DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
600 ARMY PENTAGON
WASHINGTON, DC 20310-0600

Reply to Attention Of:
ARMY BASE REALIGNMENT AND CLOSURE DIVISION

JUL 12 2011

Mr. John Burchette
U.S. Environmental Protection Agency, Region III
(3HS11)
1650 Arch Street
Philadelphia, PA 19103-2029

Re: July 2011 Patuxent Research Refuge - North Tract Non-Time Critical Removal Action Draft Final Five-Year Review; Fort George G. Meade, Maryland

Dear Mr. Burchette:

Please find enclosed one original hard copy of the *July 2011 Patuxent Research Refuge – North Tract (PRR-NT) Non-Time Critical Removal Action (NCTRA) Draft Final Five-Year Review; Fort George G. Meade, Maryland,* for review and comment. Army responses to all regulatory and USFWS comments to the draft document were approved and incorporated into the draft final document. Electronic copies of this report will be made available upon request.

If you have any questions, please feel free to contact me at (703) 545-2474 or Steve Cardon at (301) 677-9178.

Sincerely,

Markus A. Craig

Markus A. Craig
Program Manager, Office of the Assistant Chief of Staff for Installation Management; Base Realignment and Closure Division

Enclosure: *July 2011 PRR-NT NTCRA Draft Final Five-Year Review; Fort George G. Meade, Maryland* – 1 original

Distribution:
Dr. Elisabeth Green – MDE Federal Facilities Division (one copy)
Andrea Graham – USACE (electronic copy only)
Steve Cardon – Fort George G. Meade BRAC Program (one copy)

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Draft Final

First Five-Year Review Report Non-Time Critical Ordnance and Explosives Removal Action (NTCRA)

Patuxent Research Refuge – North Tract
Anne Arundel County, MD

Fort George G. Meade
Legacy Base Realignment and Closure Program

July 2011

Contract Number: W912WJ-05-D-0005
Delivery Order: DA18

Prepared for:

US Army Corps of Engineers ®
Baltimore District

10 South Howard Street
Baltimore, MD 21201

Prepared by:

URS

URS Group, Inc.
12420 Milestone Center Drive, Suite 150
Germantown, MD 20876
Project no. 15301086

FIRST FIVE-YEAR REVIEW REPORT
FOR
FORT GEORGE G. MEADE
LEGACY BASE REALIGNMENT AND CLOSURE PROGRAM

Patuxent Research Refuge-North Tract
Non-Time Critical Ordnance and Explosives
Removal Action

Submitted to:
U.S. Army Corps of Engineers, Baltimore District
10 South Howard Street
Baltimore, MD 21201

Prepared by:
URS Group, Inc.
200 Orchard Ridge Drive, Suite 101
Gaithersburg, MD 20878

Delivery Order No. 0018
Contract No. W912WJ-05-D-0005

Prepared Under Direction Of:

_____
Bill Eaton, Project Manager
URS Group, Inc.

Approved For Submission By:

_____
Andrea Graham, Project Manager
USACE, Baltimore District

Approved By:

_____
William J. O'Donnell, II
Chief, Operational Army and Medical Branch Office of the Assistant Chief of Staff for Installation Management; BRAC Division (DAIM-ODB)

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List of Acronyms and Abbreviations

Army	U.S. Army
ASP	Ammunition Supply Point
bgs	below ground surface
BRAC	Base Realignment and Closure
CFD	Clean Fill Dump
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
C.F.R.	Code of Federal Register
DOD	Department of Defense
DOI	Department of the Interior
EE	Environmental Education
EE/CA	Engineering Evaluation/Cost Analysis
EOD	Explosive Ordnance Disposal
EPA	U.S. Environmental Protection Agency
FFA	Federal Facility Agreement
FGGM	Fort George G. Meade
FWS	Fish and Wildlife Service
HCS	Hunter Contact Station
HEI	High Explosive Impact and Disposal Area
LUCIP	Land Use Control Implementation Plan
LUCs	Land Use Controls
MDE	Maryland Department of the Environment
MEC	Munitions and Explosives of Concern
MMRP	Military Munitions Response Program
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NSA	National Security Administration
NTCRA	Non-Time Critical Ordnance and Explosives Removal Action
O&M	Operations and Maintenance
ODA	Ordnance Demolition Area
OE	Ordnance and Explosives
OERIA	Ordnance and Explosives Risk Impact Assessment
PP	Proposed Plan
PRG	Preliminary Remediation Goal
PRR	Patuxent Research Refuge
PRR-NT	Patuxent Research Refuge-North Tract

