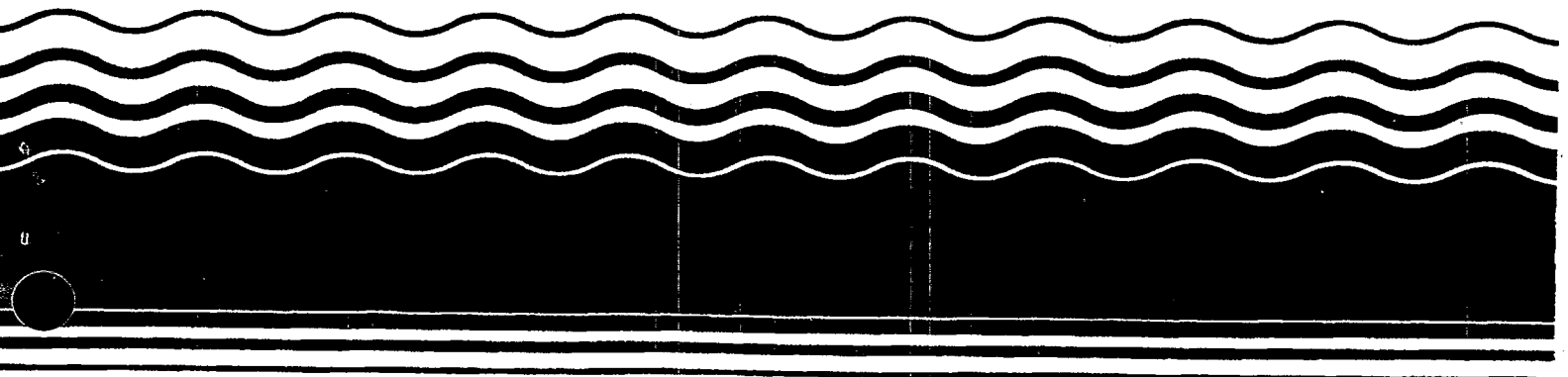


**PB99-963902  
EPA541-R99-006  
1999**

**EPA Superfund  
Record of Decision:**

**USA Fort George G. Meade (TAA) OU  
Fort Meade, MD  
12/30/1998**





**FINAL  
RECORD OF DECISION**

**TIPTON AIRFIELD AREA  
OPERABLE UNIT**

**FORT GEORGE G. MEADE  
FORT MEADE, MARYLAND**

**DECEMBER 1998**



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## LIST OF ACRONYMS

|        |  |
|--------|--|
| ARCOM  | Army Reserve Command   |
| ASL    | Active Sanitary Landfill   |
| BEC    | BRAC Environmental Coordinator                                       |
| BRAC   | Base Closure and Realignment   |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act |
| COPCs  | Chemicals of Potential Concern                                       |
| DRMO   | Defense Reutilization and Marketing Office                           |
| FGGM   | Fort George G. Meade   |
| FTA    | Fire Training Area   |
| EIS    | Environmental Impact Statement                                       |
| EPA    | U.S. Environmental Protection Agency                                 |
| HHA    | Helicopter Hangar Area   |
| HI     | Hazard Index   |
| IAL    | Inactive Landfill  |
| MCL    | Maximum Contaminant Level  |
| MDE    | Maryland Department of the Environment                               |
| MDNR   | Maryland Department of Natural Resources                             |
| NPL    | National Priorities List   |
| ODA    | Ordnance Demolition Area   |
| O&M    | Operations and Maintenance   |
| PA     | Preliminary Assessment   |
| PRR    | Patuxent Research Refuge   |
| RBCs   | Risk-Based Concentrations  |
| RI     | Remedial Investigation   |
| ROD    | Record of Decision   |
| SARA   | Superfund Amendments and Reauthorization Act                         |
| SI     | Site Inspection  |
| TAA    | Tipton Airfield Area   |
| TAL    | Target Analyte List  |

**DECLARATION FOR THE RECORD OF DECISION  
REMEDIAL ALTERNATIVE SELECTION  
FOR THE TIPTON AIRFIELD AREA OPERABLE UNIT**

Site Name and Location

Tipton Airfield Area Operable Unit (TAA OU)  
Areas Requiring Environmental Evaluation (AREEs) 2, 4 and 12  
Fort George G. Meade (FGGM)  
Fort Meade, Maryland

Statement of Basis and Purpose

This Record of Decision (ROD) presents a determination that no further action is necessary to protect human health and the environment for the TAA OU, which includes the following AREEs:

- AREE 2 - Helicopter Hangar Area (HHA);
- AREE 4 - Fire Training Area (FTA); and
- AREE 12 - Inactive Landfill No. 3 (IAL3)

This determination was developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), [42 U.S.C. §§ 9601 et seq.,] and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300.

The no further action decision is supported by documents contained in the Administrative Record.

The State of Maryland concurs with the no further action remedy.

Description of the Selected Remedy

A no further action alternative is the selected remedy for the TAA OU.

Past military training activities resulted in the presence of unexploded ordnance (UXO) at Fort Meade. The Army has previously taken multiple safety measures and actions at the TAA OU, some of which are summarized in this ROD. The Army issued a Decision Document on July 9, 1998 and a Decision Document Addendum in November 1998 to document the safety measures and actions, including institutional controls on future land use, for the TAA OU.

In addition, the Army conducted extensive environmental investigations of soils, sediments, and surface waters to assess the environmental impacts of related site activities. Results of these studies showed that risks posed to human health and the



environment are within the EPA's acceptable risk range. The Army also studied the groundwater of the TAA OU to evaluate the area-wide effects and the potential off-site impacts related to chemical migration. The Army considered the previously established institutional controls and their protectiveness of human health and the environment with regard to groundwater contamination.

The selected remedy represents a final remedial action determination with regard to soils and an interim remedial action determination with regard to groundwater, which together address the contamination at the TAA OU. The Army is currently evaluating the source of the groundwater contamination, which is originating from an area outside of the TAA OU. Final actions necessary to address groundwater will be presented in a future Proposed Plan and ROD.

### Declaration

The RI reports, which include the Baseline Risk Assessment, document the findings associated with the TAA OU. These findings indicate that contaminants detected in the soils at the TAA OU do not pose an unacceptable risk to human health and the environment. The risk calculated under the current and reasonably anticipated future land use scenarios for the TAA OU is within the EPA's acceptable risk range. Previously established institutional controls focus on maintaining these land use assumptions.

The RI reports also document some maximum contaminant level (MCL) exceedances of volatile organics in groundwater. As a part of the *Tipton Airfield Decision Document* (July, 1998), and the *Decision Document Addendum* (November, 1998), the Army established a set of institutional controls which, among other things, prohibits the drilling of wells and the use of groundwater for any potable or nonpotable purposes except for environmental studies. The establishment of these institutional controls eliminates the exposure route to the contaminated groundwater and, therefore, is protective of human health and the environment. This response action, however, is limited to the TAA OU, and is *not* intended to address the OU focusing on the overall groundwater contamination. A final remedial action for the basewide groundwater OU will be developed separately.

Because hazardous substances will remain on-site above health-based levels, a review will be conducted within 5 years after the date of this ROD to ensure that the remedy continues to provide adequate protection of human health and the environment.

  
JOHN D. FRKETIC  
Colonel, Military Intelligence  
Commanding

22 DEC 1998  
Date

  
ABRAHAM FERDAS  
Director, Hazardous Site Cleanup Division  
U.S. EPA Region III

12/30/98  
Date

## **1.0 DECISION SUMMARY**

### **1.1 INTRODUCTION**

On April 1, 1997, Fort George G. Meade (FGGM) was proposed for inclusion on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priorities List (NPL). FGGM was added to the final NPL on July 28, 1998.

