) REPORT, VOLUME 9: APPENDIX C - SECTION C8 | ADMIN RECORD | RI | | BASEWIDE | IRON MOUNTAIN<br>37041314 |
| N00296 / 002851<br>RPT<br>N62474-88-D-5086<br>0500 | 11-22-1999<br>**05-21-1996**<br>00236<br>00.0 | PRC<br>YOUNG, MICHAEL<br>N<br>N<br>NAVY<br>CHAO, STEPHEN<br>G. | FINAL STATIONWIDE REMEDIAL INVESTIGATION (RI) REPORT, VOLUME 10: APPENDIX D | ADMIN RECORD | RI | | BASEWIDE | IRON MOUNTAIN<br>37041315 |

| UIC No. / Rec. No.<br>Doc. Control No.<br>Record Type<br>Contr./Guid. No.<br>Approx. # Pages | Prc. Date<br>Record Date<br>CTO No.<br>EPA Cat. # | Author Affil.<br>Author<br>Recipient Affil.<br>Recipient | Subject | Classification | Keywords | Sites | Location<br>Box No. |
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| N00296 / 002852<br><br>RPT<br>N62474-88-D-5086<br>0500 | 11-22-1999<br>**05-21-1996**<br><br>00236<br>00.0 | PRC<br>YOUNG, MICHAEL<br>N<br>N<br>NAVY<br>CHAO, STEPHEN<br>G. | FINAL STATIONWIDE REMEDIAL INVESTIGATION (RI) REPORT, VOLUME 11: APPENDIX E, F, G, H, I, AND J | ADMIN RECORD | RI | BASEWIDE | IRON MOUNTAIN<br>37041315 |
| N00296 / 003081<br><br>RPT<br>N62474-88-D-5086<br>2000 | 11-22-1999<br>**07-24-1997**<br><br>00235<br>00.0 | PRC<br>MOWER, TIMOTHY<br>E<br>E<br>NAVY<br>CHAO, STEPHEN<br>G. | FINAL PHASE II SITE-WIDE ECOLOGICAL ASSESSMENT (SWEA) REPORT, VOLUME 1 OF 3; TEXT, TABLES, FIGURES | ADMIN RECORD | EA<br>SWEA | BASEWIDE | IRON MOUNTAIN<br>37041319 |
| N00296 / 003082<br><br>RPT<br>N62474-88-D-5086<br>2000 | 11-22-1999<br>**07-24-1997**<br><br>00235<br>00.0 | PRC<br>MOWER, TIMOTHY<br>E<br>E<br>NAVY<br>CHAO, STEPHEN<br>G. | FINAL PHASE II SITE-WIDE ECOLOGICAL ASSESSMENT (SWEA) REPORT, VOLUME 2 OF 3, APPENDICES A THROUGH H | ADMIN RECORD | EA<br>SWEA | BASEWIDE | IRON MOUNTAIN<br>37041320 |
| N00296 / 003083<br><br>RPT<br>N62474-88-D-5086<br>1000 | 11-22-1999<br>**07-24-1997**<br><br>00235<br>00.0 | PRC<br>MOWER, TIMOTHY<br>E<br>E<br>NAVY<br>CHAO, STEPHEN<br>G | FINAL PHASE II SITE-WIDE ECOLOGICAL ASSESSMENT (SWEA) REPORT, VOLUME 3 OF 3, APPENDICES I THROUGH N | ADMIN RECORD | EA<br>SWEA | BASEWIDE | IRON MOUNTAIN<br>37041320 |
| N00296 / 003248<br><br>RPT<br><br>N62474-94-D-7609<br>0150 | 11-22-1999<br>**09-30-1999**<br><br>00153<br><br>00.0 | TETRA TECH<br>MOWER, TIMOTHY<br>E<br>E<br><br>NAVY<br>CHAO, STEPHEN<br>G. | REVISED FINAL STATIONWIDE FEASIBILITY STUDY (FS) REPORT (SEE AR #85 - DRAFT RESPONSE TO COMMENTS, #89 - DRAFT FINAL RESPONSES TO COMMENTS & #270 - DRAFT FINAL ADDENDUM) | | | | IRON MOUNTAIN<br>37041324 |