List of Acronyms and Abbreviations (cont'd)

RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SAIC	Science Applications International Corporation
TAP	Tipton Airfield Parcel
UAO	Unilateral Administrative Order
USACE	U.S. Army Corps of Engineers
USAEC	U.S. Army Environmental Center (now U.S. Army Environmental Command)
UXO	Unexploded ordnance
WLL	Wildlife Loop

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: Fort George G. Meade, NTCRA		
EPA ID *(from WasteLAN)*: MD0910020567		
Region: 3	**State:** MD	**City/County:** Laurel/Anne Arundel

SITE STATUS	
NPL status: : ☒Final ☐ Deleted ☐ Other (specify)	
Remediation status (choose all that apply): ☐ Under Construction ☒ Operating ☐ Complete	
Multiple OUs?* ☒ YES ☐ NO	**Construction completion date:** 06/02/2006
Has site been put into reuse? ☒ YES ☐ NO	

REVIEW STATUS	
Lead agency: ☐ EPA ☐ State ☐ Tribe ☒ Other Federal Agency Department of Defense (Army)	
Author name: Bill Eaton	
Author title: Project Manager	**Author affiliation:** URS Group, Inc.
Review period: 11/03/2008 to 04/01/2009	
Date(s) of site inspection: 11/03/2008	
Type of review: ☐ Post-SARA ☐ Pre-SARA ☒ NPL-Removal only ☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead ☐ Regional Discretion	
Review number: ☒ 1 (first) ☐ 2 (second) ☐ 3 (third) ☐ Other (specify) _____	
Triggering action: ☐ Actual RA Onsite Construction at OU #____ ☐ Construction Completion ☐ Other (specify)	☒ Actual RA Start at OU#: (no OU number) ☐ Previous Five-Year Review Report
Triggering action date *(from WasteLAN)*: 01/06/2003	
Due date *(five years after triggering action date)*: 01/06/2008	

* ["OU" refers to operable unit.]
** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form (cont'd)

Issues:

1. Clearance activities at the Ball Fields were not completed. EPA expressed concern that the soil cover at the Ball Fields may not be protective.
2. Clearance activities at Area G were not completed due to contractual disputes.
3. The EPA expressed concern for hunters that go off beaten trails and may be exposed to areas not cleared of MEC from the non-time critical removal action (NTCRA).

Recommendations:

1. In May 2011, the USACE conducted a spring MEC sweep of the Ball Fields prior to use of the fields. No evidence of munitions and explosives of concern (MEC) migrating to the surface was observed. The sweep results indicate that any potential MEC item remains a minimum of 3 feet below ground surface (bgs) and presents no hazard. The Army plans to complete the removal of the burial pits in fiscal year 2013, pending funding.

   The Patuxent Research Refuge will continue to enforce their unexploded ordnance (UXO) education program so that the visiting public is informed that MEC and munitions debris are potentially present.
2. A surface clearance was performed for the entire Area G and clearance to 26 inches was completed in 38 of the 128 grids. The PRR-NT Refuge Manager has recently stated that this action is sufficient for this area since it is closed to PRR-NT hunters and visitors
3. The Army has coordinated with the Fish and Wildlife Service (FWS) to develop an UXO Management Plan for the PRR-NT that outlines a prudent UXO safety education program that helps ensure Patuxent Research Refuge users are aware of UXO and act accordingly. When potential MEC is identified, the FWS are notified; the FWS personnel flag the item and remain at the location until an explosive ordnance disposal (EOD) unit arrives.