A CERCLA remedial action is often divided into OUs. As defined in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), an OU means a discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, threat of a release, or pathway of exposure. The cleanup of a site can be divided into a number of OUs, depending on the complexity of the problems associated with the site. OUs may address geographical portions of a site, specific site problems, or initial phases of an action, or may consist of any set of actions performed over time or any actions that are concurrent but located in different parts of a site. This ROD presents a determination that no further action is necessary to protect human health and the environment at the TAA OU, which consists of AREEs 2, 4 and 12 (see Figure 1), located at Fort Meade, Maryland. This no further action decision is the final action for the TAA OU. Other OUs, including one addressing base-wide groundwater, have been and will be defined by separate investigations.

Based on the previously taken safety measures and actions, including institutional controls on future land use, and the results of the risk evaluation, it was determined that the TAA OU poses no current or future potential, unacceptable human health risks. Therefore, the conditions at the TAA OU do not require further action to be protective of human health and the environment.

A feasibility study (FS), which normally develops and examines remedial action alternatives for a site, was not performed for the TAA OU since the results of the risk evaluation indicate that no further remedial action is required.



## **2.0 SITE INFORMATION**

### **2.1 SITE DESCRIPTION**

Fort George G. Meade (FGGM) is located in Anne Arundel County, Maryland. Prior to Base Closure and Realignment (BRAC), FGGM occupied 13,596 acres of land in the northwest corner of Anne Arundel County. It is bounded on the north by the Baltimore-Washington Parkway and by the Patuxent River to the south. The Amtrak railroad track right-of-way and State Route 175 form the southeast and northeast boundaries, respectively. The TAA OU is a BRAC parcel, located south of State Route 198 and Highway 32.

The facility was authorized by Congress in 1917 as a training cantonment for troops during World War I. The Federal government commandeered 4,000 acres, most of which was then farm land, and named the installation Camp Meade in honor of Major General George G. Meade. In January 1941, additional training areas were added within the installation, expanding the post to 13,596 acres. During the 1940s, the facility underwent widespread growth to accommodate several regiments who moved their base of operations to FGGM, including the Second U.S. Army and the Eleventh Cavalry. Tipton Army Airfield was completed in 1963, replacing a small airstrip which had been in operation since 1928.

In 1988, the Defense Authorization Amendments and Base Closure and Realignment Act of 1988 mandated the closure and/or realignment of approximately 9,000 acres, encompassing the southernmost two-thirds of the installation. In 1991, the Army transferred 7,600 of the 9,000 acres to the Department of the Interior's Patuxent Research Refuge (PRR), formerly known as the Patuxent Wildlife Research Center (PWRC). A second land transfer of approximately 500 acres to the PRR took place in January 1993.

The Tipton Airfield Area parcel, comprised of one Inactive Landfill, the Tipton Airfield, the airfield infrastructure and adjacent areas, covers approximately 366 acres of the remaining property. The helicopter hangar area is located at the northwest corner of the airfield, adjacent to the Little Patuxent River. The former fire training area is located off Airfield Road and is north of the airfield and east of the helicopter hangar.

#### **2.1.1 Description of AREEs 2, 4 and 12**

##### **2.1.1.1 Site Location and Operational History of the Helicopter Hangar Area (AREE 2)**

The Helicopter Hangar Area (HHA) includes Building 90 (the Helicopter Hangar) and adjacent areas located at the northwest corner of the airfield. The approximate extent of the HHA is indicated on Figure 1. The HHA is roughly bounded by the Little Patuxent River to the west, an unnamed tributary to the Little Patuxent River to the north, Patuxent Road to the east, and the helicopter parking area to the south. The HHA is located approximately 800 feet west of the FTA. The HHA covers approximately 5 acres.

Use of the TAA OU as a military range has been documented as far back as the early 1920s. In Special Military Maps from 1923, the area, later designated as Tipton Airfield, was identified as an artillery impact area. A 1941 South Cantonment Map shows that two ranges were located within the future Tipton area. One was an anti-tank range to the west of Bullard Hill. The other was an anti-aircraft range to the east of Bullard Hill. In the summer of 1942, 81mm and 60mm mortars were used in this area for target practice. During the same timeframe, live high-explosive shells were fired over the heads of troops for training purposes.

Construction of the airfield was completed by 1963. The Helicopter Hanger (Building 90) and associated structures were constructed in the early 1980's. The HHA is surrounded by a chain-link fence which secures the site from both the river and Patuxent Road.

During operations, the 97th ARCOM performed maintenance and storage of helicopters at Hangar 90. Typical activities included washing, disassembly, repair, and painting of aircraft. In addition to the use of fuels such as aviation and diesel fuel, other materials that were typically used, handled or stored included hydraulic and lubricating oils, detergents, and solvents. Hangar 90 was cleared and taken out of service when it was decommissioned in early 1996.

#### **2.1.1.2 Site Location and Operational History of the Fire Training Area (AREE 4)**

The Fire Training Area (FTA) is located north of Airfield Road and is about 800 feet east of the HHA. The approximate extent of the FTA is indicated on Figure 1. The FTA covers approximately two acres. The northern half of the FTA is fenced off, enclosing the fire training pit and adjacent training areas. The area was constructed around 1979 for training purposes by the Fort Meade Fire Department. Fires were typically set inside the pit or in portable burn pans by using gasoline or aviation fuel. The fires were then extinguished with water or aqueous film-forming foam, a synthetic extinguishing agent. Other emergency response training, such as self-contained breathing apparatus training and emergency rescues, were performed here.

The FTA is flat and sparsely vegetated with grass. A drainage swale and culvert were located parallel to the gate that drained to wetlands/forested area just west of the FTA. The fire training pit was constructed of a concrete berm about one foot high and twenty feet in diameter which was surrounded by a concrete apron. An oil-water separator located on the south side of the fire training pit was used in draining the pit. Water from the separator was transported from the site via an underground pipeline to a sanitary sewer. Both the fire training pit and the oil-water separator were removed in 1998.

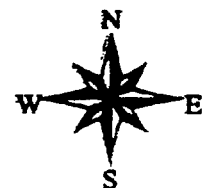
#### **2.1.1.3 Site Location and Operational History of Inactive Landfill 3 (AREE 12)**

Inactive Landfill 3 (IAL3) is located on the Tipton Airfield parcel in the eastern portion of the runway area. The approximate extent of IAL3 is indicated on Figure 1. According to the Enhanced PA Report (USAEC, 1989), IAL3 was initially used as a sand borrow area. During the late 1940s and 1950s, the area was used as a sanitary and "leaf-

# FIGURE 1



1000 0 1000 2000 Feet



### 2.1.1.3 Site Location and Operational History of Inactive Landfill 3 (AREE 12)

Inactive Landfill 3 (IAL3) is located on the Tipton Airfield parcel in the eastern portion of the runway area. The approximate extent of IAL3 is indicated on Figure 1. According to the Enhanced PA Report (USAEC, 1989), IAL3 was initially used as a sand borrow area. During the late 1940s and 1950s, the area was used as a sanitary and "leaf-dump" landfill. The Tipton Army Airfield was constructed over the fill area in 1963. The airfield consists of four hangars, an operations building, a fire station, taxiways and runway, and a helicopter training area. A storm water management system is located under the airfield.

The site history indicates that the main disposal area was under what is now the eastern portion of the runway area. According to the Enhanced PA report, during construction of the airfield in 1963, much of the inactive landfill was excavated and the materials were disposed off-post. The airfield construction plans, which include both pre- and post-construction geotechnical soil boring logs, indicate that landfill materials were removed from beneath all runway construction areas for structural reasons. However, landfilled materials are still present in areas subjacent to the runways.

This 78-acre area boundary was developed based on the extent of historical operations, aerial photographs, and subsequent site investigations.



### **3.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES**

#### **3.1 PREVIOUS ASSESSMENTS AND INVESTIGATIONS**

Several environmental investigations have been performed at FGGM since BRAC '88, including an Enhanced Preliminary Assessment (PA) (USAEC, 1989), a study by the Maryland Department of Natural Resources (MDNR), a Remedial Investigation (USAEC, 1992a), a Site Inspection Study (USAEC, 1992b), a Draft Site Inspection Addendum (which included an Environmental Impact Statement (EIS) and a Wetland Identification Study) (USACE, 1991), and an Ordnance and Explosives Removal (USACE, 1997).

