



# Proposed Plan

## Operable Unit 1, Sites 14, 15, 17, 18, and 40

### Marine Corps Air Station Cherry Point, North Carolina

March 2010

## 1.0 INTRODUCTION

This **Proposed Plan** identifies the Preferred Alternative Remedy for past environmental concerns for Sites 14, 15, 17, 18 and 40 of **Operable Unit (OU) 1**, at Marine Corps Air Station (MCAS) Cherry Point, North Carolina. OU1 is comprised of 12 sites (i.e., Sites 14, 15, 16, 17, 18, 42, 47, 51, 52, 83, 92, and 98) based on their proximity to each other within the industrialized section of MCAS Cherry Point. The OU1 Central **Groundwater** Plume (six sites) and Sites 16 and 83 are being investigated separately under the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)**. Site 40 is not a listed OU1 site, but has historically been grouped within OU1 due to its proximity to the other sites. This proposed action will serve as a final action for the following sites:

<u>Index</u>	
1.0 – Introduction.....	1
2.0 – Installation Description.....	2
3.0 – Site 14.....	4
4.0 – Site 15.....	5
5.0 – Site 17.....	7
6.0 – Site 18.....	8
7.0 – Site 40.....	9
8.0 – Scope and Role of Response Action.....	10
9.0 – Community Participation.....	10
10.0 – References.....	12
11.0 – Glossary.....	12

- Site 14 Motor Transportation
- Site 15 Ditch and Area Behind Naval Aviation Depot (NADEP)
- Site 17 Defense Reutilization and Marketing Office (DRMO) Drainage Ditch
- Site 18 Facilities Maintenance Compound
- Site 40 NADEP Former Drum Storage Area

This Proposed Plan is issued by the United States Department of the Navy (Navy) [i.e., Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic (lead agency for site activities) and the MCAS Cherry Point **Environmental Affairs Department (EAD)**] and the **United States**

**Environmental Protection Agency (USEPA)** Region 4 (lead regulatory agency), in consultation with the **North Carolina Department of Environment and Natural Resources (NCDENR)**. The Proposed Plan is submitted in order to fulfill the public participation requirements as required under the CERCLA Section 117(a) and Section 300.430(f)(2) of the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)**.

### Mark Your Calendar for the Public Comment Period

**Public Comment Period**  
 April 6, 2010 – May 21, 2010

**Attend the Public Meeting**  
 April 20, 2010  
 Time – 6:00 pm

**Submit Written Comments**

The Navy, USEPA and NCDENR will accept written comments on the Proposed Plan during the public comment period. To submit comments or obtain further information, please refer to the insert page.

Place – Havelock Tourist and Event Center  
 201 Tourist Center Drive  
 Havelock, North Carolina 28532  
 Phone: (252) 444-4348



The Navy will hold a public meeting to explain the Proposed Plan. Verbal and written comments will also be accepted at this meeting.

**Location of Information Repository:**

For more information, check the MCAS Cherry Point **Environmental Restoration (ER)** Program public web site:  
<https://portal.navfac.navy.mil>  
 (see Section 9.3 for complete instructions)

If you do not have personal access to the internet, access to the MCAS ER Program public web site may be obtained at:  
**Havelock-Craven County Library**

This Proposed Plan summarizes information that can be found in the **Remedial Investigation (RI) Report** (TetraTech, 2002), 2009 **RI Addendum** (CH2M HILL, 2009), and other documents that can be found in the **Administrative Record** for MCAS Cherry Point (see Section 9.3 for access information). Also, a glossary of key terms used in this Proposed Plan is attached. Key terms are identified in **bold** print the first time they appear.

The Navy and USEPA, in consultation with NCDENR, will make the final decision on the remedial approach for OUI Sites 14, 15, 17, 18 and 40 after reviewing and considering information submitted during the 45-day **public comment period**. The Navy and MCAS Cherry Point, along with USEPA, may amend the Proposed Plan based on new information or comments from the public; therefore, public comment on the Proposed Plan is invited and strongly encouraged. Information on how to participate in this decision-making process is presented in Section 9.0.

## 2.0 INSTALLATION DESCRIPTION

MCAS Cherry Point is a 13,164-acre military reservation located adjacent to the city of Havelock in southeastern Craven County, North Carolina (Figure 1). MCAS Cherry Point is bound by the Neuse River to the north, Hancock Creek to the east and North Carolina Highway 101 to the south. The western boundary is an irregular property line located approximately 3/4-mile west of Slocum Creek.

MCAS Cherry Point was commissioned in 1942 and provides support facilities and services for the Second Marine Aircraft Wing, the Fleet Readiness Center East (FRCE, formerly NADEP), Combat Service Support Detachment 21 of the Second Marine Logistics Group, the Naval Air Maintenance Training Group Detachment, and the DRMO. MCAS Cherry Point maintains facilities for training and for supporting the Atlantic Fleet Marine Force aviation units and is designated as a primary aviation supply point. In 1943, an aircraft assembly and repair facility, FRCE, was added.

Hazardous wastes have been generated through historical aircraft assembly and maintenance operations. In 1994, MCAS Cherry Point was placed on USEPA's **National Priority List (NPL)**, established under CERCLA for sites contaminated by releases of hazardous substances.

## 2.1 OUI DESCRIPTION AND STATUS

OUI is one of nine operable units for MCAS Cherry Point. OUI is an industrial area approximately 565 acres in size, located in the southwestern portion of MCAS Cherry Point (Figure 2). OUI is bound by C Street and Sandy Branch to the northwest, portions of the MCAS Cherry Point flight line and runway to the northeast and southeast, and East Prong Slocum Creek to the southwest. OUI includes a number of buildings associated with the FRCE, borrow pit/disposal areas near Sandy Branch, the Industrial Wastewater Treatment Plant (IWTP), the DRMO and several support facilities.

The **Federal Facilities Agreement (FFA)** identified 12 sites that were to be investigated as part of 2002 RI for OUI (USEPA, 2005).



These sites are:

- Site 14 – Motor Transportation
- Site 15 – Ditch and Area Behind NADEP
- Site 16 – Landfill at Sandy Branch
- Site 17 – DRMO Drainage Ditch
- Site 18 – Facilities Maintenance Compound
- Site 42 – Industrial Wastewater Treatment Plant
- Site 47 – Industrial Area Sewer System
- Site 51 – Building 137 Plating Shop
- Site 52 – Building 133 Plating Shop and Ditch
- Site 83 – Building 96 Former Pesticide Mixing Area
- Site 92 – **Volatile Organic Compounds (VOCs) in Groundwater** near the Stripper Barn
- Site 98 – VOCs in Groundwater near Building 4032

Site 40, a NADEP Former Drum Storage Area, was identified in the **RCRA (Resource Conservation and Recovery Act) Facilities Assessment (RFA)** and is listed as **SWMU (Solid Waste Management Unit) N-22** in the

Air Station RCRA Part B permit. Site 40 is located southeast of Building 133 and northwest of Runway 5 within OU1. Site 40 was included in the OU1 RI due to the site's location within the OU1 boundary.

