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**DEC 31 2008**

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Dear Ms. Wells and Ms. Kloss:

Enclosed is the Action Memorandum for Installation Restoration Site 29, Hangar 1 at Former Naval Air Station Moffett Field, Moffett Field, California. This document selects the removal action alternative for Hangar 1.

For questions about Hangar 1 and the Navy's environmental restoration program, please contact Ms. Angela Lind, Lead Remedial Project Manager, at 619-532-0922 or myself at 619-532-0963.

Sincerely,

A handwritten signature in black ink, appearing to read "Darren Newton", written over a horizontal line.

DARREN NEWTON  
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By direction of the Director

Enclosure: 1. Action Memorandum, for Installation Restoration Site 29, Hangar 1 Former Naval Air Station Moffett Field, Moffett Field, California of December 2008

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**Base Realignment and Closure  
Program Management Office West  
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**CONTRACT No. N68711-98-D-5713  
CTO No. 0068**

**ACTION MEMORANDUM  
December 2008**

**DCN: ECSD-5713-0068-0003**

**NON-TIME-CRITICAL REMOVAL ACTION  
FOR THE PCB CONTAMINATION  
AT INSTALLATION RESTORATION SITE 29, HANGAR 1  
FORMER NAVAL AIR STATION MOFFETT FIELD  
MOFFETT FIELD, CALIFORNIA**

**Department of the Navy  
Base Realignment and Closure  
Program Management Office West  
1455 Frazee Road, Suite 900  
San Diego, California 92108-4310**

**CONTRACT No. N68711-98-D-5713  
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## **ACTION MEMORANDUM**

**DCN: ECSD-5713-0068-0003**

**NON-TIME-CRITICAL REMOVAL ACTION  
FOR THE PCB CONTAMINATION  
AT INSTALLATION RESTORATION SITE 29, HANGAR 1  
FORMER NAVAL AIR STATION MOFFETT FIELD  
MOFFETT FIELD, CALIFORNIA**

<b>Site Status:</b>	<b>National Priorities List</b>
<b>Category of Removal:</b>	<b>Non-Time-Critical Removal Action</b>
<b>CERCLIS ID No:</b>	<b>CA2170090078</b>
<b>Site ID No.:</b>	<b>29</b>
<b>Date:</b>	<b>December 2008</b>



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## ABBREVIATIONS AND ACRONYMS

§	section
§§	sections
µg/m <sup>3</sup>	micrograms per cubic meter
AM	Action Memorandum
ARAR	applicable or relevant and appropriate requirement
BAAQMD	Bay Area Air Quality Management District
BMP	best management practice
BRAC	Base Realignment and Closure
Cal. Code Regs.	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.	Code of Federal Regulations
COC	contaminant of concern
DoD	Department of Defense
EDM	Eastern Diked Marsh
EE/CA	Engineering Evaluation/Cost Analysis
et seq.	and the following ones
Harding ESE	Harding Environmental Science and Engineering
IR	Installation Restoration
IRP	Installation Restoration Program
LDR	land disposal restriction
mg/kg	milligrams per kilogram
MROSD	Midpeninsula Regional Open Space District
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
Navy	U.S. Department of the Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NTCRA	Non-Time-Critical Removal Action
PAI	Professional Analysis, Incorporated

## ABBREVIATIONS AND ACRONYMS

(Continued)

PCB	polychlorinated biphenyl
PRG	Preliminary Remediation Goal
RAO	removal action objective
RCRA	Resource Conservation and Recovery Act
SWPPP	Stormwater Pollution Prevention Plan
TCRA	time-critical removal action
tit.	title
TSCA	Toxic Substances Control Act
TtFW	Tetra Tech FW, Inc.
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency
Water Board	San Francisco Bay Regional Water Quality Control Board

**Department of the Navy  
Base Realignment and Closure  
Program Management Office West  
1455 Frazee Road, Suite 900  
San Diego, California 92108-4310**

**December 2008**

**SUBJECT: ACTION MEMORANDUM FOR  
NON-TIME-CRITICAL REMOVAL ACTION FOR THE  
PCB CONTAMINATION AT INSTALLATION RESTORATION SITE 29  
HANGAR 1, FORMER NAVAL AIR STATION MOFFETT FIELD  
MOFFETT FIELD, CALIFORNIA**

<b>Site Status:</b>	<b>National Priorities List</b>
<b>Category of Removal:</b>	<b>Non-Time-Critical Removal Action</b>
<b>CERCLIS ID No.</b>	<b>CA2170090078</b>
<b>Site ID No.:</b>	<b>29</b>

## **1.0 PURPOSE**

The purpose of this Action Memorandum (AM) is to document, for inclusion in the Administrative Record, the U. S. Department of the Navy's (Navy's) decision to undertake a Non-Time-Critical Removal Action (NTCRA) to control the release of polychlorinated biphenyls (PCBs) at Hangar 1 at the former Naval Air Station (NAS) Moffett Field (Moffett), California (Figures 1-1 and 1-2). This NTCRA will be performed in accordance with current U.S. Environmental Protection Agency (USEPA) and Navy guidance documents for an NTCRA under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

The U.S. Department of Defense (DoD) has the authority to undertake response actions, including removal actions, under CERCLA, Title 42 United States Code (U.S.C.) Section (§) 9604, Title 10 U.S.C. § 2701 et seq., and federal Executive Order 12580. This includes the authority to undertake removal actions to address "pollutants or contaminants" that "may present an imminent and substantial danger to the public health or welfare" pursuant to 42 U.S.C. § 9604(a) (1) (B).