The Enhanced Preliminary Assessment (PA) includes a review of all available records related to air, soil, surface water, and groundwater, and identifies six areas of concern requiring additional investigation at FGGM: active and inactive landfills, underground storage tanks, asbestos, unexploded ordnance, surface water, and burning grounds.

MDNR conducted an evaluation of the surplus property in January 1990. The study describes the natural features and land uses associated with the 9,000 acres to be excessed from FGGM and discusses the degree of development of the retained land. In January 1990, an EIS for FGGM, Fort Holabird, and Fort Belvoir was prepared by Rogers, Golden & Halpern, Inc. (RGH). The EIS focuses on the affected environmental areas of these installations. The EIS described the existing conditions of FGGM's 9,000 acres slated to be excessed and evaluated the consequences of the use/reuse scenarios.

In January 1991, a wetland identification study was prepared by RGH/CH2M Hill, Inc. to complete the study of the closure and use/reuse alternatives for the 9,000-acre parcel at FGGM (USAEC, 1994). The report describes the methods used to identify wetlands on the parcel and presents a map of wetlands distribution.

A Final EIS for the comprehensive base realignment and partial closure for FGGM and Fort Holabird was prepared by the U.S. Army Corps of Engineers, Baltimore District, in July, 1991. This report focuses on the environmental and socioeconomic impacts associated with the planned base realignment and partial closure at FGGM and Fort Holabird. The EIS covers only 1,400 acres of the 9,000-acre parcel at FGGM; the remainder of the parcel was awaiting transfer to the PRR at the time of the final report.

A Draft Site Inspection (SI) report was submitted by EA Engineering, Science and Technology (EA) in January, 1992. This report discusses conditions at the Helicopter Hangar Area (HHA), four inactive landfills (IAL1 to IAL4), the Defense Reutilization and Marketing Office (DRMO) Salvage Yard, the Fire Training Area (FTA), the Ordnance Demolition Area (ODA), underground storage tanks, and asbestos. The Final SI was submitted in October 1992 (USAEC, 1992b).

A Draft Site Inspection Addendum (SIA) report, prepared by Arthur D. Little, Inc., addresses data gaps identified in the previous SI report (USAEC, 1994a). The SIA focused on the following six areas of investigation: DRMO Salvage Yard, the FTA, the HHA, IAL2, the ODA, and Soldiers Lake. Another study, a Remedial Investigation Addendum (RIA), was conducted concurrently with the SIA (USAEC, 1993a). Two sites, the Active Sanitary Landfill (ASL) and the Clean Fill Dump (CFD), are included in the RIA study. The results of the RIA are reported as a separate document. However, some base-wide data, such as geology, general hydrogeology, and background soil concentrations, are reported in both reports.

An Ordnance and Explosives (OE) Removal was conducted by Human Factors Applications, Inc. (HFA) over the Tipton Airfield parcel, including the HHA and FTA, in 1996 (USACE, 1997a). With the exception of the interior areas of the inactive landfill sites and areas beneath water, all unpaved areas of the parcel were searched for potential UXO to a depth of 4-feet.

RI reports (USACE, 1998a and USACE, 1998b) of IAL1, IAL2, IAL3, the CFD, the FTA, and the HHA were prepared by ICF Kaiser. In addition, an ecological risk assessment was performed for the BRAC parcel, which included data from the inactive landfills, the CFD, FTA, and HHA.

The RI reports for the TAA OU were performed to characterize potential environmental contamination from the TAA OU and to conduct baseline human health and ecological risk assessments. The "Summary of Site Risks" section below presents the results of the risk assessments.

### **3.2 OTHER ARMY ACTIONS AND SAFETY PRECAUTIONS TAKEN IN THE TIPTON AIRFIELD AREA**

The following is a list of many actions and safety precautions taken by the Army at the TAA OU and surrounding areas:

- **Ordnance Survey (1994):** The Army commissioned an ordnance survey covering all areas of the airfield to assess the extent of ordnance remaining at the TAA OU and surrounding areas. During this survey, ordnance was searched for to a depth of 6" inches below the surface, and 10% of the remaining area was surveyed for ordnance to a depth of 5 feet. During this action, a total of 1,400 ordnance items were recovered from the TAA OU and surrounding areas.
- **Ordnance Clearance (1995-1997):** The Army searched for ordnance from all accessible areas to a four-foot depth. Inactive landfill areas, wetlands, and all paved surfaces were excluded. During this action, 1,548 ordnance items were recovered, rendered safe, and disposed of. In addition, more than 33 tons of scrap (concrete, metal, and miscellaneous debris) were recovered incidental to the ordnance removal. Much of this material was recycled at local facilities.

- Miscellaneous Debris Removal (Summer 1998): Several items, that were identified during ordnance removal projects were recovered for disposal. Items removed included several 55-gallon drums and an old vehicle-mounted storage tank.
- In 1998, the Army returned to the site to conduct additional ordnance removal from a drainage swale located on the airfield. This effort led to the recovery of 420 additional items from areas previously inaccessible due to standing water, and completed the ordnance removal at all known areas on the airfield which had identified concentrations of ordnance and explosives.
- Ordnance Safety Measures, Inactive Landfill 3 (1998): The Army performed ordnance survey work in and around IAL3. The safety plan for this area includes developing a long-term monitoring plan for the site. The first step in this effort was to identify the depth of soil cover over any landfill debris at this site. The Army will now develop a schedule for periodic surface sweeps of the area to ensure that no ordnance items have migrated to the surface through frost action.
- Ordnance Safety Measures, Building Debris Site (1998): The Army took additional ordnance safety measures at a 2½-acre area designated as the Building Debris Site. Because of its central location, this area has been made a priority for reuse. The selected response action for the site is a combination of additional ordnance clearance and construction of a vehicle parking lot at the site. Completion of this work is scheduled for late-Fall 1998.
- A total of twelve storage tanks have been removed from the TAA OU. New storage tanks were installed to serve the hangars and facilities at the TAA OU. Other work included radon and asbestos surveys of buildings at the TAA OU.

In summary, the Army's prior response actions address the explosives risks related to UXO and protect human health and the environment. The specifics of *the Tipton Airfield Decision Document (July, 1998)*, and *the Decision Document Addendum (November, 1998)* include the establishment and enforcement of institutional controls, initially via the FGGM Master Plan and, subsequent to property transfer, via deed restrictions. The existing institutional controls include prohibitions on conducting any surface or subsurface excavations, digging, or other disturbances of soil, or beyond paved surface, without prior written approval of the government with the exception of emergency repair of existing utilities, and on using the groundwater at the TAA OU for any potable or nonpotable purposes except for environmental studies. Furthermore, the existing institutional controls prohibit residential use of the property without evaluation of residential exposure risks.

## **4.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION**

### **4.1 PUBLIC COMMENT PERIOD**

The Army provided a 30-day comment period from November 8, 1998 to December 7, 1998, to provide an opportunity for public involvement in the decision-making process. During the comment period, the public was invited to review the Proposed Plan and the environmental investigation reports. These reports were made available to the public and are located in the Administrative Record. The Administrative Record is the body of documents that forms the basis for the selection of a particular response at a site. The Administrative Record includes documents that support the response decision, relevant documents that were relied upon in selecting the response action, and documents that were considered but not used in the decision making process.

The Administrative Record was made available to the public at the locations listed below.