Sites 14, 15, 17, 18 and 40 (Figure 2) are the subject of this Proposed Plan. Descriptions of each of these sites and their statuses are presented in Sections 3.0 through 7.0. Other OU1 sites, including six sites associated with the OU1 central groundwater plume and Sites 16 and 83, will be addressed separately under CERCLA.

## 2.2 OU1 CHARACTERISTICS

OU1 is an industrial area that is mostly covered with buildings and pavement, including portions of the Air Station flight line.

### Hydrogeology

The hydrogeologic setting at OU1 consists of a water table aquifer (**surficial aquifer**) and several deeper aquifers with intervening **confining units** (in descending order, the Yorktown, Pungo River and Castle Hayne Aquifers). Investigation activities at OU1 have been performed in the top two aquifers beneath MCAS Cherry Point – the Surficial and Yorktown Aquifers. Contamination in groundwater at OU1 has been found to be limited to these aquifers.

For evaluation purposes, the surficial aquifer has been subdivided vertically into two groundwater zones due to differences in aquifer properties; the upper and lower surficial aquifers are defined as the upper 10 to 25 feet (ft) below ground surface (bgs) and lower 25 to 40 ft bgs, respectively. The fine-grained Yorktown confining unit ranges in elevation from approximately 20 to 34 ft below mean sea level (msl) (40 to 55 ft bgs) throughout OU1 and ranges in thickness from 6 to 9 ft beneath Buildings 133 and 137.

A **paleochannel** was identified to occur within southwestern OU1, as determined from United States Geological Survey (USGS) studies and from lithologic descriptions and groundwater levels from OU1 monitoring wells. Groundwater levels outside (northeast) of the paleochannel demonstrate a downward vertical gradient while groundwater levels within the paleochannel area show an

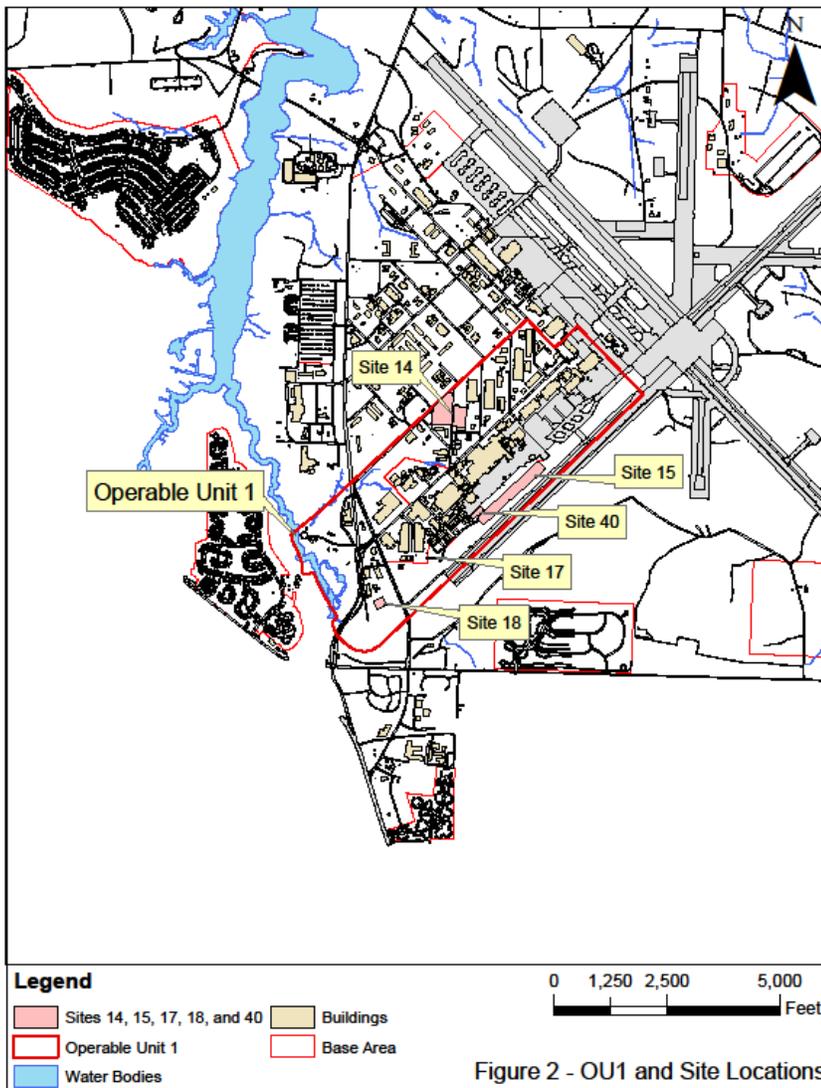


Figure 2 - OU1 and Site Locations

upward vertical gradient. All sites, with the exception of Site 18, are located outside of the paleochannel, above the Yorktown confining unit.

### Groundwater Flow

Groundwater generally flows westward in the upper surficial aquifer across OU1 towards East Prong Slocum Creek and Sandy Branch. The average horizontal hydraulic gradient is approximately 0.003 feet per foot (ft/ft) and the average horizontal groundwater velocity is approximately 0.1 ft/day. Groundwater within the lower surficial aquifer also flows generally westward towards East Prong Slocum Creek and Sandy Branch. The average horizontal hydraulic gradient is approximately 0.003 ft/ft and the average horizontal groundwater velocity is approximately 0.2 ft/day.

Within the central and northeastern portions of OU1 where the Yorktown confining unit underlies the surficial aquifer, the vertical groundwater flow direction is downward. Within the southwestern portion of OU1 where the paleochannel is present, the vertical groundwater flow direction is upward.

## 3.0 SITE 14 – MOTOR TRANSPORTATION

### 3.1 Site Description and Background

Site 14 is located in the central portion of OU1 at the intersection of C Street and Second Avenue and is bisected by Curtis Road (Figure 3). Site 14 is approximately nine acres in size and is flat and covered with asphalt and gravel. The area and associated buildings are used for parking lots, wash racks and vehicle maintenance. The western portion of the site is paved and used to store motor pool vehicles, and the eastern portion of the site is covered with gravel and used for heavy equipment storage. A hazardous materials storage area is located on the eastern edge of Site 14.