This removal action constitutes a "non-time-critical removal action" as defined in USEPA Office of Solid Waste and Emergency Response Directive 9318.0-05, and is being implemented as provided in Title 40 Code of Federal Regulations (C.F.R.) § 330.415(n)(2). The removal action performed under this AM is deemed consistent with the factors set forth within the National Oil

and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300. Further, this removal action is consistent, to the maximum extent possible, with Chapter 6.8 of the California Health and Safety Code.

The proposed NTCRA is removal of the Hangar 1 siding and application of a coating to the surfaces of the hangar's steel infrastructure. The NTCRA consists of the complete removal of the siding, demolition or deconstruction of interior structures, removal of all debris to appropriate off-site disposal or recycling facilities, and application of a weather-resistant epoxy coating to the hangar's structural steel frame.

## **2.0 SITE CONDITIONS AND BACKGROUND**

This section describes the site location and background, other actions to date, release or threatened release, and roles of state and local authorities for the NTCRA for the PCB contamination at Installation Restoration (IR) Site 29, Hangar 1 at the former NAS Moffett Field (CERCLIS ID No CA2170090078).

### **2.1 SITE LOCATION AND DESCRIPTION**

Moffett encompasses approximately 2,200 acres in Santa Clara County, California. It is located approximately 35 miles south of San Francisco, 10 miles north of San Jose, and approximately 1 mile south of San Francisco Bay (Figure 1-1). Located immediately adjacent to Moffett, but physically separated by dikes, are U.S. Fish and Wildlife Service ponds, the Stormwater Retention Pond, and wetlands to the north; a Lockheed Martin facility to the east; U.S. Highway 101 (Bayshore Freeway) to the south; Stevens Creek to the west; and the Midpeninsula Regional Open Space District (MROSD) to the northwest. Offices, residences, public areas, and industrial facilities are located within a 1-mile radius of Moffett (Navy, 2008).

Hangar 1 is situated west of the Moffett runways between Sayre Avenue and Cummins Avenue (Figures 1-2 and 2-1). It is a large structure measuring 1,133 feet long, 308 feet wide, 198 feet high, and is constructed with a steel frame and corrugated siding (Figure 2-2). The siding consists of Robertson Protected Metal, known to contain both PCBs and asbestos. In addition, Hangar 1 was coated with lead-based paint. In 2003, the Hangar 1 exterior was coated with an asphalt-emulsion. The area surrounding the hangar is paved, with the exception of several small areas of sod located adjacent to the hangar. The hangar frame is structural steel, which was coated with a lead-based paint that contains PCBs. The interior floor is concrete.

#### **2.1.1 Site Background**

This section provides historical background for both Moffett and Hangar 1.

##### **2.1.1.1 Moffett History**

Moffett was commissioned as NAS Sunnyvale in 1933 to support the West Coast dirigibles for the Lighter-Than-Air program. In 1935, NAS Sunnyvale was transferred to the U.S. Army Air Corps. In 1939, the National Advisory Committee for Aeronautics, the predecessor to the National Aeronautics and Space Administration (NASA), established Ames Aeronautical Laboratory on land northwest of Moffett, which later became NASA Ames Research Center. NAS Sunnyvale was returned to Navy control in 1942 and was renamed NAS Moffett Field. Since the 1950s, the primary mission of NAS Moffett Field was to support anti-submarine warfare training and patrol squadrons.

Environmental restoration activities began at Moffett in 1983 as part of the Navy's Installation Restoration Program (IRP). Under the IRP, the Navy is responsible for assessing, investigating, and responding to releases of hazardous substances that present a potential risk to human health and the environment. Under CERCLA, as stated in 40 C.F.R., § 300.175(b)(4), "DoD has responsibility to take all action necessary with respect to releases where either the release is on, or the sole source of the release is from, any facility or vessel under the jurisdiction, custody, or control of DoD." All of the sites identified through the IRP were investigated, and many have been closed.

In 1987, the USEPA placed Moffett on the National Priorities List. Environmental investigation and restoration activities at Moffett are coordinated under a Federal Facilities Agreement signed by the Navy, USEPA, California Environmental Protection Agency, and San Francisco Bay Regional Water Quality Control Board (Water Board) on September 14, 1990.

In 1992, NAS Moffett was designated for closure as an active military base under the DoD Base Realignment and Closure (BRAC) Program. NASA, which already operated the Ames Research Center on the northern side of the base, assumed control of the facility in July 1994 and currently is the federal property manager for Moffett. Current federal and state agencies located at Moffett include the U.S. Department of the Army, U.S. Department of the Air Force, and California Air National Guard. These resident agencies use the federal airport and provide facilities for military personnel and their families, including family housing, a commissary, a military clinic, a service station, tennis courts, and an 18-hole golf course.

#### **2.1.1.2 Hangar 1 History**

Hangar 1 was built in 1932 to house the airship *U.S.S. Macon*. After Hangar 1 was no longer used to house Navy Lighter-Than-Air program aircraft, both the Army and the Navy used the hangar for aircraft maintenance, training facilities, and office space. In 1994, as part of the transfer of Moffett to NASA under the BRAC program, the property management responsibility for Hangar 1 was transferred to NASA. NASA used Hangar 1 for air shows, open houses, the Moffett Field Museum, and various commercial and public functions until building occupants were relocated due to concerns about potential exposure to PCB and lead contamination. Hangar 1 has been closed to all uses except access by essential maintenance, abatement, or environmental cleanup personnel since May 2003.

#### **2.1.1.3 Hangar 1 National Register Eligibility**

Hangar 1 is individually eligible for the National Register of Historic Places (NRHP) and is a contributing element of the United States NAS Sunnyvale California – Historic District (Historic District), which is listed on the NRHP. The NRHP lists districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture. To be eligible for listing in the NRHP, a property must possess both "significance" and

“integrity” of location, design, setting, materials, workmanship, feeling, and association. When evaluated within its historic context, a property’s significance is judged by the application of the four National Register Criteria for Evaluation. In accordance with 36 C.F.R., Part 60.4, a property may be determined eligible for listing in the NRHP if it meets at least one of four main criteria:

- Criterion A: Properties that are associated with events that have made a significant contribution to the broad patterns of our history.
- Criterion B: Properties that are associated with the lives of persons significant in history.
- Criterion C: Properties that embody the distinct characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.
- Criterion D: Properties that have yielded, or may be likely to yield, information important in prehistory or history.