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| N00296 / 000160<br>TC.0226.10875 &<br>SWDIV SER<br>SWDIV SER<br>06CH.AM/0232<br>MISC<br>N62474-94-D-7609<br>0450 | 03-21-2001<br>**03-02-2001**<br><br>00226 | TETRA TECH EM INC.<br>S. JONES<br>S. JONES<br>NAVFAC - SOUTHWEST DIVISION<br>A. MUCKERMAN | REVISED FINAL RESPONSES TO COMMENTS ON THE REVISED FINAL STATIONWIDE FEASIBILITY STUDY REPORT - INCLUDES SWDIV TRANSMITTAL LETTER BY A. MUCKERMAN | ADMIN RECORD<br>INFO<br>REPOSITORY | COMMENTS<br>DDT<br><br>METALS<br>PCB<br>PESTICIDES | 025 | IRON MOUNTAIN<br>80462404 |
| N00296 / 000270<br>DS.0153.16727 &<br>SWDIV SER<br>SWDIV SER<br>06CH.AM/0695<br>MISC<br>N62474-94-D-7609<br>0100 | 08-04-2001<br>**07-06-2001**<br>00153<br>00153 | TETRA TECH EM INC.<br>J. SCHWARZ<br>J. SCHWARZ<br>NAVFAC - SOUTHWEST DIVISION<br>A. MUCKERMAN | DRAFT FINAL ADDENDUM TO THE REVISED STATIONWIDE FEASIBILITY STUDY - INCLUDES SWDIV TRANSMITTAL LETTER BY A. MUCKERMAN {SEE AR #3248- REVISED FINAL STATIONWIDE FEASIBILITY STUDY} | ADMIN RECORD<br>INFO<br>REPOSITORY<br>REPOSITORY | DDE<br>DDT<br><br>FS<br>PAH<br>PCB<br><br>SVOC<br>TPH<br>TRV | 023<br>BASEWIDE | IRON MOUNTAIN<br>80462407 |
| N00296 / 000387<br>DS.0226.17285<br>PLAN<br>N62474-94-D-7609<br><br>0017 | 01-17-2002<br>**12-01-2001**<br>00226 | TETRA TECH EM INC.<br><br>NAVFAC - SOUTHWEST DIVISION | FINAL PROPOSED PLAN FOR NO FURTHER ACTION SITES | ADMIN RECORD<br>INFO<br>REPOSITORY | ERA<br>FS<br>HHRA<br>LANDFILL<br><br>PAH<br><br>PCB<br>PROPOSED PLAN<br>RI<br>ROD<br>SVOC<br>TPH<br>VOC | 023 | SOUTHWEST DIVISION |
| N00296 / 000452<br>TC.0226.11539<br>MISC<br>MISC<br>N62474-94-D-7609<br><br>0010 | 05-20-2002<br>**05-04-2002**<br>00226<br>00226 | TETRA TECH EM INC.<br><br>NAVFAC - SOUTHWEST DIVISION | COMPILED RESPONSE TO US EPA COMMENTS ON THE DRAFT STATIONWIDE NO ACTION SITES RECORD OF DECISION (SEE AR # 438 - ROD) | ADMIN RECORD<br>INFO<br>REPOSITORY<br>REPOSITORY | CANCER<br>CHARACTERIZAT<br><br>COMMENTS<br>ERA<br><br>GW<br><br>METALS<br>NFA<br>RESPONSE<br>ROD<br>SOIL<br>VOC | 022<br>023<br>025<br>025<br>028<br><br>OU 5 | SOUTHWEST DIVISION |