According to employee reports, waste oil was applied to the unpaved parking lots at Site 14 for dust control in the 1950s and 1960s. In 1977, a spill of approximately 2,000 gallons of aviation fuel, most likely jet fuel 5 (JP-5), occurred near Building 160. The spilled fuel and some contaminated soil were reportedly removed, but detailed information concerning the precise location of the spill and removal action is not known to exist.

Two **Underground Storage Tanks (USTs)** were formerly located within Site 14. UST 160, a 2,000-gallon tank, was located in the western portion of Site 14. UST 455, a 5,000-gallon waste oil tank was located in the eastern portion of Site 14. In addition to the two on-site USTs, adjacent to Site 14 to the south is Tank Farm C, which formerly consisted of 11 gasoline and diesel USTs of various capacities. All contamination associated with USTs 160 and 455 and Tank Farm C is under the jurisdiction of the MCAS Cherry Point UST Remediation Program, and has been addressed separately from the CERCLA-regulated sites included in this Proposed Plan.

### 3.2 Summary of Previous Investigations

Site 14 was identified in the **Initial Assessment Study (IAS)** and RFA and is identified as SWMU 1-14 in the Air Station RCRA Part B permit. In April 1994, as part of a SWMU Assessment Report (SAR) (U.S. Marine Corps, 1994), MCAS Cherry Point collected soil samples for oil and grease analysis to investigate the previously unreported claim that waste oil had been



Figure 3 - Site 14 Location Map

applied to the unpaved parking lots for dust control in the 1950s and 1960s. The SAR recommended surfactant placement on the ground surface. Two additional soil samples were collected in 1997 and analyzed for organic compounds (except pesticides and **polychlorinated biphenyls** [PCBs]) and metals. In 2000, as part of the OU1 RI activities, additional surface and subsurface soil samples were collected in and around Site 14 and analyzed for VOCs, **semivolatile organic compounds (SVOCs)**, pesticides, PCBs, hydrocarbons and metals.

### 3.3 Nature and Extent of Contamination

The results of the 2002 OU1 RI indicated that lead slightly exceeded the 400 parts per million (ppm) residential action level in two of 10 dry sediment samples – one west of UST 160 (473 milligrams per kilogram [mg/kg]) and one from a drainage swale southeast of the site near some railroad tracks (518 mg/kg) – but indicated that no dry sediment samples exceeded the industrial action level (750 ppm). Lead was also detected in groundwater, but not in the vicinity of the two dry sediment samples with concentrations above the residential action level. As a result, the lead in groundwater was attributed to contamination associated with leaking gasoline USTs rather than leaching from the soil. The lead detected in soil above background levels was also determined to be related to the UST sites (UST 160 and Tank Farm C); therefore, lead at Site 14 is addressed under the MCAS Cherry Point UST Program.

The 2002 OU1 RI also identified exceedances of the NCDENR **soil screening levels (SSL)** for several **inorganic constituents** (iron, mercury, chromium and cadmium) in soil and dry sediments at Site 14. The concentrations exceeding SSLs were found only at isolated locations, primarily in a drainage swale that receives runoff from a parking lot and railroad tracks, which supports the conclusion that the contaminants on this swale are likely from stormwater runoff regulated under the **Clean Water Act**. MCAS Cherry Point has an active stormwater management plan and the contamination within the swale is being monitored by that program.

**Chlorinated VOC** groundwater contamination has been identified and delineated south of Site 14, but has been attributed to the downgradient migration of the chlorinated VOC plume originating in the vicinity of Building 137 within FRCE. These chlorinated VOCs in groundwater are not related to Site 14 and are being addressed as part of ongoing investigation activities for the OU1 Central Groundwater Plume.

### 3.4 Summary of Site Risks

The **human health risk assessment (HHRA)** performed as part of the 2002 OU1 RI concluded that there are no unacceptable risks to human health from soil exposure.

Human health risks associated with chlorinated VOC contamination in groundwater are attributed to the downgradient migration of a plume originating in the vicinity of Building 137 within FRCE. The groundwater contamination in this area is associated with the OU1 Central Groundwater Plume and is included in a separate CERCLA investigation.

No ecological risks associated with Site 14 were identified in the 2002 OU1 RI.

### 4.0 SITE 15 – DITCH AND AREA BEHIND NADEP

#### 4.1 Site Description and Background

Site 15 – Ditch and Area Behind NADEP – is located within the southeastern portion of OU1, behind NADEP



Figure 4 - Site 15 Location Map

and adjacent to Runway 5 (Figure 4). The area consists of a stormwater drainage area and corresponding drainage ditch that ultimately leads to Schoolhouse Branch.

From the 1940s until as late as 1975, wastes generated in NADEP (now FRCE) were washed down floor drains and discharged to a ditch that flows into Schoolhouse Branch. This continued until all the industrial waste sewers serving Building 133 were connected to the IWTP. Wastes generated in FRCE include petroleum, oil, and lubricants (POL), organic solvents, cyanide and metals.

## 4.2 Summary of Previous Investigations

In 1984, Site 15 was investigated as part of an overall investigation of identified waste disposal sites throughout the Air Station.

In response to the RCRA Consent Order, additional investigations were conducted in 1991 at 21 sites, and presented in the report titled **Final RCRA Facilities Investigation (RFI) 21 Units** (Halliburton NUS, 1993).

The 1991 investigation was limited in scope because of the general absence of contamination observed during the earlier investigations.

As part of the 2002 OU1 RI, 30 surface soil samples were analyzed for **Target Analyte List (TAL)** metals and cyanide, and six surface soil samples were analyzed for **Target Compound List (TCL)** VOCs, TCL SVOCs and TCL pesticides/PCBs. Five subsurface soil samples were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, and TAL metals and cyanide.

## 4.3 Nature and Extent of Contamination

As reported in the 2002 OU1 RI, previous investigations at Sites 15 and 40 detected methylene chloride in soil above regulatory standards; however, the 2009 RI Addendum (CH2M HILL, 2009) determined that these concentrations were incorrectly reported. As presented in the 21 Unit RFI, methylene chloride detections in soil were “B” flagged, which means that concentrations were also detected in the associated lab method blanks. In addition, an aqueous trip blank result indicating a methylene chloride concentration of 310 micrograms per liter ( $\mu\text{g/L}$ ) was erroneously reported in the 2002 OU1 RI as a soil concentration of 310 micrograms per kilogram ( $\mu\text{g/kg}$ ). As a result, the methylene chloride detections observed in soil are not believed to be real conditions, but actually a result of laboratory contamination.