The Historic District is eligible at the national level of significance under Criteria A and C and has two periods of significance: 1930–1935 and 1942–1946. The noncontiguous Historic District is eligible under Criterion A for its associations with the Lighter-Than-Air program and the contributing element of the Historic District, which is based on the contributions that program has made to history under the themes of coastal defense and naval technology. The Historic District is also eligible under Criterion C for its distinctive master plan and architecture, including a landscaped “commons,” massive airship hangars (Hangar 1 and two smaller hangars), and “fine regional examples of Spanish Colonial Revival design” (Navy, 1994).

The NRHP nomination for the Historic District indicates that Hangar 1 is eligible for the NRHP under Criteria A and C for its association with a significant episode in the development of naval aviation prior to World War II, and as an example of early twentieth-century military planning, engineering, and construction in the Streamline Moderne architectural style (Navy, 1994). As part of the Art Deco movement, Streamline Moderne “emphasized horizontal aspects of design and is characterized by curved end walls, rounded corners, and flush windows” (Navy, 1994). Reuse guidelines for Hangar 1 that were developed in 2001, before knowledge of the PCB contamination, identified these Streamline Moderne elements at Hangar 1 and explained that the hangar’s materials and construction method were innovative for the time (Page & Turnbull, Inc., 2001). Thus, the guidelines identified both the Streamline Moderne form and the corrugated metal panels on the exterior as two of several character-defining exterior features (Page & Turnbull, Inc., 2001).

### 2.1.2 Removal Site Evaluation

In 1991, NASA completed construction of a stormwater settling basin that is approximately 2,000 feet northwest of Hangar 1, to limit sediment transport to IR Site 25, which includes the Eastern Diked Marsh (EDM), stormwater retention pond, and MROSD property. This action also reduced contaminant migration. The stormwater settling basin is located at the upstream end of a series of catch basins that control stormwater runoff from the western side of Moffett. The location of the settling basin is shown on Figure 2-1. In 1997, during routine cleanout and sampling activities conducted by NASA, a relatively uncommon PCB, Aroclor 1268, was reported in sediment samples from the settling basin (Professional Analysis, Incorporated [PAI], 2002). Analytical results showed concentrations of Aroclor 1268 in the sediment samples ranging from 0.05 milligram per kilogram (mg/kg) to 0.8 mg/kg (PAI, 2002). In general, PCBs were formerly used in equipment as insulating materials and, to a lesser extent, in building materials as fire retardants. PCBs are probable human carcinogens and ecological toxins that bioaccumulate in the environment. Because of the persistence and toxicity of PCBs in the environment, their manufacture was discontinued in the United States in 1977.

Because of the particular mixture of PCBs detected in sediments, Hangar 1 was suspected as a possible PCB source and was added to the Navy's IRP as IR Site 29. Actions were taken to control the PCB contamination found in the storm drain system. Investigations into PCB locations, concentrations, and sources were conducted on a variety of media including the settling basin of the EDM, stormwater, building materials, storm sewer sediment, and air.

Sampling to confirm the presence of PCBs in the exterior construction materials at Hangar 1 was conducted in October 2002. Samples collected from the various surface materials of the structure, including the flat roof, roof sealant, window putty, and coating on the exterior siding, were analyzed (Benchmark Environmental Engineering, 2003). The sample results confirmed that Hangar 1 was a source of the PCBs reported in the settling basin. Analytical results indicated that Aroclor 1260 and Aroclor 1268 were present at significantly elevated levels in the siding and were present at relatively low to nondetectable levels in the flat roof materials, roof sealant, and window putty.

Following the discovery of elevated levels of PCBs in the interior paint of Hangar 1, two separate investigations of the ambient air inside and outside the hangar were conducted. In October 2002, NASA sampled for PCBs and lead in air inside and outside the hangar. In November 2002, Harding Environmental Science and Engineering (ESE) sampled and analyzed for PCBs and lead in air inside and outside the hangar. The NASA PCB sampling results indicated that Aroclor 1268 was not detected in ambient air outside of the hangar (NASA, 2003). However, Aroclor 1268 was reported in the samples from inside the hangar at concentrations from 0.0888 to 0.1115 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). For the direct-contact exposure pathway of ambient air, the USEPA Region 9 Preliminary Remediation Goal (PRG) for PCBs is  $0.0034 \mu\text{g}/\text{m}^3$ .

The Harding ESE PCB sampling results indicated that Aroclor 1268 was not detected in ambient air outside of the hangar (Harding ESE, 2002). This and other investigations indicated that Aroclor 1268 was inside the hangar at concentrations from 0.0292 to 0.1115  $\mu\text{g}/\text{m}^3$ . All of the indoor air samples exceeded the PCB PRG.

The lead sampling results indicated that lead was present in ambient air outside of the hangar (Harding ESE, 2002) at concentrations from 0.0041 to 0.0093  $\mu\text{g}/\text{m}^3$ . Lead was reported in the samples from inside the hangar at concentrations from below the detection limit to 0.0127  $\mu\text{g}/\text{m}^3$ . The California Air Resources Board promulgated a California Ambient Air Quality Standard of 1.5  $\mu\text{g}/\text{m}^3$ . All of the air samples analyzed for lead were below the California Ambient Air Quality Standard.

## **2.2 OTHER ACTIONS TO DATE**

This section describes the previous actions and current actions, and the entities that conducted or are conducting them.