- 1) Provinces Public Library  
2624 Annapolis Road  
Severn, MD 21144  
Phone: (410) 222-6280  
Hours: Mondays, Tuesdays and Thursdays - 1:00 p.m. to 9:00 p.m.;  
Wednesdays and Saturdays - 9:00 a.m. to 5:00 p.m.; and  
Fridays - 1:00 p.m. to 5:00 p.m. .
- 2) U.S. Army  
Directorate of Public Works  
Attn: ANME-PWE, Bldg. 239  
2-1/2 Street and Ross Road  
Fort Meade, MD 20755  
Phone: (301) 677-9854

### **4.2 PUBLIC MEETING**

The Army held a public meeting on the Proposed Plan on November 17, 1998 at 7:00 p.m., in the Pershing Hall basement conference room, at Fort Meade, to accept oral comments. This meeting provided an opportunity for the public to comment on the Proposed Plan. A copy of the transcript is located in the Fort Meade Administrative Record. No comments were received during the public meeting.

### **4.3 ADDITIONAL PUBLIC INFORMATION**

The Proposed Plan provided a summary of the actions considered and the results of environmental studies conducted at the TAA OU. The public is encouraged to consult the Administrative Record for a more detailed explanation.

The notice of availability of the Proposed Plan document was published in the Capitol Gazette on November 8, 1998 and in the Baltimore Sun on November 9, 1998. A Responsiveness Summary, included as part of this ROD, has been prepared to respond to the comments, criticisms, and any new relevant information received during the comment period. Upon signing the ROD, the Army will publish a notice of availability of this ROD in the Baltimore Sun and the Capitol Gazette, and place the ROD in the Administrative Record located in the repositories mentioned above.

**5.0 SCOPE AND ROLE OF THE OPERABLE UNIT RESPONSE ACTION****5.1 SELECTION OF REMEDY**

This ROD, the first for the Fort Meade NPL site, presents the selection of the final remedial alternative for the surface and subsurface soils at the TAA OU and an interim remedial alternative for groundwater contamination at the TAA OU only, which together address all of the known contamination at the TAA OU. This ROD does not address other OUs at Fort Meade, in particular that addressing the source and overall extent of the groundwater contamination. The remaining OUs are currently under independent investigations and will be addressed separately in future Proposed Plans and RODs.

No further action is necessary at the TAA OU to protect human health and the environment. Under the no further action alternative, no remedial action will be taken at the TAA OU based upon both the current level of risk posed by contamination at the TAA OU and the protectiveness provided by prior removal actions. This is the final response action for the TAA OU.

## **6.0 SITE CHARACTERISTICS**

### **6.1 SITE TOPOGRAPHY**

The TAA OU lies within the Coastal Plain Physiographic Province. The site is characterized by low rolling uplands and low-gradient streams. Within the TAA OU, the relief varies over a range of approximately 90 feet (ft); the lowest elevation (90 ft) occurs within the Little Patuxent River which forms the western boundary of the TAA OU; whereas the highest elevation (180 ft) occurs on the northern boundary of the TAA OU, between the airplane hangers and State Highway 32. The majority of the site topography, which has been modified to accommodate the airfield, slopes gently to the west or south.

### **6.2 ADJACENT LAND USE**

The TAA OU is bordered to the north by State Highway 32. The OU is bounded to the south, east, and west by the Department of Interior's Patuxent Research Refuge (see Figure 1). The Little Patuxent River forms the western boundary of the OU. Inactive Landfill 2 (IAL2), a 10-acre site which abuts a portion of the southern boundary of the OU, is being retained by the Army.

### **6.3 SURFACE WATER HYDROLOGY**

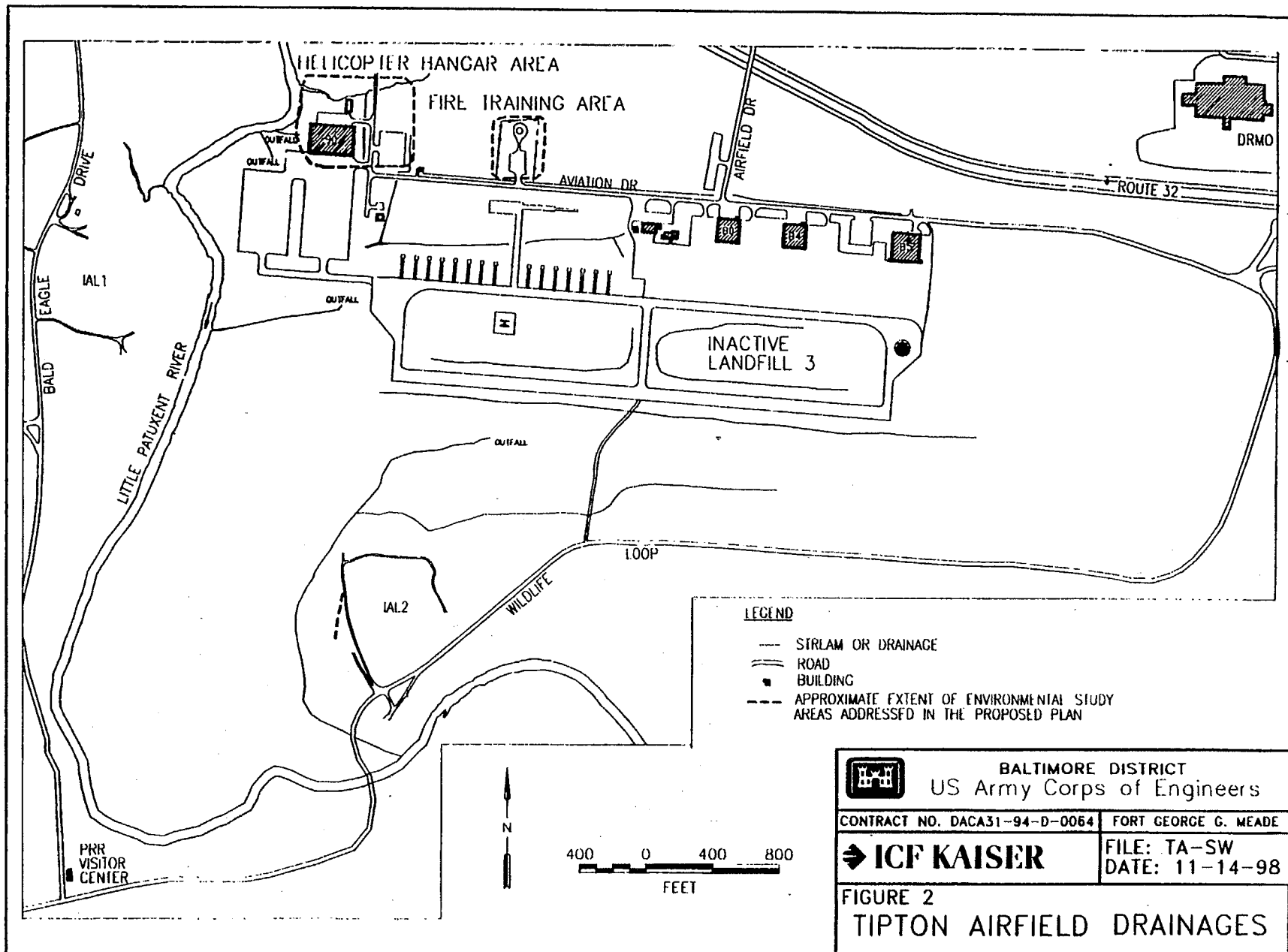
Figure 2 shows the surface drainage features at the TAA OU. Runoff originating within the perimeter portions of the TAA OU is conveyed by drainages west or south to tributaries or drainages of the Little Patuxent River. Runoff from the central portion of the area flows into a stormwater collection and conveyance system beneath the airfield which discharges, via french drains, to the Little Patuxent River or its drainages.

### **6.4 GEOLOGY / HYDROGEOLOGY**

FGGM is located on the unconsolidated sands, clays, and silts of the Coastal Plain which were deposited from the Cretaceous to the Quaternary geologic periods. The Coastal Plain sediments dip and thicken to the east and southeast.