The results of the 2002 OU1 RI showed that two dry sediment samples collected from the Site 15 Ditch contained benzo(a)pyrene, dieldrin, mercury, nickel, and silver at concentrations above the soil-to-groundwater screening criteria and that one dry sediment sample from the same ditch contained chromium above the soil-to-groundwater screening criteria; however, none of these compounds were detected in nearby groundwater samples. Soil-to-groundwater screening levels are meant to flag areas where contamination may be concentrated enough to contaminate the groundwater, but data demonstrates that this is not occurring at Site 15.

## 4.4 Summary of Site Risks

Contamination was not identified at Site 15 (CH2M HILL, 2009). The 2002 OU1 RI combined Sites 15 and 17 into a single soil grouping and attributed the

### What is Human Health Risk and How is it Calculated?

A human health risk assessment estimates the "baseline risk." This is an estimate of the likelihood of health problems occurring if no cleanup action was taken at a site. To estimate the baseline risk at a site, the Navy performs the following four-step process:

#### Step 1: Analyze Contamination

#### Step 2: Estimate Exposure

#### Step 3: Assess Potential Health Dangers

#### Step 4: Characterize Site Risk

In **Step 1**, the Navy looks at the concentrations of contaminants found at a site as well as past scientific studies on the effects these contaminants have had on people (or animals, when human studies are unavailable). Comparisons between site-specific concentrations and concentrations reported in past studies help the Navy to determine which contaminants are most likely to pose the greatest threat to human health.

In **Step 2**, the Navy considers the different ways that people might be exposed to the contaminants identified in Step 1, the concentrations that people might be exposed to, and the potential frequency (how often) and length of exposure. Using this information, the Navy calculates a "reasonable maximum exposure (RME)" scenario that portrays the highest level of human exposure that could reasonably be expected to occur.

In **Step 3**, the Navy uses the information from Step 2 combined with information on the toxicity of each chemical to assess potential health risks. The Navy considers two types of risk: (1) cancer risk, and (2) noncancer risk. The likelihood of any kind of cancer resulting from a contaminated site is generally expressed as an upper bound probability; for example, a "1 in 10,000 chance." In other words, for every 10,000 people that could be exposed, one extra cancer may occur as a result of exposure to site contaminants. An extra cancer case means that one more person could get cancer than normally would be expected to from all other causes. For noncancer health effects, the Navy calculates a "hazard index." The hazard index represents the ratio between the "reference dose," the dosage at which no adverse health effects are expected to occur, and the "reasonable maximum exposure," the estimated maximum exposure level for a given category of individuals coming into contact with contaminants at the Site. The key concept is that a "threshold level" (measured usually as a hazard index of less than 1) exists below which noncancer health effects are no longer predicted.

In **Step 4**, the Navy determines whether site risks are great enough to cause health problems for people at or near the site. The results of the three previous steps are combined, evaluated, and summarized. The Navy adds up the potential risks from the individual contaminants and exposure pathways and calculates a total site risk.

risk from PCB contamination for both sites based on the contamination at Site 17. The Site 17 Risk Assessment is discussed in Section 5.4 of this Proposed Plan.

The **Step 3A Addendum to the Ecological Risk Assessment (ERA) (Step 3 Addendum)** for Operable Unit 1 concluded that Site 15 was not an area of concern for ecological risk (CH2M HILL, 2003).

## 5.0 SITE 17 – DRMO DRAINAGE DITCH

### 5.1 Site Description and Background

Site 17 – DRMO Drainage Ditch is a 300-foot-long drainage ditch, located in the southeastern portion of OU1, next to the DRMO (Figure 5). The ditch is used as part of the MCAS storm drainage system and drains toward the Runway 5 ditch, which discharges to Schoolhouse Branch. The one-acre area adjacent to the site was historically used for storing materials that included dichlorodiphenyltrichloroethane (DDT), spent photographic fluid after silver recovery and PCB-containing transformers.

PCB-contaminated oil was reportedly drained from transformers into the ditch between 1961 and 1968. Six transformers, each containing 1,000 gallons of oil and approximately 100 smaller transformers which also contained 10 to 500 gallons of oil, were reportedly emptied in the drainage ditch.

### 5.2 Summary of Previous Investigations

A removal action (IT, 1996) was conducted in 1995 that excavated PCB-contaminated soil and sediment at Site 17 to a depth of 1.5 feet and backfilled the excavated areas with clean fill. Confirmation samples collected during the removal action indicated that the PCB-contaminated soil had been removed.

Additional field investigations were conducted after the 1995 removal action and as part of the 2002 OU1 RI. PCB concentrations were detected above the screening criteria in shallow soil. Consequently, it was uncertain whether the PCB contamination was completely removed during the 1995 removal action. The exact area of the excavation could not be verified; therefore, further sampling was recommended.

In August 2008, CH2M HILL installed 16 temporary wells and collected soil and groundwater samples from these



wells. Ten PCB and six dieldrin soil samples were collected during this investigation. PCB and pesticide groundwater samples were also collected during this investigation. Permanent monitoring well 17GW03 was installed and sampled in April 2009 (**Supplemental Investigation [SI] OU1, Site 17**) (CH2M HILL, 2009) for PCBs and dieldrin. Analytical results for all media were compared against a variety of regulatory standards, as specified in the Sampling and Analysis Plan (SAP) (CH2M HILL, 2008). These screening levels are identified below by analyte:

- PCBs – Soil is compared to a 10,000- $\mu\text{g}/\text{kg}$  action level (based on the **Toxic Substances Control Act [TSCA]** and CERCLA). Groundwater is compared to a 0.5  $\mu\text{g}/\text{L}$ -action level (maximum contaminant level [MCL]). No state groundwater quality standards exist for PCBs; therefore, any detection at or above the **practical quantitation limit (PQL)** would be an exceedance of this standard.

- Dieldrin – Soil is compared to a 1.13- $\mu\text{g}/\text{kg}$  action level (NC SSL). Groundwater is compared to a 0.0022- $\mu\text{g}/\text{L}$  action level (**North Carolina 2L Groundwater Quality Standard [NC2L]**). NCDENR groundwater regulations (15A NCAC 02L.0202 (b)(1)) state, “Where the standard for a substance is less than the practical quantitation limit, the detection of that substance at or above the practical quantitation limit shall constitute a violation of the standard.” Therefore, for dieldrin analysis in groundwater, because the NC2L of 0.0022  $\mu\text{g}/\text{L}$  is considerably lower than the achievable laboratory quantitation limit, the PQL became the action level. Any detection above 0.01  $\mu\text{g}/\text{L}$  was considered to be an exceedance of the NC2L.