### **2.2.1 Previous Actions**

NASA and the Navy previously conducted actions at IR Site 29 and Hangar 1, as described below.

#### **2.2.1.1 Time-Critical Removal Action Conducted by NASA**

NASA notified the Water Board of the presence of Aroclor 1260 and Aroclor 1268 within the stormwater collection trench in a letter dated July 1, 2003 (NASA, 2003). In September 2003, NASA implemented an action to remove sediments contaminated with PCBs from the stormwater collection trench located around the perimeter of Hangar 1 and to remove potentially affected sediments present on paved surfaces immediately surrounding the structure. NASA's action involved cleaning out and characterizing sediment residue in the stormwater collection trench surrounding Hangar 1.

#### **2.2.1.2 Time-Critical Removal Action Conducted by the Navy**

The Navy performed a time-critical removal action (TCRA) as an interim removal action at Hangar 1 to limit the migration of PCBs from the exterior surfaces of the building materials into the storm drain system leading to IR Site 25.

The October 2003 Navy TCRA included the following actions:

- The exterior surface of the hangar was cleaned by pressure washing to remove any grease, oil, and dirt that may have inhibited adhesion of the selected coating materials.
- The exterior corrugated siding was coated with an asphalt emulsion. The purpose of the coating was to isolate the siding contaminants until a final remedy was selected. The coating was not applied to the flat roof, window surfaces, walk-in doors, vehicle rollup doors, or exterior appurtenances, such as gutters and stormwater discharge piping.
- The area around the hangar was cleaned by pressure washing following coating of the structure to remove any contaminants that may have been present on surrounding paved surfaces.
- A permanent, 6-foot-high, chain-link security fence was installed to control access to the hangar.

A complete summary of the TCRA activities is provided in the TCRA Completion Report (TtFW, 2004). Since the TCRA was completed, periodic visual inspections of the coating on the exterior siding have been conducted. In addition, in February 2005 as part of an ongoing effort to reduce contamination, the Navy cleaned out the rain gutters on Hangar 1 by collecting, sampling, and disposing of the contaminated sediments in the gutters.

### **2.2.2 Current Actions**

In July 2008, the Navy finalized an Engineering Evaluation/Cost Analysis (EE/CA), a required component of any NTCRA (Navy, 2008). The EE/CA was made available to the public for their comments and input on July 30, 2008, and a public meeting to discuss the EE/CA was held on August 26, 2008, at the American Legion Post 564 in Santa Clara, California. Responses to comments received on the EE/CA are provided in a responsiveness summary included in Appendix B.

## **2.3 RELEASE OR THREATENED RELEASE**

This NTCRA is being conducted in order to control the migration of PCBs from Hangar 1 to the environment through source elimination or containment, thereby eliminating human health and environmental concerns associated with potential exposure pathways, including the surface water runoff pathway to IR Site 25. As described above, the contaminant of concern (COC) is PCBs (Aroclor 1260 and Aroclor 1268). PCBs are present in the siding (Figure 2-3) and interior components of Hangar 1. Building components from Hangar 1 are considered the most likely source of the PCBs reported in sediment in the stormwater collection trench around the perimeter of Hangar 1. Since the Navy's TCRA, PCBs have not been detected in the area surrounding Hangar 1 including stormwater runoff. However, because the current asphalt emulsion coating could reach the end of its useful life and possibly fail as a sealant, the threat of future releases is

possible. The Navy, NASA, and regulatory agencies have agreed that source elimination or containment would control further release of PCBs from Hangar 1 to the environment and, therefore, would be the focus of this NTCRA.

Based on CERCLA and the NCP, the removal action objective (RAO) is to control the release of the COC at Hangar 1, thereby reducing the potential risks to human health and the environment while minimizing future operation and maintenance activities at the site.

The RAO provided a basis for evaluation of removal action alternatives and selection of the most viable alternative for Hangar 1. There are no target cleanup goals required for the contaminants because the removal action includes either total removal or containment of the source.

Although PCBs are the regulatory driver for this removal action, asbestos and lead are also present in interior and exterior Hangar 1 building materials. Building materials containing asbestos and lead that are in good condition and not subject to disturbance may generally be left in place per USEPA and DoD policy. However, in the course of addressing the PCB contamination at Hangar 1, it will be necessary to take into account health and safety issues associated with handling and working in the vicinity of materials containing asbestos and lead and to comply with requirements for proper management, abatement, and disposal of asbestos and lead as hazardous materials.

## **2.4 ROLES OF STATE AND LOCAL AUTHORITIES**

### **2.4.1 State and Local Actions to Date**

The USEPA and the Water Board provided technical advice and regulatory oversight during the investigations that led to this NTCRA. The USEPA and the Water Board are members of the BRAC Cleanup Team.

### **2.4.2 Potential for Continued State and Local Response**

It is expected that the USEPA and Water Board will continue to provide technical advice, regulatory oversight, and general assistance with the implementation of this NCTRA as well as other IR sites at Moffett throughout the IRP.

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### **3.0 THREATS TO PUBLIC HEALTH, WELFARE, OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES**

In accordance with the NCP, the following factors shall be considered in determining the appropriateness of a removal action (40 C.F.R. § 300.415[b][2]):

- Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants
- Actual or potential contamination of drinking water supplies or sensitive ecosystems
- Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release
- High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate
- Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released
- Threat of fire or explosion
- Other situations or factors that may pose threats to public health or welfare or the environment

#### **3.1 THREATS TO PUBLIC HEALTH OR WELFARE**

The following threat applies to conditions at Hangar 1:

- Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants

PCBs are a “pollutant or contaminant” as defined in Section 101(33) of CERCLA. The nature of this risk indicates that removal of all interior structures and siding, and containment of the PCBs in structural steel paint with an epoxy coating will mitigate the immediate threat to public health.