The surficial deposits present beneath the TAA OU are primarily from the lower Cretaceous age Potomac Group. Quaternary alluvium and river terrace deposits are locally present adjacent to the Little Patuxent River. The Potomac Group consists of, from youngest to oldest, the Patapsco Formation, Arundel Clay, and Patuxent Formation. The lower portion of the Patapsco Formation outcrops at the TAA OU. It consists of up to 40 feet of silty sands. Airfield construction fill was locally obtained from this unit. The Arundel Formation consists of massive beds of red, brown and gray clay with local zones of more permeable layers. The Arundel Clay is approximately 265 feet thick where it was penetrated at IAL2. The Patuxent Formation consists of a thick sequence of sand-rich sediments which are underlain by crystalline bedrock of the Baltimore Mafic Complex at 600 to 800 feet below ground surface.

At the TAA OU, the water table is present, generally at depths less than 10 feet below ground surface, within the lower portion of the Patapsco formation. The water table aquifer extends down to the top of the Arundel Clay and has a maximum saturated thickness of approximately 25 feet in this area. Unconfined groundwater flow is





controlled by topography and flow is generally west or south toward the Little Patuxent River. The Arundel Clay acts as a regional confining layer below the Patapsco aquifer. However, groundwater is locally found in confined or semi-confined sand lenses within the upper portions of the Arundel Clay. The Patuxent Aquifer, which is present between the Arundel Clay and bedrock, is a regionally important groundwater source. Regional groundwater flow in the Patuxent aquifer is to the east-southeast.

## **6.5 ECOLOGY**

The habitat in the TAA OU has been heavily altered and is likely to only support limited flora and fauna typical of disturbed urban/light industrial areas. As delineated, the TAA OU contains no wetlands or protected or endangered species. Wetlands, protected species, sensitive environments are present in nearby areas of the PRR and the Little Patuxent River. Any drainage from the TAA OU would flow, via surface runoff or the airfield stormwater management system into the Little Patuxent River. An ecological risk assessment has concluded that there is a very limited potential for adverse effects to terrestrial plant and invertebrate communities and to aquatic life (USACE, 1998a).

## **7.0 SUMMARY OF SITE RISKS**

### **7.1 EXPOSURE ASSESSMENT**

The RI report included both ecological and human health risk assessments to address the potential current and future risks posed to human health and the environment associated with the TAA OU. The risk assessment included estimates of the risk posed to human health and the environment assuming the continuation of the current industrial (non-Residential) land-use scenario. The current land-use scenario estimates the level of risk posed by Fort Meade's current use of the land. The current land-use scenario is based on the assumption that the property remains under government authority to enforce existing institutional controls and continues in current or like use.

When title to this BRAC property is transferred, the institutional controls on future land use will be embodied in the deed. The U.S. Government will retain the ability to enforce those use restrictions established in prior Decision Documents as described below. In addition, after transfer of title to the property, in the unlikely event that the TAA OU's use as an airport would change, title to the property will revert back to the U.S. Government. A human health risk assessment will need to be conducted for residential receptors in the unlikely event that the TAA OU would be developed for residential use.

Existing institutional controls, as established by the *Tipton Airfield Decision Document (July, 1998)* and the *Decision Document Addendum (November, 1998)*, include a prohibition on conducting any surface or subsurface excavations, digging, or other disturbances of soil, or beyond paved surfaces, without prior written approval of the government with the exception of emergency repair of existing utilities, and on using the groundwater at TAA for any potable or nonpotable purposes except for environmental studies. Furthermore, the existing institutional controls prohibit residential use of the property without evaluation of residential exposure risks.

The human health risk assessment was based on exposure to soil. Groundwater was also evaluated, but due to the establishment of a separate base-wide groundwater OU and the establishment, as part of the prior removal action, of protective institutional controls, remediation of base-wide groundwater will not be addressed in this ROD. The ecological risk assessment was based on exposure to soil, sediments, and surface water.

Health risks are based on a conservative estimate of the potential carcinogenic risk or potential to cause other health effects not related to cancer. Carcinogenic risks and non-carcinogenic risks were evaluated as part of the risk assessment; three factors were considered: (1) nature and extent of chemicals at the TAA OU, (2) the pathways through which human and ecological receptors are or may be exposed to those chemicals at the TAA OU, and (3) potential toxic effects of those chemicals.

Cancer risks are expressed as numbers reflecting the increased chance that a person will develop cancer, if he/she is directly exposed (e.g., through working at the TAA OU)

to the chemicals found in the groundwater and soil at the TAA OU over a period of time. For example, EPA's acceptable risk range for Superfund sites is  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ , meaning there is one additional chance in ten thousand ( $1 \times 10^{-4}$ ) to one additional chance in one million ( $1 \times 10^{-6}$ ) that a person will develop cancer if exposed to a Superfund site. The risk associated with developing other health effects is expressed as a hazard index (HI) which is the ratio of the existing level of exposure to contaminants at a site to an acceptable level of exposure. Below a hazard index of 1, adverse effects are not expected. A hazard index is also used to evaluate ecological risks.

## 7.2 HUMAN HEALTH RISK ASSESSMENT FOR AREES 2, 4 AND 12

There are two potential pathways of exposure to humans identified for trespassers and site/excavation workers based on current and reasonably anticipated future land use:

- Direct contact (dermal contact and incidental ingestion) with surface soils; and
- Direct contact (dermal contact and incidental ingestion) with subsurface soils at IAL3, the FTA, and the HHA.

Concentrations of chemicals of potential concern detected in the soil and groundwater during the RI were compared to risk-based screening levels and background levels.

Health risk levels, determined using EPA guidance to ensure that conservative estimates of potential health effects, differ depending on the assumed land use because human exposure differs with land use. As outlined above, a conservative estimate of risk was developed incorporating the potential exposure pathways including direct skin contact with contaminated soil accidental ingestion of soil and sediment, and inhalation of contaminated soil particles. Plausible receptors that may be exposed to soil at the TAA OU and which were evaluated in the risk assessment included daily workers and occasional recreational users.

Low levels of pesticides and explosive-related chemicals were widely, if infrequently, found. Metals were ubiquitous and found in naturally occurring soils at the site. Based on the reasonably anticipated future land-use, risk associated with direct contact with soil under occupational or recreational scenarios were below or at the low end of EPA's acceptable risk range of  $10^{-4}$  to  $10^{-6}$  and all hazard indices were less than 1, as summarized in Table 1 below. Additionally, since the risks are driven by metals, they may be partially or wholly due to naturally occurring substances.

**TABLE 1 – SUMMARY OF THE HUMAN HEALTH RISK ASSESSMENT**

In the following table, cancer risk estimates are compared with the USEPA's target risk range (TRR) for health protectiveness at Superfund sites of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ .

The potential for adverse non-carcinogenic effects was assessed by comparing the non-carcinogenic hazard indices to a value of 1. A hazard index (HI) less than 1 indicates that adverse non-carcinogenic health effects would not be expected to occur.