### 5.3 Nature and Extent of Contamination

Additional soil and groundwater sampling was conducted in 2008 and 2009 to confirm that the remaining concentrations of PCBs and dieldrin were below regulatory screening criteria.

Aroclor-1260 was detected in soil at concentrations that ranged from 36 to 5,900  $\mu\text{g}/\text{kg}$ ; all sample results were below the action level of 10,000  $\mu\text{g}/\text{kg}$ . Aroclor-1260 was detected in six temporary monitoring well groundwater samples, at concentrations ranging from non-detect to 1.5  $\mu\text{g}/\text{L}$ . Four groundwater samples contained Aroclor-1260 at concentrations that exceeded its MCL of 0.5  $\mu\text{g}/\text{L}$ . The highest PCB concentrations in groundwater samples from temporary monitoring wells that exceeded the MCL were observed in two small, localized areas in the central and eastern portions of Site 17.

Due to concerns that PCBs in soil may have been carried downward to groundwater during the temporary monitoring well installation activities (conducted using the direct-push soil boring technique), a permanent monitoring well was installed less than 20 feet from the temporary monitoring wells in central Site 17 with detected PCB exceedances. Data collected from a permanent monitoring well is a better indication of actual groundwater conditions at Site 17. No PCBs were detected in a groundwater sample collected in May 2009 from the new permanent monitoring well 17GW03.

Dieldrin concentrations in soil ranged from non-detect to 17J  $\mu\text{g}/\text{kg}$ . Four soil samples had concentrations that exceeded the NC SSL (1.13  $\mu\text{g}/\text{kg}$ ), but concentrations in soil were lower than historical investigation results at the same locations. Two of the six temporary monitoring well groundwater samples contained dieldrin at concentrations above the NC2L of 0.0022  $\mu\text{g}/\text{L}$ . Exceedances in groundwater appear to occur in one localized area in the eastern portion of Site 17. Data was collected from

permanent monitoring well 17GW03 to verify the results of the temporary wells. Dieldrin was not detected in the groundwater sample collected from permanent monitoring well 17GW03 in May 2009.

### 5.4 Summary of Site Risks

Site 17 was identified as an area of potential ecological risk because it represents a continuing source of PCBs to downgradient aquatic systems (Schoolhouse Branch and EPSC) and poses risks to upper-trophic-level receptors. However, based on the data from the 2009 sampling effort, PCB concentrations were below screening levels; therefore, it is concluded that there are no longer unacceptable risks.

CH2M HILL conducted an HHRA as part of the Site 17 SI based on the data collected during the investigation. The results of the risk evaluation were as follows:

- Exposure of current and future industrial workers, residents, and construction workers to dieldrin and PCBs in shallow surface soil would not result in any unacceptable risks.
- Exposure of future construction workers to dieldrin and PCBs in shallow groundwater would not result in any unacceptable risks.
- Exposure of future residents to shallow groundwater as a supply for potable use would not result in any unacceptable risks. Although unacceptable risks were identified with the temporary well groundwater data, a permanent monitoring well was installed to verify the results and the sample analyses did not identify any contaminants of concern. Environmental data collected from permanent monitoring wells are more representative of actual groundwater conditions than data from temporary monitoring wells.

## 6.0 SITE 18 – FACILITIES MAINTENANCE COMPOUND

### 6.1 Site 18 Description and Background

Site 18 – Facilities Maintenance Compound is a fenced outdoor storage area approximately  $\frac{1}{2}$ -acre in size located in the southwest corner of OU1 south of Facility Maintenance Department Building 87 (Figure 6). The site is bound by Schoolhouse Branch to the south, a railroad track to the west and north, and Cunningham Boulevard to the east. Transformers, some of which may have contained PCBs, have historically been stored within a bermed

concrete pad. These transformers may have leaked PCB-contaminated oils onto soils at the site.

TCL VOCs, TCL SVOCs, TCL pesticides, PCBs, and TAL inorganics.

### 6.3 Nature and Extent of Contamination

The 2002 OU1 RI results identified limited exceedances of human health screening criteria in soil for SVOC and inorganic constituents.

SVOCs, including numerous **polycyclic aromatic hydrocarbons (PAHs)**, were detected in soil at Site 18. The majority of the SVOCs were detected in only one surface soil sample. Some SVOC constituents exceeded the USEPA Region 9 residential PRGs, but no SVOC constituents exceeded the USEPA Region 9 industrial soil standards.

A total of 18 inorganics were detected in the surface soil samples and 17 inorganics were detected in the subsurface soil samples. With the exception of zinc in one sample, all of the inorganic concentrations are at levels that are consistent with background conditions at MCAS Cherry Point.

The 2002 OU1 RI identified no groundwater contamination.

### 6.4 Summary of Site Risks

The 2002 OU1 RI identified no unacceptable risks to human health for all exposures to soil at Site 18, and the non-site-specific soil grouping. The 2002 OU1 RI also identified no ecological risks associated with Site 18.

## 7.0 SITE 40 – NADEP FORMER DRUM STORAGE AREA

### 7.1 Site Description and Background

Site 40 – NADEP Former Drum Storage Area is located within the southeastern portion of OU1 adjacent to Site 15 and Runway 5 (Figure 7). Between 1979 and 1984, the area was used for storage of hazardous waste generated at FRCE. Wastes included organic solvents, strippers, corrosion prevention compounds, and cyanide wastes. After 1984, the area was used exclusively to store sandblasting residues and waste. Between 1991 and 1992, the site was remediated under RCRA authority. Soil was excavated and tilled (aerated) on site to remove VOCs. Soil suspected of metal contamination was removed and disposed of at an off-site landfill. Remediated soil was used as backfill, and the site was covered with crushed stone. Verification samples were collected during closure. The site is now used to store equipment and is no longer used to store wastes.



Figure 6 - Site 18 Location Map

### 6.2 Summary of Site Investigations

The 2002 OU1 RI Work Plan identified Site 18 as a site that required further investigation. No investigations were previously conducted within the fenced area of the site. A soil boring located outside the fenced area was installed in 1990 as part of a Site 16 investigation. A soil sample was collected during the installation of the boring and it was analyzed for VOCs; none were detected.