#### **3.2 THREATS TO THE ENVIRONMENT**

The principal threat from the continued release of PCBs from the Hangar 1 siding is the threat to terrestrial receptors through a food chain that has worms and other small animals that live in sediments ingesting PCBs and then in turn being eaten by other animals, including birds. This results in the bioaccumulation of PCBs in the tissue of these animals (Navy, 2003).

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## **4.0 ENDANGERMENT DETERMINATION**

Releases of PCBs in the form of Aroclor 1260 and Aroclor 1268 from this site, at the levels previously detected, may present an imminent and substantial danger to the environment if not addressed by implementing the removal action selected in this AM.

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## **5.0 PROPOSED REMOVAL ACTION AND ESTIMATED COST**

### **5.1 PROPOSED ACTION**

The proposed removal action would include demolition or deconstruction of the interior structures of the hangar. Any asbestos-containing material abatement required as part of interior demolition would also be performed as necessary. The hangar windows, doors, siding, and other exterior components would also be removed, characterized, segregated, and properly disposed of at an approved off-site facility. Assumptions were made regarding waste classification for the purpose of the EE/CA based on previously collected data; however, all waste would be fully characterized prior to off-site disposal and would be managed accordingly. Activities would include pressure washing the remaining hangar structure, followed by analysis and disposal of the rinsate. The final step would be to coat the structural steel frame with a primer and finish coat of weather-resistant epoxy to contain the steel paint.

Proposed historic mitigation measures to be performed as part of the NTCRA include Level 1 Historic American Engineering Record documentation, oral histories of individuals who worked in the hangar during different eras, virtual Hangar 1 interactive documentation on compact disk, inventory-catalogue of Hangar 1 collections, preservation of Hangar 1 man-cranes, and coating the steel frame with a protective coating similar in color to the former siding.

#### **5.1.1 Contribution to Remedial Performance**

Due to the comprehensive nature of this removal and the full compliance with applicable or relevant and appropriate requirements (ARARs), the response is considered fully protective of human health and the environment.

#### **5.1.2 Description of Alternative Technologies**

A comprehensive EE/CA was completed by the Navy as required for NTCRAs (Navy, 2008). Thirteen removal action alternatives were evaluated in the EE/CA to address the PCB contamination. The 13 alternatives evaluated for this NTCRA are as follows:

- Alternative 1: Enclose entire hangar inside another structure
- Alternative 2: Cover with rubberized material
- Alternative 3: Coat with asphalt-emulsion
- Alternative 4: Coat with acrylic coating
- Alternative 5: Coat with plasma-sprayed oxide
- Alternative 6: Cover with new visually similar siding
- Alternative 7: Media blast contaminated surfaces

- Alternative 8: Neutralize PCBs using emulsified bimetallic extraction
- Alternative 9: Remove contaminants by chemical stripping and coating
- Alternative 10: Remove siding and coat exposed surfaces
- Alternative 11: Demolish and remove hangar
- Alternative 12: Collect stormwater runoff and treat on site
- Alternative 13: Collect stormwater runoff and treat/dispose off site

All alternatives were fully evaluated against the CERCLA remedial criteria of implementability and effectiveness. Those alternatives that satisfied the threshold criteria of complying with ARARs and protecting human health and the environment, and which were also determined to be effective and implementable, were then assessed for their cost. Based on the comparative analysis of the removal action alternatives in terms of implementability, effectiveness, and cost, the Navy's recommended alternative in the EE/CA was Alternative 10, removal of all interior structures and siding, containment of PCBs in the structural steel paint with an epoxy coating, and disposal of contaminated and non-contaminated debris to appropriate off-site disposal facilities. Alternative 10 was recommended in the EE/CA as the best removal action approach to address the threat posed by the release of PCBs.

### 5.1.3 ARARs

Section 300.415(j) of the NCP provides that removal actions must attain ARARs to the extent practicable, considering the exigencies of the situation.

Section 300.5 of the NCP defines relevant and appropriate requirements as cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental, or state environmental, or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, or contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site and are well-suited to the particular site.

Because CERCLA on-site response actions do not require permitting, only substantive requirements are considered as possible ARARs. Administrative requirements such as approval of or consultation with administrative bodies, issuance of permits, documentation, reporting, record keeping, and enforcement are not ARARs for CERCLA actions confined to the site.

There are three types of ARARs. The first type includes chemical-specific requirements. These ARARs set limits on concentrations of specific hazardous substances, contaminants, and pollutants in the environment. Examples of this type of ARAR are ambient water quality criteria and drinking water standards. The second type of ARAR includes location-specific requirements for activities based on site characteristics, including activities in wetlands, floodplains, and historic sites. The third type of ARAR includes action-specific requirements, which are

technology-based restrictions that are triggered by the type of action under consideration. Examples of action-specific ARARs are regulations for waste treatment, storage, and disposal under the Resource Conservation and Recovery Act (RCRA). ARARs must be identified on a site-specific basis from information about specific chemicals at the site, specific features of the site location, and actions that are being considered as removal actions.

As the lead federal agency, the Navy has primary responsibility for identifying federal ARARs at Moffett. The substantive provisions of the following potential federal chemical-, location-, and action-specific ARARs were identified for this NTCRA.

#### **5.1.3.1 Chemical-Specific ARARs**

Requirements under RCRA for identification of hazardous waste (42 U.S.C., Chapter 82, §§ 6901–6991[i], and California Code of Regulations [Cal. Code Regs.] Title [tit.] 22, § 66261.21, 66261.22[a] [1], 66261.23, 66261.24[a] [1], and 66261.100) are potential federal ARARs.