| Medium of Concern  | AREE 2   |  | AREE 4   |  | AREE 12  |  |
|--|--|--|--|--|--|--|
|  | Cancer Risk  | Hazard Risk  | Cancer Risk  | Hazard Risk  | Cancer Risk  | Hazard Risk  |
| <b>Surface soil</b><br><i>Receptors:</i><br>Site worker and trespasser<br><i>Pathways:</i><br>Incidental ingestion by site workers:<br>Dermal absorption by site workers:<br>Incidental ingestion by trespassers:<br>Dermal absorption by trespassers: | $1 \times 10^{-6}$<br>$2 \times 10^{-6}$<br>$2 \times 10^{-7}$<br>$3 \times 10^{-7}$ | $<1 (6 \times 10^{-3})$<br>$<1 (1 \times 10^{-2})$<br>$<1 (4 \times 10^{-3})$<br>$<1 (4 \times 10^{-3})$ | $9 \times 10^{-7}$<br>$2 \times 10^{-6}$<br>$2 \times 10^{-7}$<br>$2 \times 10^{-7}$ | $<1 (6 \times 10^{-3})$<br>$<1 (1 \times 10^{-2})$<br>$<1 (3 \times 10^{-3})$<br>$<1 (4 \times 10^{-3})$ | $8 \times 10^{-7}$<br>$2 \times 10^{-6}$<br>$2 \times 10^{-7}$<br>$2 \times 10^{-7}$ | $<1 (5 \times 10^{-3})$<br>$<1 (1 \times 10^{-2})$<br>$<1 (3 \times 10^{-3})$<br>$<1 (3 \times 10^{-3})$ |
| <b>Subsurface soil</b><br><i>Receptors:</i><br>Future excavation workers<br><i>Pathways:</i><br>Incidental ingestion:<br>Dermal absorption:  | $1 \times 10^{-6}$<br>$3 \times 10^{-7}$   | $<1 (2 \times 10^{-1})$<br>$<1 (4 \times 10^{-2})$   | $3 \times 10^{-7}$<br>$6 \times 10^{-8}$   | $<1 (4 \times 10^{-2})$<br>$<1 (9 \times 10^{-3})$   | $9 \times 10^{-7}$<br>$2 \times 10^{-7}$   | $<1 (1 \times 10^{-1})$<br>$<1 (3 \times 10^{-2})$   |

As always, the physical hazards associated with UXO are a potential concern. Fort Meade has already conducted UXO surveys at the TAA OU to address this risk. As discussed previously, an Ordnance and Explosives (OE) Removal was conducted by Human Factors Applications, Inc. (HFA) over the Tipton Airfield parcel, including the HHA and the FTA, in 1996 (USACE, 1997a). With the exception of the interior areas of the inactive landfill, all unpaved areas of the parcel were searched for potential UXO to a depth of 4-feet. Other UXO work performed by the Army is also discussed in this ROD.

### 7.3 ECOLOGICAL RISK ASSESSMENT FOR AREES 2, 4 AND 12

The following pathways were identified as sources of potential exposure:

- Root uptake from contaminated soil;
- Contact and absorption, incidental ingestion, and feeding on contaminated food and soil; and
- Bioaccumulation from vegetation or animal prey.

The ecological risk assessment evaluated exposure of terrestrial receptors from surface soil exposures from the TAA OU, which is expected to be used as an airport. The TAA OU will be managed as an active airport and will take measures to discourage terrestrial ecological receptors for safety concerns.

Several metals (including chromium, zinc, aluminum, and vanadium) and low levels of pesticides exceeded the ecological screening criteria for the various plant and invertebrate receptors. Management of the TAA OU as an airport will discourage a diverse plant community. This will also significantly reduce the natural habitat of terrestrial receptors. By considering the reasonably anticipated future land use and expected management practices associated with an airfield, the results support the selected remedy of no further action at the TAA OU.

Table 2 summarizes general findings regarding the potential for adverse effects to ecological resources based on comparison of chemical concentrations detected onsite to literature-based toxicity references values (TRVs).

**TABLE 2 – SUMMARY OF THE ECOLOGICAL RISK ASSESSMENT (ERA)**

| Medium of Concern  | AREEs 2, 4 and 12 (ERA Findings)  |
|--|---|
| <b>Surface soil</b><br><i>Effects to:</i><br>(a) Terrestrial plant communities; and<br>(b) Terrestrial invertebrate communities (as represented by earthworms)<br><i>Pathways:</i> direct contact with chemicals | Minimal risk – Chromium exceeded the earthworm TRVs at all sample locations. However, detected background concentrations of chromium also exceeded plant TRVs, suggesting the on-site concentrations are, at many locations, reflective of the local/regional soil type, in which case earthworms are likely to be adapted to these levels. |

#### 7.4 CONCLUSION

Because the human health and ecological risk assessments concluded that site conditions, in light of the existing institutional controls established under the prior response action, do not pose an unacceptable risk to potential human and ecological receptors, no further action is deemed appropriate to protect human health and the environment.

**8.0 DESCRIPTION OF THE "NO FURTHER ACTION" ALTERNATIVE**

The selected remedy for the TAA OU is no further action. At the time of this ROD, future land-use of the TAA OU was determined to be an industrial airport. The TAA OU was used as a military airfield from the early 1960s to September 1995, when it was closed. The airport conversion of this airfield was initially planned as a partnership between Howard County and Anne Arundel County. Anne Arundel County currently has one lease on three buildings at the TAA OU. The second lease, which is pending, will include additional hangar areas, the runway and taxiways.

The current land-use scenario is based on the assumption that the property remains under U.S. Government authority to enforce existing institutional controls and continues in current or like use. When title to this BRAC property is transferred, the institutional controls on future land use will be embodied in the deed. The U.S. Government will retain the ability to enforce those use restrictions established in prior Decision Documents. In addition, after transfer of title to the property, in the unlikely event that the TAA OU's use as an airport would change, title to the property will revert back to the U.S. Government. A human health risk assessment will need to be evaluated for residential receptors in the unlikely event that the TAA OU would be developed for residential use. The only cost associated with this remedy is the costs related to conducting the five-year review which is expected to be minimal.

Because hazardous substances will remain on-site above health-based levels, a review will be conducted within 5 years after the date of this ROD to ensure that the remedy continues to provide adequate protection of human health and the environment.

**9.0 RESPONSIVENESS SUMMARY**

The purpose of the Responsiveness Summary is to provide the public with a summary of citizen comments, concerns, and questions regarding the TAA OU. Two commentors responded during the 30-day public comment period from November 8, 1998 to December 7, 1998. Responses to these comments are provided in the Responsiveness Summary, which is included as part of this ROD.

In addition, no verbal comments were presented during the November 18, 1998 public meeting regarding the TAA OU.

# RESPONSIVENESS SUMMARY

NOTE: THESE COMMENTS WERE TRANSCRIBED "VERBATIM" FROM EACH COMMENTOR'S SUBMITTAL.

## COMMENTS ON THE PROPOSED PLAN - TIPTON AIRFIELD AREA OPERABLE UNIT (TAA OU) FORT GEORGE G. MEADE, MD

Of the two comments received during the Public Comment Period, one was submitted in writing and the other via telephone conversation.

### Comment: GENERAL

**Comment:** One commentator (hereafter referred to as Commentor 1) wrote that, "After careful review of the Proposed Plan as well as accompanying documents and review of the public record in this matter, I find the Proposed [Plan] inadequate to protect the interest of the surrounding community."

**Response:** The Proposed Plan was developed in accordance with CERCLA, the NCP and appropriate State laws. As a part of the *Tipton Airfield (TAA OU) Decision Document (July, 1998)*, and the *Decision Document Addendum (November, 1998)*, the Army established a set of institutional controls which, among other things, prohibits the drilling of wells and the use of groundwater for any potable or nonpotable purposes except for environmental studies. The establishment of these institutional controls eliminates the exposure route to the contaminated groundwater and, therefore, is protective of human health and the environment. This response action, however, is limited to the TAA OU, and is *not* intended to address the OU focusing on the overall groundwater contamination. A separate base-wide groundwater operable unit is currently under independent investigations and a final remedy for groundwater will be addressed separately in future Proposed Plans. Because hazardous substances will remain on-site above health-based levels, a review will be conducted within 5 years after the date of this ROD to ensure that the remedy continues to provide adequate protection of human health and the environment. By considering the reasonably anticipated future land use and expected management practices associated with an airfield, the investigation results support the selected remedy of no further action at the TAA OU. Specific questions/comments are addressed below.