In a field effort associated with the 2002 OU1 RI, a total of 19 surface and subsurface soil samples were collected from six boring locations from depths ranging from one foot to eight feet below ground surface. The borings were installed around the perimeter of the existing transformer pad within Site 18. The samples were field-screened for PCBs. Six soil samples (three surface and three subsurface) were sent to a fixed-base laboratory for comparative analysis. These samples were analyzed for

## 7.2 Summary of Site Investigations

In response to the RCRA Consent Order, additional investigations were conducted in 1991 at 21 sites, and presented in the Final RCRA RFI 21 Units Report. In the field effort, six surface soil samples were analyzed for TCL VOCs and three were analyzed for TCL SVOCs.

## 7.3 Nature and Extent of Contamination

Methylene chloride was the only VOC detected in the soil samples at concentrations above the soil to groundwater screening criteria. Methylene chloride was detected in the six soil samples collected in the Site 40 area. The VOC toluene was detected below the soil to groundwater screening criteria in one sample (3 µg/kg).

The 2009 RI Addendum determined that the methylene chloride concentrations were incorrectly reported. As presented in the 21 Unit RFI, methylene chloride detections in soil were “B” flagged, which means that concentrations were also detected in the associated lab method blanks. In addition, an aqueous trip blank result indicating a methylene chloride concentration of 310 µg/L was reported in the 2002 OU1 RI as a soil concentration of 310 µg/kg. As a result, the methylene chloride detections observed in soil are not believed to be real conditions, but rather influenced by the laboratory analytical methods.

## 7.4 Summary of Site Risks

Based on the 2002 OU1 RI, there are no human health or ecological risks associated with Site 40.

## 8.0 SCOPE AND ROLE OF RESPONSE ACTION

OU1 Sites 14, 15, 17, 18, and 40 are being addressed in this Proposed Plan because the Preferred Remedy identified for all of these Sites is **No Further Action (NFA)**. The NFA decision is the final action for these sites under CERCLA and does not include or affect any other sites or operable units at MCAS Cherry Point. The Navy concluded that NFA is the appropriate remedy because there is no remaining significant risk to human health or the environment posed by Sites 14, 15, 17, 18, and 40. The level of contamination at these sites has either fallen beneath regulatory levels of concern, or the contamination is being addressed by one of the other environmental programs, such as the UST program or the stormwater management plan.

Contamination issues associated with OU1 Sites 16 and 83 are being addressed separately; a **Feasibility Study (FS)** is



Figure 7 - Site 40 Location Map

currently underway for this group of sites. The remainder of the OU1 sites requiring further investigation – Sites 42, 47, 51, 52, 92 and 98 – are being addressed collectively as part of the OU1 Central Groundwater Plume. A FS is also currently being conducted for the OU1 Central Groundwater Plume and associated sites.

The Proposed Action for OU1 Sites 14, 15, 17, 18, and 40 is NFA. Under the Proposed Action, no response action will be performed at the sites and no restrictions on land use would be imposed. Based on the evaluation of the data and information currently available, the Navy concludes that the Proposed Action meets the statutory requirements of CERCLA for protection of human health and the environment.

## 9.0 COMMUNITY PARTICIPATION

Community participation at MCAS Cherry Point includes a **Restoration Advisory Board (RAB)**, public meetings, a public information repository, newsletters, fact sheets, public notices, and an ER Program web site. The Community Involvement Plan for MCAS Cherry Point provides detailed information on community participation for the ER Program. The RAB was formed in December 1995 and consists of community members and representatives of the USEPA, NCDENR, Navy, and MCAS Cherry Point. RAB meetings are usually held

quarterly and are open to the public to provide an opportunity for comments and questions. The OUI investigations, findings, and the potential remedial approaches have been presented and discussed at multiple RAB meetings.

Nearby residents and other interested parties are strongly encouraged to use the comment period to relay any questions and concerns about Sites 14, 15, 17, 18, and 40 and the Proposed Action. The Navy will summarize and respond to comments in a responsiveness summary, which will then become part of the official **Record of Decision (ROD)**.

This Proposed Plan fulfills the public participation requirements of CERCLA Section 117(a), which specifies that the lead agency (i.e., the Navy) must publish a plan outlining any remedial alternatives evaluated or removal actions completed for the site and identifying the Proposed Action. All documents referenced in this Proposed Plan are available for public review on the MCAS Cherry Point ER Program public web site. Instructions for accessing the documents are provided in Section 9.3.

**During the comment period, interested parties may submit written comments to the following addresses:**

**Mr. Jason Williams, Code OPNCEV**  
NAVFAC Mid-Atlantic  
LRA, Building C, NC IPT  
6506 Hampton Blvd.  
Norfolk, VA 23508-1278  
(757) 322-4793

**Ms. Gena Townsend**  
US Environmental Protection Agency, Region 4  
Superfund Division  
Atlanta Federal Center  
61 Forsyth St.  
Atlanta, GA 30303  
(404) 562-8538

**Mr. George Lane**  
NC Dept. of Environment and Natural Resources  
Superfund Section  
1646 Mail Service Center  
Raleigh, NC 27699-1646  
(919) 508-8462

## 9.1 Public Comment Period

The public comment period for the Proposed Plan provides an opportunity for the community to provide input regarding the Proposed Action for Sites 14, 15, 17, 18, and 40. The public comment period will be from April 6, 2010 through May 21, 2010, and a public meeting will be held on April 20, 2010 at 6:00 pm at the Havelock Tourist and Event Center. All interested parties are encouraged to participate in the Navy's CERCLA activities at MCAS Cherry Point. The meeting will provide an additional opportunity to submit comments on the Proposed Plan. A public notice will be published in area newspapers announcing the availability of the Proposed Plan and the public comment period. In addition, a public notice will also be published in area newspapers announcing the date, time, and location of the public meeting.

Written comments must be postmarked no later than May 21, 2010. The back page included with this Proposed Plan may be used to provide written comments. Please fold the page and add postage where indicated. The use of this form is not required.

## 9.2 Record of Decision

After the public comment period, the Navy and MCAS Cherry Point, in conjunction with the USEPA and with concurrence from NCDENR, will determine whether the NFA decision proposed in this plan should be modified on the basis of comments received. Any required modifications will be made by the Navy and MCAS Cherry Point. If modifications substantially change the Proposed Action, additional public comments may be requested. If not, the Navy, MCAS Cherry Point, and USEPA will prepare and sign the ROD, with concurrence from the State of North Carolina. The ROD will detail the Proposed Action chosen for the sites and will include the Navy's responses to comments received from the public.