The federal water quality criteria at 40 C.F.R. §§ 131.36(b), 131.37, and 131.38 (referred to as the National Toxics Rule and the California Toxics Rule) are potentially applicable federal requirements for any discharges to surface water.

RCRA land disposal restrictions (LDRs) at Cal. Code Regs. tit. 22, § 66268.1(f) are potential federal ARARs for discharging waste to land.

Bay Area Air Quality Management District (BAAQMD) Regulation 6-301 limits visible emissions from the site; BAAQMD Regulation 8, Rule 3, requires architectural coatings to meet standards for maximum volatile organic compound content; BAAQMD Regulation 11, Rule 1 requires air monitoring for lead, a hazardous air pollutant; and BAAQMD Regulation 11, Rule 2 covers asbestos management and removal requirements during demolition and renovation projects.

If the generated wastes are classified as a non-RCRA-hazardous waste, then Cal. Code Regs. tit. 22, § 66268.105 could be potentially applicable. These standards must be attained prior to land disposal of the waste. Assumptions were made regarding waste classification for purpose of the EE/CA based on previously collected data; however, all waste will be fully characterized prior to off-site disposal and will be managed accordingly.

#### **5.1.3.2 Location-Specific ARARs**

The substantive provisions of Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C., § 470 et seq.) and their implementing regulations (36 C.F.R., Part 800), as amended, are federal ARARs. The Navy is required to take into account the effects of CERCLA removal actions on any historic properties included in or eligible for inclusion in the NRHP.

These substantive requirements have been addressed by the Navy in the CERCLA removal action selection process in lieu of the procedural requirements set forth in 36 C.F.R., Part 800. The Navy has coordinated with the Office of Historic Preservation, the Advisory Council on Historic Preservation, and other interested parties to give these interested parties an opportunity to comment on the proposed action to ensure that the substantive requirements of the NHPA and 36 C.F.R., Part 800 have been adequately addressed.

Interested parties were given an opportunity to review and comment on the EE/CA, and their comments have been addressed in responsiveness summaries accompanying this AM. The Removal Action Work Plan will also be made available to these interested parties for review and comment.

The Migratory Bird Treaty Act requirements are found at 50 C.F.R., § 10.13. It is the Navy's position that this act is not legally applicable to the Navy actions. However, the Migratory Bird Treaty Act is considered a potentially relevant and appropriate requirement for this removal action because of the potential for the hangar to serve as a temporary roosting area. A biological survey will be conducted prior to beginning the removal action to address migratory birds.

Section 3005(a) of the California Fish and Game Code prohibits the taking of birds and mammals by poison (site contaminants). The requisite federal sovereign immunity waiver does not exist to authorize applicability of the California Fish and Game Code. However, the substantive requirement of the California Fish and Game Code to prevent the taking of birds and mammals by site contaminants is deemed to be relevant and appropriate. The taking of birds and mammals will be prevented by containing contaminants and severing the pathway of exposure to or from siding contaminants.

### **5.1.3.3 Action-Specific ARARs**

Cal. Code Regs. tit. 22, § 66262.10(a) and 66262.11 include standards that are applicable to generators of hazardous waste. Requirements include obtaining a USEPA identification number, determining if wastes are hazardous or not, and accumulating waste within specified time limits. Also included are requirements for characterization for pretreatment of waste prior to disposal of hazardous waste on land (Cal. Code Regs. tit. 22, § 66268.7).

Cal. Code Regs. tit. 22 § 66262.34 permits hazardous wastes to be accumulated on site for up to 90 days without having to obtain a permit. In order to comply with accumulation requirements, waste must be stored in containers in accordance with § 66262.171–178.

RCRA wastes, which are land disposed, will be subject to LDRs and must attain contaminant levels achievable by best demonstrated available technology. Regulations are presented in Cal. Code Regs. tit. 22, § 66268.40. Non-RCRA-hazardous waste LDRs are presented in Cal. Code Regs. tit. 22, § 66268.105.

There are requirements under RCRA for pre-transport (Cal. Code Regs. tit. 22 § 66262.30, 66262.31, 66262.32, 66262.33, and 66262.20–66262.23) as well as requirements under the Federal Hazardous Materials Transportation Law for transport of hazardous materials (49 U.S.C. § 5101-5127 and 49 C.F.R. § 171.2[f], 171.2[g], 172.300, 172.301, 172.302, 172.303, 172.304, 172.312, 172.400, and 172.504).

For demolition work, there are requirements under the Clean Air Act (42 U.S.C. § 7401 et seq. and BAAQMD Regulations 6, 6-301, 6-302, and 6-305 and Regulation 8, Rule 40).

Toxic Substances Control Act (TSCA) regulations govern the management and disposal of PCBs contained within the siding, structural steel, and other materials used to build Hangar 1. Because the PCBs are integral to the manufacture of the product and their presence is not the result of a spill or release from another source, upon disposal, the siding is defined as PCB bulk product waste. Regulations in 40 C.F.R., § 761.60(e) and 761.62(a) govern the disposal of bulk product waste and allow for disposal through a variety of methods. Only those methods specified in § 761.62(a) are permissible at the site due to the fact that the siding is also considered RCRA-regulated because of the lead content of the paint.

The requirements of 40 C.F.R., § 761.40, 761.50, and 761.65 govern the storage and disposal of PCBs and are potentially applicable. All TSCA waste will be managed in accordance with TSCA regulations. Waste that is also considered hazardous waste will be managed under both TSCA and RCRA requirements. Requirements of § 761.180 govern the required recordkeeping and monitoring that apply to PCBs.

The regulation at 40 C.F.R., § 761.79 provides expanded decontamination procedures. It is potentially applicable to the decontamination of TSCA waste, as well as the decontamination of tools and equipment that contact PCBs during the removal action. The regulation of 40 C.F.R., § 61(a)(5)(v) provides disposal requirements for personal protective equipment and nonporous surfaces that have been decontaminated. These requirements are applicable to wastes generated during cleaning activities, which may occur as a result of removal and reuse of man-cranes.