**Comment:** Commentor 1: Commentor 1 wrote that a contractor to the county "...stated on the record that the SOLE concern regarding the airport was operational. He as also stated publicly, though not at the RAB that the removal of UXO was a waste of money. Clearly the representative for the county who proports (sic) to operate this facility has no interest in the environmental impacts, safety impacts and/or affect (sic) and safety of the surrounding community both presently and in the future. This FOSL is based upon the premise that the county will adhere to certain guidelines and restrictions. Clearly it is the intent of the County to disregard all such guidelines, as such transfer, if affected, must be accomplished with the clear understanding as stated on the record by the representative of the county that all environmental covens (sic) and restrictions will be at best minimally met at most ignored. This renders the Proposed Plan in its present form as unacceptable. Further due to the state (sic) position of the county representative, it is clear that this Proposed Plan is being presented under fraudulent terms with guidelines which at their inception are a mockery. While there have been "assurances" issued regarding this plan, the fact remains that NO party to this proposed plan or any agreement has given any definitive statements other than "cuz we say so." The local community is not willing to risk such long-term commitment on such childish responses without any real material to back up the denial."

**Response:** During the period of time that the property is leased, the Army will retain ownership of Tipton Airfield. The Army will be responsible for ensuring the Lessee complies with all institutional controls in place for the property. In summary, the Army's prior response



## RESPONSIVENESS SUMMARY

NOTE: THESE COMMENTS WERE TRANSCRIBED "VERBATIM" FROM EACH COMMENTOR'S SUBMITTAL.

actions address the explosives risks related to unexploded ordnance (UXO) and protect human health and the environment. The specifics of the *Tipton Airfield Decision Document* (July, 1998), and the *Decision Document Addendum* (November, 1998) include the establishment and enforcement of institutional controls, initially via the FGM Master Plan and, subsequent to property transfer, via deed restrictions. The existing institutional controls include prohibitions on conducting any surface or subsurface excavations, digging, or other disturbances of soil, or beyond paved surface, without prior written approval of the government with the exception of emergency repair of existing utilities, and on using the groundwater at the TAA OU for any potable or nonpotable purposes except for environmental studies. Surface sweeps for UXO will be performed at years 3 and 7, and every five years thereafter. The Army will periodically review the need to continue surface sweeps. Furthermore, the existing institutional controls prohibit residential use of the property without evaluation of residential exposure risks.

When title to this BRAC property is transferred, the institutional controls on future land use will be embodied in the deed. The U.S. Government will retain the ability to enforce the use restrictions. After transfer of title to the property, in the unlikely event that the TAA OU's use as an airport would change, title to the property will revert back to the U.S. Government.

In addition to the U.S. Government's stated intentions to assure future compliance with all applicable land use restrictions, a representative of Anne Arundel County has given the Army and the regulators subsequent assurances that all land use restrictions will be observed.

### Comment:

Commentor 1: "The Proposed Plan addresses in general the transfer of acreage based upon the clean up of UXO, however, there were significant comments made to the clean up. Further I see no where the matter of the future breakdown of the UXO is addressed and its possible impact on the surrounding communities and potential liability factors. With out this information, cogent comment on the transfer is impossible."

### Response:

The Army addressed the future breakdown of UXO through the sampling of surface and subsurface soils and groundwater during remedial investigations and ordnance removal activities. All samples were analyzed for ordnance constituents and associated breakdown products. The vast majority of ordnance items recovered at Tipton were practice munitions that contained wax filler instead of high explosives. Based on the number and type of items found during the ordnance removal activities conducted at Tipton, there is no indication that breakdown of ordnance poses a risk to human health and the environment.

As reported in the remedial investigation reports for Tipton, no soil samples collected to date have shown the presence of residual, explosive breakdown products. In only one well (MW3-2), two groundwater samples showed a presence of explosive breakdown products at the low parts per billion range. The carcinogenic risk for these constituents is  $5 \times 10^{-7}$ , which is well below EPA's acceptable risk range. The Hazard Index of DNT (Dinitrotoluene) for this well was 2, above EPA's acceptable Hazard Index of 1. However, due to the isolated nature of this finding and the establishment of institutional controls for the property, human health and the environment is protected.

The Army retains responsibility for conducting additional groundwater investigations and remediations as necessary.

## RESPONSIVENESS SUMMARY

NOTE: THESE COMMENTS WERE TRANSCRIBED "VERBATIM" FROM EACH COMMENTOR'S SUBMITTAL.

**Comment:** Commentor 1: "Throughout the report, there are repeated references to the groundwater contamination. Yet it is also repeated that no one knows where the contamination is from and is probably "off site" with such non specific information it is not prudent to allow either the Army or EPA to be released from this site until the absolute protection of the local community can be addressed."

**Response:** While there is some groundwater contamination associated with the Tipton sites, no risk has been shown to exist either because contaminant levels are below levels of concern or because no target receptors exist due to the implementation of institutional controls.

The RI reports also document some maximum contaminant level (MCL) exceedances in one well of volatile organics in groundwater. Benzene was detected at 8.7 ppb, with a MCL of 5.0 ppb. As a part of the *Tipton Airfield Decision Document (July, 1998)*, and the *Decision Document Addendum (November, 1998)*, the Army established a set of institutional controls which, among other things, prohibits the drilling of wells and the use of groundwater for any potable or nonpotable purposes except for environmental studies. The establishment of these institutional controls eliminates the exposure route to the contaminated groundwater and, therefore, is protective of human health and the environment. This response action, however, is limited to the TAA OU, and is *not* intended to address the OU focusing on the overall groundwater contamination. Final remedial action for the base-wide groundwater will be developed separately.

### 2. PROPERTY DESCRIPTION

**Comment:** "This section addresses the fact that the Little Patuxent river will not be transferred, yet HANGER 90 will be. There are, along the bank, projecting into and near the Little Patuxent, pipes running from unknown origins. Without knowing exactly how the line is drawn, (e.g. at the surface, through the water tables, etc.) with this specific information a cogent analysis cannot be made of the Proposed plan, thereby making the land definitions objectionable.

"As previously state (sic) this property is to be least (sic) to the County for an airfield. However, without specific information of the "lines" liability cannot be determined and a lease cannot be appropriately evaluated."

**Response:** Currently, the buildings and all underlying property are to be leased and subsequently transferred to Anne Arundel County. The origins of the two pipes that discharge into the Little Patuxent River emanate from the area around Hangar 90. These pipes have been traced to their source. They will be sealed or re-plumbed as required to meet applicable Maryland State regulations. These actions will be completed prior to land transfer.

### 3. DISPOSITION

**Comment:** "As previously stated, the lessee has stated on the record that adherence to the deed will not be a primary concern. In addition, the army, while in control of the property has been unable and/or unwilling to restrict movement and access to the named property. A action item and deed restriction to limit the liability of the Army when it has been clearly proven that such limitation is not possible or plausible simply to remove the army from the site give (sic) rise to increased liability by the local county. There is no argument that can justify the blind acceptance of increased liability by the local community in light of the position of the county and the ongoing inability of the army and/or EPA to administer any

## RESPONSIVENESS SUMMARY

NOTE: THESE COMMENTS WERE TRANSCRIBED "VERBATIM" FROM EACH COMMENTOR'S SUBMITTAL.

guidelines. Further, the EPA in its effort to rush this matter through thereby easing the local politics have failed to make any reasonable arguments or alternative regarding the access to contaminated area other than to say, is ok as long as everyone plays by the rules. The rules don't work, have been stated that they will not be enforced and have been unenforceable by the Army to date. The EPA's position is puzzling at best politically convenient at worst."

**Response:** During the period of time that the property is leased, the Army will retain ownership of Tipton Airfield. The Army will be responsible for ensuring the Lessee complies with all institutional controls in place for the property. The specifics of the *Tipton Airfield Decision Document (July, 1998)*, and the *Decision Document Addendum (November, 1998)* include the establishment and enforcement of institutional controls, initially via the FGM Master Plan and, subsequent to property transfer, via deed restrictions. The existing institutional controls include prohibitions on conducting any surface or subsurface excavations, digging, or other disturbances of soil, or beyond paved surface, without prior written approval of the government with the exception of emergency repair of existing utilities, and on using the groundwater at the TAA OU for any potable or nonpotable purposes except for environmental studies. Furthermore, the existing institutional controls prohibit residential use of the property without evaluation of residential exposure risks.