## 9.3 Available Information

The Community Involvement Plan and technical reports supporting the remedial decision making process for OU1 are available for download by the public via the MCAS Cherry Point ER Program Public web site: <https://portal.navfac.navy.mil>. These documents can be accessed by the following steps:

1. Click on "Environmental" (on left) under the "Business Lines" heading
2. Click on "Environmental Restoration" (tab)
3. Select North Carolina on the interactive map
4. Select Cherry Point from the drop-down menu
5. Click on the "Links" tab to access OU1 documents

If a computer and internet access is not available from your home, access to the MCAS Cherry Point ER Program Public web site may be obtained at the following location:

Havelock-Craven County Library  
301 Cunningham Blvd.  
Havelock, NC 28532  
Phone: 252-447-7509

## 10.0 REFERENCES

A. T. Kearney. 1998. *Interim RCRA Facility Assessment Report, U.S. Marine Corps Air Station Cherry Point, North Carolina*. June.

CH2M HILL. 2003. *Step 3a Addendum to the Ecological Risk Assessment, Operable Unit 1, MCAS Cherry Point*. Prepared for Atlantic Division, Naval Facilities Engineering Command, Norfolk, Virginia. March.

CH2M HILL. 2008. *Sampling and Analysis Plan, Additional Investigations at Operable Unit 1, Site 17, Marine Corps Air Station, Cherry Point, North Carolina*. July.

CH2M HILL. 2009. *Final Supplemental Investigation Operable Unit 1, Site 17, Marine Corps Air Station, Cherry Point, North Carolina*. September

CH2M HILL. 2009. *OU1 Remedial Investigation Addendum, Marine Corps Air Station Cherry Point, North Carolina*. April.

Halliburton NUS. 1993. *Final RCRA Facilities Investigation (RFI), 21 Units, Marine Corps Air Station Cherry Point, North Carolina*. June.

IT Corporation. 1996. *Final Closeout Report; PCB-Contaminated Soils Removal, Sites 5 and 17, U.S. Marine Corps Air Station Cherry Point*. December.

TetraTech NUS, Inc. 2002. *Final Remedial Investigation Report for Operable Unit 1 (OU 1). Marine Corps Air Station, Cherry Point, North Carolina*. November.

USEPA, 2005. *Finalization of MCAS Cherry Point Federal Facility Agreement (EPA Administrative Docket CERCLA 04-2005-376) with Agreed Modification*. May.

U.S. Marine Corps, 1994. *Solid Waste Management Unit Assessment Report, SWMU 1-14, Motor Transportation, Cherry Point, North Carolina*. May.

Water and Air Research, Inc. 1983. *Initial Assessment Study of Marine Corps Air Station Cherry Point, North Carolina*, Prepared for Naval Energy and Environmental Support Activity (NEESA). March.

## 11.0 GLOSSARY

**Administrative Record:** A compilation of documents and information for CERCLA sites that is made available to the public for review.

**Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC 9601, et seq.):** A Federal law passed in 1980 (United States Code Title 42, Chapter 103), commonly referred to as the "Superfund" Program, that regulates and provides for cleanup and emergency response in connection with numerous existing, inactive hazardous waste disposal sites that endanger public health and safety or the environment. CERCLA was amended by Superfund Amendments and Reauthorization Act (SARA) in 1986.

**Chlorinated Volatile Organic Compound (Chlorinated VOC):** Volatile organic compounds (VOCs) are organic compounds (i.e. they contain carbon) that readily evaporate, or volatilize. Chlorinated VOCs are VOCs in which chlorine atoms substitute for one or more hydrogen atoms in the compound's structure (e.g., trichloroethene, 1,1,1-trichloromethane, etc.). Chlorinated VOCs are common components for solvents for grease removal and dry cleaning, and are commonly toxic in nature.

**Clean Water Act of 1977 (CWA):** The CWA amended the Federal Water Pollution Control Act first passed in 1956. Its objective is to "restore and maintain the chemical, physical and biological integrity of the Nation's waters." The Act's major enforcement tool is the National Pollutant Discharge Elimination System (NPDES) permit.

**Confining Unit:** A subsurface geologic layer, usually with high clay content, that is located between aquifer units and restricts the upward or downward transmission of pressure and groundwater flow due to its relatively low permeability.

**Ecological Risk Assessment (ERA):** An evaluation of the risk posed to ecological receptors (i.e., plants and animals) if remedial activities are not performed at the site.

**Environmental Affairs Department (EAD):** A department within the Marine Corps Air Station Cherry Point that exists to sustain and enhance mission readiness through compliance with relevant laws and regulations, prevention of pollution, and continual program improvement through an environmental management system.

**Environmental Restoration Program (ER, ERP):** Established in 1984 to help identify, investigate, and cleanup contamination on Department of Defense (DoD) properties; conducted under the auspices of CERCLA of 1980 and SARA of 1986; the DoD equivalent to the USEPA.

**Federal Facility Agreement (FFA):** An agreement between the USEPA and the DoD facilities (i.e., MCAS Cherry Point). The general purposes of the FFA are to:

1. Ensure that the environmental impacts associated with past and present activities at the site are thoroughly investigated and appropriate remedial action taken as necessary to protect the public health, welfare, and the environment.
2. Establish a procedural framework and schedule for developing, implementing and monitoring appropriate response actions at the Site in accordance with CERCLA/SARA, the NCP, Superfund guidance and policy, RCRA, RCRA guidance and policy.
3. Facilitate cooperation, exchange of information and participation of the parties in such actions.

**Feasibility Study (FS):** An analysis in which the data collected during the Remedial Investigation (RI) are used to develop and evaluate a list of potential remediation alternatives. A detailed technical evaluation is performed on each remedial alternative that considers the nine evaluation criteria specified by USEPA guidance.

**Groundwater:** The supply of freshwater beneath the Earth's surface that occurs in the pore spaces between soil grains or within fractures in geologic formations that are fully saturated.

**Human Health Risk Assessment (HHRA):** A qualitative and quantitative evaluation of the risk posed to human health by the presence of specific pollutants. Elements include: identification of the hazardous substances present in the environmental media, assessment of exposure and exposure pathways, assessment of the toxicity of the site's hazardous substances and characterization of human health risks.

**Initial Assessment Study (IAS):** A document produced in 1983 as part of the Navy Assessment and Control of Installation Pollutants program to systematically identify, assess, and control contamination from past hazardous materials management operations.

**Inorganic Constituents:** Chemical substances of mineral origin, not usually having a carbon structure.

**National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR Part 300):** The Federal regulations that guide determination of the sites to be corrected under both the Superfund (CERCLA) program and the program to prevent or control spills into surface waters or elsewhere.

**National Priority List (NPL):** A list developed by USEPA of uncontrolled hazardous substance release site in the United States that are considered priorities for long term remedial evaluation and response.