The Navy will also comply with the following substantive provisions of the General Permit: substantive requirements for development and implementation of Best Management Practices (BMPs), substantive requirements for the content of a Stormwater Pollution Prevention Plan (SWPPP), and substantive technical monitoring and analytical requirements (location and frequency of sample collection, parameters to be tested, and analytical methodologies). Compliance with these substantive requirements will be documented in an appendix to the Removal Action Work Plan titled “Stormwater Management Plan.” This plan will include descriptions of the BMPs to be implemented during the removal action and address substantive SWPPP requirements.

## Staging Piles

Wastes generated during the removal action will be stockpiled on lined and bermed stockpile areas prior to off-site disposal. It is expected that the stockpiled wastes will be RCRA-hazardous; however, waste characterization will be conducted during the removal action.

If, based on representative sampling and analysis of each waste stream, wastes are determined to be RCRA hazardous waste, then the substantive provisions of the amended (effective April 22, 2002) RCRA staging pile regulations are potentially applicable. These regulations consist of the performance and technical standards for staging piles (40 C.F.R., § 264.554[d][1][i-ii] and [d][2]), and closure requirements for staging piles (§ 264.554[j]-[k]). A staging pile may be designated for temporary (up to 2 years or more based on the necessity to assure timely and efficient implementation of remedial actions [§ 264.554{i}{2}]) treatment or storage of solid, nonflowing remediation waste. The RCRA LDRs, the landfill minimum technology requirements, and the waste pile permitting requirements are not applicable to staging piles for RCRA hazardous wastes. For units located in a previously contaminated area of the facility, all remediation wastes, contaminated containment system components, structures, and equipment that are contaminated with waste or leachate must be removed or decontaminated within 180 days after the operating term of the staging pile expires (§ 264.554[j]). In addition, contaminated subsoils must be decontaminated. For units located on uncontaminated areas of the facility, within 180 days following expiration of the operating term, the staging pile must be closed in accordance with waste pile closure requirements at Cal. Code Regs. tit. 22, § 66264.258(a) or § 66265.258(a) and the closure performance standards at Cal. Code Regs. tit. 22, § 66264.111.

### 5.1.3.4 Compliance with ARARs

Removing the hangar siding and coating the infrastructure surfaces would comply with federal and California State ARARs. Storage and decontamination requirements would comply with appropriate RCRA and TSCA ARARs. BAAQMD regulations would be applicable due to the potential for dust generation during removal of side panels. Visible emissions, emission limit rates for particulate matter, lead emissions, and requirements for asbestos management would all be potentially applicable to the removal action. Implementing engineering controls, such as adequately wetting the siding prior to dismantling and carefully lowering the siding panels to the ground, would limit emissions during the siding removal. With the implementation of engineering controls and appropriate air monitoring, the removal action would comply with air quality ARARs. ARARs involving surface water requirements would be met through the implementation of stormwater BMPs during the NTCRA.

The storage, disposal, and management of Hangar 1 siding and roofing would be regulated under RCRA and TSCA. Large quantities of RCRA and TSCA waste would be generated and would require careful oversight to ensure that RCRA/TSCA waste streams were stored in accordance with regulations. Solids, rinsate, and other wastes would be characterized, managed, and disposed of properly. Compliance with RCRA and state non-RCRA-hazardous waste ARARs

would be maintained. Assumptions were made regarding waste classification for the purpose of the EE/CA based on previously collected data; however, all waste would be fully characterized prior to off-site disposal and would be managed accordingly.

The removal action will comply with ARARs identified above. Tables 5-1 through 5-6 present the ARARs in more detail. Refer to Section 4.0 of the EE/CA (Navy, 2008) for a more detailed narrative discussion of ARARs.

#### 5.1.4 Project Schedule

Pending contract award, project activities are scheduled to begin late 2009.

### 5.2 ESTIMATED COSTS

The Navy has made a present-worth estimate of the NTCRA costs. The estimated costs include the direct and indirect capital costs of the proposed removal action. Post-removal site control costs are not anticipated for this NTCRA. The items discussed below are considered to be capital costs.

The costs include activities associated with:

- Preparation of a work plan
- Implementation of a community relations program
- Demolition or deconstruction, and disposal of all interior structures
- Complete removal of the siding
- Removal of the resulting contaminated and noncontaminated debris to appropriate off-site disposal or recycling facilities

The estimated cost for application of a coating to the surfaces of the Hangar 1 steel infrastructure and operations and maintenance costs for 30 years are included in the estimate. The estimated cost for the removal action is \$25.8 million, with a breakdown of the estimated cost shown as follows:

	<b>Estimated Cost</b>
<b>Direct Capital Cost</b>	
Construction	\$15,781,450
<b>Indirect Capital Costs</b>	
Construction	\$6,916,700
<b>Total Operations and Maintenance (30 years)</b>	<b>\$3,114,647</b>
<b>Removal Action Total (Rounded)</b>	<b>\$25,810,000</b>

In addition, the costs for historic mitigation measures were estimated. These measures are Level 1 Historic American Engineering Record documentation, oral histories of individuals who worked in the hangar during different eras, virtual Hangar 1 interactive compact disk, inventory-catalogue of Hangar 1 collections contained in the Moffett Field Museum, and coating the steel frame with a protective coating similar in color to the hangar's former siding. Historic mitigation costs are an additional \$350,000. Cost for preservation of man-cranes and coating the steel frame are included in the removal action construction cost.

## **6.0 EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

The previous siding encapsulation effort is reaching the end of its warranty period. Therefore, there is an increasing threat that the coating on the siding will begin to fail, thus allowing the release of PCBs into the environment.