When title to this BRAC property is transferred, the institutional controls on future land use will be embodied in the deed. The U.S. Government will retain the ability to enforce the use restrictions. After transfer of title to the property, in the unlikely event that the TAA OU's use as an airport would change, title to the property will revert back to the U.S. Government.

In addition to the U.S. Government's stated intentions to assure future compliance with all applicable land use restrictions, a representative of Anne Arundel County has given the Army and the regulators subsequent assurances that all land use restrictions will be observed.

With regards to the statement that this matter is being "rushed through," it should be noted that this Record of Decision is the culmination of work that began in 1988 which includes multiple investigations, cleanup efforts of various magnitudes, ordnance removal projects and extensive public involvement.

### Comment IV: CERCLA ISSUES / NON CERCLA ISSUES

**Comment:** Commentor 1: "The issue of UXO as a CERCLA issue has not been completely determined. As such the Army picked and chose it way through CERCLA with regard to UXO. Thereby, failing to address clean up which may be necessary as a result of break down or release as a result of the current UXO deposits. Further there is extensive evidence of ACID and ACID storage, (forinstance (sic) the container found in landfill 3) the complete extent of storage and/or disposal has not been determined and as such it is too soon to state ANYTHING with regard to CERCLA. Especially in light of the recent liability rulings, I fail to see how any document can be considered without a clear delineation of liability status."

**Response:** While we agree that the UXO/CERCLA issue has not been resolved nationally, we did not allow that unresolved issue to interfere with the investigation and removal of unexploded ordnance at Tipton. Fort Meade, EPA Region III and Maryland Department of Environment have been diligent in addressing all issues related to safety and residual contamination related to unexploded ordnance. The following are unexploded ordnance removal actions that have been taken at Tipton:

## RESPONSIVENESS SUMMARY

NOTE: THESE COMMENTS WERE TRANSCRIBED "VERBATIM" FROM EACH COMMENTOR'S SUBMITTAL.

Ordnance Survey (1994): The Army commissioned an ordnance survey covering all areas of the airfield to assess the extent of ordnance remaining at the TAA OU and surrounding areas. During this survey, ordnance was searched for to a depth of 6" inches below the surface, and 10% of the remaining area was surveyed for ordnance to a depth of 5 feet. During this action, a total of 1,400 ordnance items were recovered from the TAA OU and surrounding areas.

Ordnance Clearance (1995-1997): The Army searched for ordnance from all accessible areas to a four-foot depth. Inactive landfill areas, wetlands, and all paved surfaces were excluded. During this action, 1,548 ordnance items were recovered, rendered safe, and disposed of. In addition, more than 33 tons of scrap (concrete, metal, and miscellaneous debris) were recovered incidental to the ordnance removal. Much of this material was recycled at local facilities.

In 1998, the Army returned to the site to conduct additional ordnance removal from a drainage swale located on the airfield. This effort led to the recovery of 420 additional items from areas previously inaccessible due to standing water, and completed the ordnance removal at all known areas on the airfield which had identified concentrations of ordnance and explosives.

Miscellaneous Debris Removal (Summer 1998): Several items, that were identified during ordnance removal projects were recovered for disposal. Items removed included several 55-gallon drums and an old vehicle-mounted storage tank.

Ordnance Safety Measures, Inactive Landfill 3 (1998): The Army performed ordnance survey work in and around IAL3. The safety plan for this area includes developing a long-term monitoring plan for the site. The first step in this effort established that there is a minimum 3' soil cover over any remaining landfill debris at this site.

The Army will now implement a schedule for periodic surface sweeps of the area to ensure that no ordnance items have migrated to the surface through frost action.

Ordnance Safety Measures, Building Debris Site (1998): The Army took additional ordnance safety measures at a 2¼-acre area designated as the Building Debris Site. Because of its central location, this area has been made a priority for reuse. The selected response action for the site is a combination of additional ordnance clearance and construction of a vehicle parking lot at the site. Ordnance safety measures, including earthwork and preliminary site grading were completed in late-Fall 1998. Paving completion is scheduled for Spring 1999.

There was no acid container located in Inactive Landfill No. 3. However there were two acid neutralization pits located on the Tipton property. The pit at Hangar 90 has been removed and the associated piping has been capped to preclude further use. The pit at Hangar 85 has been inspected for structural integrity and surrounding soils have been sampled. This pit is correctly plumbed into the sanitary sewer and can be operated properly in the future.

Based on the sampling results and the inspection of the pit's structural integrity, no further action for these sites, beyond the on-going re-plumbing is warranted.

## RESPONSIVENESS SUMMARY

NOTE: THESE COMMENTS WERE TRANSCRIBED "VERBATIM" FROM EACH COMMENTOR'S SUBMITTAL.

### Comment V-1 Summary

**Comment:**

"The finding of no further action is premature and dangerous to the surrounding communities. We have only begun to explore the groundwater contamination at this site, there is no real definition of where the contamination comes from and to release the Army and the EPA is premature and give (sic) rise to an increased liability risk assumption by the county. In addition, the Proposed plan does not address the introduction of lead paint (sic) and lead paint dust into this area. The buildings on this property have sat vacant for a considerable length of time. While the army's (sic) position is clear regarding lead paint, the fact is that the condition of these buildings have deteriorated while the army (sic) has played with this site. Any work done now on these buildings, assuming a lease is ever signed, will introduce some level of lead (sic) and/or asbestos. The plan ignores this fact and makes no allowances for future cleanup due to lead and asbestos."

**Response:**

At this time, over 100 groundwater samples have been collected from within the Tipton Area. While there is some groundwater contamination associated with the Tipton sites, no risk has been shown to exist either because contaminant levels are below levels of concern or because no target receptors exist due to the implementation of institutional controls.

The RI reports also document some maximum contaminant level (MCL) exceedances in one well of volatile organics in groundwater. Benzene was detected at 8.7 ppb, with a MCL of 5.0 ppb. As a part of the *Tipton Airfield Decision Document (July, 1998)*, and the *Decision Document Addendum (November, 1998)*, the Army established a set of institutional controls which, among other things, prohibits the drilling of wells and the use of groundwater for any potable or nonpotable purposes except for environmental studies. The establishment of these institutional controls eliminates the exposure route to the contaminated groundwater and, therefore, is protective of human health and the environment. This response action, however, is limited to the TAA OU, and is *not* intended to address the OU focusing on the overall groundwater contamination. Final remedial action for the base-wide groundwater will be developed separately.

DOD and EPA are currently in negotiations on how to address lead-based paint in non-residential areas. Asbestos surveys for Tipton have been completed and will be provided to the County. Any damaged/friable asbestos that has been encountered on-site has been removed, encapsulated or is being managed in place. Upon transfer of the property, the responsibility of management or removal rests with the future owner.

### Comment V-2: Frequency of UXO Sweeps

**Comment:**

Commentor 2: What is the frequency of UXO sweeps for the Tipton area?

**Response:**

The specifics of the *Tipton Airfield Decision Document (July, 1998)*, and the *Decision Document Addendum (November, 1998)* include the establishment and enforcement of institutional controls, initially via the FGGM Master Plan and, subsequent to property transfer, via deed restrictions. The existing institutional controls include prohibitions on conducting any surface or subsurface excavations, digging, or other disturbances of soil, or beyond paved surface, without prior written approval of the government with the exception of emergency repair of existing utilities, and on using the groundwater at the TAA OU for any potable or nonpotable purposes except for environmental studies. Surface sweeps for UXO will be performed at years 3 and 7, and every five years thereafter. The Army will periodically review the need to perform surface sweeps.

## RESPONSIVENESS SUMMARY

NOTE: THESE COMMENTS WERE TRANSCRIBED "VERBATIM" FROM EACH COMMENTOR'S SUBMITTAL.

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Furthermore, the existing institutional controls prohibit residential use of the property without evaluation of residential exposure risks.

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