**No Further Action:** Remedial Action in which no response action is performed and no restrictions on land use are necessary.

**North Carolina 2L Groundwater Quality Standard (NC2L):** The Classifications and Water Quality Standards Applicable to the Groundwaters of North Carolina, North Carolina Administrative Code, Title 15A, NCDENR Division of Water Quality, Subchapter 2L.

**North Carolina Department of Environment and Natural Resources (NCDENR):** The State agency responsible for administration and enforcement of environmental regulations in North Carolina.

**Operable Unit (OU):** Consists of one or more potentially contaminated sites that have been grouped together due to their proximity to each other or due to similarity of contamination.

**Paleochannel:** A remnant of a former river or stream channel that has been filled and overlain by younger sediments.

**Polychlorinated biphenyls (PCBs):** A class of organic compounds with 1 to 10 chlorine atoms attached to biphenyl, which is a molecule composed of two benzene rings. PCBs were widely used for many applications, especially as dielectric fluids in transformers and capacitors and coolants. Due to PCB toxicity and classification as persistent organic pollutants, PCB production was banned by the United States Congress in 1976.

**Polycyclic Aromatic Hydrocarbons (PAHs):** Hydrocarbons with multiple benzene rings. PAHs are typical compounds found in asphalt, fuel, oils, and greases.

**Practical Quantitation Limit (PQL) (15A NCAC 02L.0102):** The lowest concentration of a given material that can be reliably achieved among laboratories within specified limits of precision and accuracy by a given analytical method during routine laboratory analysis.

**Proposed Plan:** A document that presents the proposed action or preferred remedial alternative and requests public input regarding its proposed selection.

**Public Comment Period:** The time allowed for the members of a potentially affected community to express views and concerns regarding an action proposed to be taken by USEPA, such as a rulemaking, permit, or Superfund-remedy selection.

**Restoration Advisory Board (RAB):** An advisory group for the restoration process with members from the public, the Navy, and the regulatory agencies. The purpose of the RAB is to gain effective input from the stakeholders on cleanup activities and increase installation responsiveness to the community's environmental restoration concerns.

**Resource Conservation and Recovery Act (RCRA):** RCRA, as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA), requires the establishment of a management system for hazardous waste (Subtitle C), non-hazardous solid waste (Subtitle D), and underground storage tanks (Subtitle I). RCRA also provides corrective action authority for cleanup of pre-RCRA hazardous waste management units and non-hazardous solid waste management units.

**RCRA Facilities Assessment (RFA):** A document produced as part of the 1984 HSWA to RCRA that authorizes the USEPA to require corrective action for releases of hazardous waste or hazardous constituents from Solid Waste Management Units (SWMUs) and other Areas of Concern (AOCs) at all operating, closed, or closing RCRA facilities. The RFA includes a preliminary review of all available relevant documents, a visual site inspection, and, if appropriate, a sampling visit.

**RCRA Facilities Investigation (RFI):** The purpose of a RFI is to determine the nature and extent of releases of hazardous wastes or hazardous constituents from regulated units, solid waste management units, and other source areas at a facility, and to gather necessary data to support the environmental indicator determinations.

**Record of Decision (ROD):** A legal document that describes the cleanup action or remedy selected for a site, the basis for choosing that remedy, and public comments that were considered regarding the selected remedy.

**Remedial Action (RA):** A cleanup method proposed or selected to address contaminants at a site.

**Remedial Investigation (RI):** A study in support of the selection of a remedy at a site where hazardous substances have been released. The RI identifies the nature and extent of contamination and analyzes human health and ecological risk associated with the contamination.

**Remedial Investigation Addendum (RI Addendum):** Acts as a supplement to the original Remedial Investigation.

**Semivolatile Organic Compounds (SVOCs):** Organic compounds (i.e. they contain carbon) that have high enough vapor pressures under normal conditions to significantly vaporize and enter the atmosphere.

**Soil Screening Level (SSL):** Calculated soil contaminant concentrations for the protection of the groundwaters of North Carolina. They reflect the levels of each chemical above which the potential exists for the contaminant to migrate through the soil and contaminate the groundwater. The SSLs are calculated by multiplying the North Carolina Groundwater Quality Standards by soil contaminant fate and transport factors.

**Solid Waste Management Unit (SWMU):** Any discernible unit in which wastes have been placed at any time, regardless of whether the unit was designed to accept solid waste or hazardous waste and from which contaminants may migrate. SWMUs include any area at a facility at which solid wastes have been routinely and systematically released. Only past releases from SWMUs that also meet the definition of CERCLA release are eligible for remediation through the ER Program.

**Step 3A Addendum to the Ecological Risk Assessment, Operable Unit 1, MCAS Cherry Point (OU1 Step 3A Addendum):** Presents an addendum to the original Ecological Risk Assessment process for Operable Unit 1 and MCAS Cherry Point.

**Supplemental Investigation for Operable Unit 1 Site 17:** A document that presents an evaluation of the results of the field activities conducted during the Site 17 supplemental investigation within OU1 at MCAS Cherry Point.

**Surficial Aquifer:** An aquifer is a saturated, permeable geologic formation that is capable of yielding water in usable quantities via a well. The Surficial Aquifer is the uppermost aquifer in the Coastal Plain of North Carolina, where MCAS Cherry Point is located. The surficial aquifer is unconfined, meaning that its upper surface is the water table rather than a confining unit.

**Target Analyte List (TAL):** In the Superfund program, a standard list of metals to analyze in samples of various media.

**Target Compound List (TCL):** In the Superfund program, a standard list of compounds to analyze in samples of various media. The compounds include volatile organics, semi-volatile organics, pesticides, and polychlorinated biphenyls.

**Toxic Substance Control Act (TSCA):** Enacted by Congress to give the USEPA the ability to track the 75,000 industrial chemicals currently produced or imported into the United States.

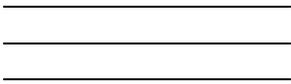
**United States Environmental Protection Agency (USEPA):** The Federal agency responsible for administration and enforcement of CERCLA (and other Federal environmental statutes and regulations).

**Underground Storage Tank (UST):** All tanks and attached piping containing regulated substances in which 10 percent or more of the tank volume (including piping) is beneath the ground surface.

**Volatile Organic Compounds (VOCs):** Organic compounds (i.e. they contain carbon) that readily evaporate, or volatilize.



-----Fold Here-----



Place  
stamp  
here

**Mr. Jason Williams, Code OPNCEV**  
NAVFAC Mid-Atlantic  
LRA, Building C, NC IPT  
6506 Hampton Blvd.  
Norfolk, VA 23508-1278