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## 7.0 PUBLIC INVOLVEMENT

The Navy has actively sought input from the California State Historic Preservation Officer/Office of Historic Preservation, Advisory Council on Historic Preservation chairman and staff, other stakeholders, and the public throughout the process of planning the NTCRA. Input was received through presentations and discussions at numerous Restoration Advisory Board meetings, public meetings, stakeholder meetings, open houses, briefs to political aides, letters, information updates, telephone calls, and opportunities to review and comment on documents.

The EE/CA was first issued on May 5, 2006, followed by a 45-day public comment period. An informational open house and a public meeting were held on May 23, 2006. The EE/CA was revised based on consideration of input from the public and new cost and technical information. In December 2007, the Navy released Moffett Field Update Number 4, which provided information on the structural analysis efforts being performed in support of the revised EE/CA. The revised EE/CA was issued on July 30, 2008, with a 45-day public comment period ending September 13, 2008. Appendix C includes a press release regarding the revised EE/CA and a public notice inviting the public to a meeting regarding Hangar 1 and the CERCLA process, where the Navy received comments from the public on the EE/CA. The press release was issued on August 4 and was picked up by 114 different media sources across the nation. The public notice and meeting invitation ran in three local papers and was mailed separately to 1,600 individuals.

The public meeting for the revised EE/CA was held on August 26, 2008, and was attended by approximately 200 community members. The meeting transcripts, including verbal comments from the public and regulatory agency staff, and the Navy's responses during the meeting, are on file in the Information Repository and the Administrative Record. A responsiveness summary to comments received on the EE/CA is provided in Appendix B.

Community relations activities to be conducted during the NTCRA will include:

- Presentation of the progress of the removal action during scheduled Restoration Advisory Board and BRAC Cleanup Team meetings
- Maintenance of the information repository located at the Mountain View Public Library, 585 Franklin Street, Mountain View, CA 94041

The complete Administrative Record, including copies of this AM and the Hangar 1 EE/CA, is maintained by Ms. Diane Silva, Records Manager (EVR.DS), 937 North Harbor Drive, FISC Building 1, 3rd Floor, San Diego, California 92132; telephone (619) 532-3676. The Administrative Record Index for this site is included as Appendix A.

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## **8.0 OUTSTANDING POLICY ISSUES**

No outstanding policy issues exist for this NTCRA.

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## 9.0 SELECTED ACTION

This AM was prepared in accordance with current USEPA and Navy guidance documents for NTCRAs under CERCLA (USEPA, 1990). This AM identifies actions necessary to address the existing and/or potential risk of harm to the environment.

The removal action alternative selected for the NTCRA consists of the complete removal of the hangar siding; demolition and deconstruction of all interior structures; removal of all debris to appropriate off-site disposal or recycling facilities; application of a weather-resistant epoxy coating to the hangar's structural steel frame; and implementation of historic mitigation measures described in Section 5.1. This alternative was selected because the primary source of PCBs (the Robertson Protected Metal siding) will be removed, and remaining PCBs in the structural steel paint will be adequately contained; thus, there will be minimal threat of any potential future release of PCBs into the environment. This alternative best meets the RAO and the NCP criteria because it:

- Is technically feasible based on commonly used construction techniques and demonstrated proven approaches
- Is administratively feasible; it uses federal funding for support and follow-on maintenance of the steel coating
- Uses widely available conventional construction equipment, services, and skilled workers
- Provides a high degree of long-term protection of the public and the environment, because the PCBs in Hangar 1 siding and associated interior components are removed, and the remaining PCBs in the structural steel paint are contained
- Complies with ARARs
- Provides adequate short-term effectiveness during implementation
- Imposes minimal restrictions on future use of the site and provides a frame that could be used for future development

As documented by the signature below, the Navy has approved the selected alternative.

For the United States Navy:



Darren Newton  
Base Realignment and Closure Environmental Coordinator  
BRAC Program Management Office West

31-DECEMBER-2008  
Date

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## 10.0 REFERENCES

- Benchmark Environmental Engineering. 2003. Polychlorinated Biphenyl, Lead, and Asbestos Sampling Report. Hangar 1, Moffett Field, Mountain View, California. January.
- Harding ESE (Harding Environmental Science and Engineering). 2002. Ambient Air Sampling and Analysis Report, Moffett Field Hangar 1. Moffett Field, California. December.
- NASA (National Aeronautics and Space Administration). 2003. Revised Action Memorandum for the Sampling and Removal of the Contaminated Sediment from the Stormwater Drainage Trenches and Pavement Surrounding Hangar 1. July 17.
- Navy (Department of the Navy). 1994. National Register of Historic Places (NRHP) Registration Form for U.S. Naval Air Station Sunnyvale, CA Historic District.
- . 2003. Final Time-Critical Removal Action Work Plan for Hangar 1. Former Naval Air Station Moffett Field, Moffett Field, California. September 9.
- . 2008. Engineering Evaluation/Cost Analysis Revision 1. Installation Restoration Site 29, Hangar 1, Former Naval Air Station Moffett Field, Moffett Field, California. July 30.
- Page & Turnbull, Inc. 2001. Hangar One – Moffett Field, California, Re-Use Guidelines, prepared for NASA/ Ames Research Center. August.
- PAI (Professional Analysis, Incorporated). 2002. Report of Investigation for Source of Aroclor-1268 in Soil and Stormwater, NASA Ames Research Center. October.
- TtFW (Tetra Tech FW, Inc.). 2004. Time-Critical Removal Action Completion Report for Hangar 1. Former Naval Air Station Moffett Field, Moffett Field, California. March.
- USEPA (U.S. Environmental Protection Agency). 1990. Superfund Removal Procedures – Action Memorandum Guidance. USEPA/540/P-90/004. December.

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