Protectiveness Statement(s):

The remedy at the PRR-NT currently protects human health and the environment because the LUCs protect the public from exposure to groundwater and MEC. No reports of MEC at any of the 24 NTCRA high-use areas have occurred since completion of the NTCRA. This indicates that the ordnance sweeps have effectively removed MEC from the high-use areas. Although there have been minor changes in land use (frequency with which the public is likely to visit the various high-use areas), the function of the response action is not significantly changed.

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1.0 INTRODUCTION

This 5-year review evaluates the Non-Time Critical Removal Action (NTCRA) for munitions and explosives of concern (MEC) conducted at the 8,100-acre Patuxent Research Refuge-North Tract (PRR-NT). The 8,100-acre PRR-NT is located in Anne Arundel County within the township of Laurel, Maryland. The PRR-NT property was formerly part of Fort George G. Meade (FGGM), but was released under the Base Realignment and Closure Act (BRAC) of 1988 (Public Law 100-526, 102 Stat. 2623) to the U.S. Department of the Interior (DOI) Fish and Wildlife Service (FWS).

In response to the wildlife refuge land use patterns at the PRR-NT, an NTCRA was conducted during 2003 to 2004 at 24 high-use areas to eliminate or reduce risk from MEC exposure to visitors' and workers' health and safety [United States Army Corp of Engineers (USACE), 2006)].

The purpose of 5-year reviews is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in 5-year review reports. In addition, 5-year review reports identify issues found during the review, if any, and make recommendations to address them.

The U.S. Army (Army) is the lead Agency for this 5-year review of the NTCRA implemented at the PRR-NT. The review was conducted from November 2008 through April 2009. This report documents the results of this review. This is the first 5-year review for the NTCRA. The triggering action for this review is the start date of the NTCRA in January 6, 2003. With possible MEC left in place at the PRR-NT in excess of levels that allow for unlimited use and unrestricted exposure, 5-year reviews are required.

The Army is preparing this 5-year review pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §121 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA §121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

The U.S. Environmental Protection Agency (EPA) interpreted this requirement further in the NCP; 40 Code of Federal Register (C.F.R.) §300.430(f)(4)(ii) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

2.0 SITE CHRONOLOGY

Chronology of Events	Date
Congress authorized the formation of Camp Meade.	1917
Camp Meade became a permanent military reservation and was renamed FGGM.	1928
The National Security Administration (NSA) was established at FGGM.	1950s
Tipton Army Airfield was constructed.	1960
1st and 2nd U.S. Army Districts were consolidated and headquartered at FGGM.	1965
1st U.S. Army transitioned from active duty to Army Reserve.	1970s
The BRAC mandated the closure of FGGM.	1988
Tipton Airfield Parcel (TAP) was released to Anne Arundel County for use as a small municipal airfield for light fixed wing and rotary wing aircraft.	1988
Military Construction Appropriations Act directed the transfer of 7,600 acres of the 9,000-acre BRAC Parcel to the DOI FWS.	1991
Field unexploded ordnance (UXO) surveys were conducted at the 7,600-acre and 1,400-acre BRAC parcels.	1992-1993
An additional 500-acre parcel was transferred from FGGM to the DOI FWS.	January 1993
Final field UXO survey report was submitted for the 1,400-acre BRAC parcel (which included the 500-acre parcel transferred to DOI FWS).	June 1994
Final field UXO survey report was submitted for the 7,600-acre BRAC parcel.	December 1995
Final Fort George G. Meade BRAC Parcel UXO Survey and Data Analysis report was submitted.	June 1997
FGGM was identified as a Superfund Site and was proposed for the National Priorities List (NPL).	April 1, 1997
FGGM was finalized on the NPL.	July 28, 1998
Tipton airfield was removed from the FGGM NPL.	September 1999
An Engineering Evaluation/Cost Analysis (EE/CA) and an Army *Action Memorandum for the Patuxent Research Refuge North Tract* were submitted in June and August, respectively.	June 2001
The Army and FWS issue an *Ordnance and Explosive Scrap Removal Memorandum of Agreemen*t.	August 2001
The Army and FWS issue an *UXO Management Plan*.	December 2003
NTCRA was conducted to remove UXO to specified depths (26 inches to 4 feet) at the high-use areas.	2003-2004
Final NTCRA Report was submitted.	June 2006
EPA Region III Resource Conservation and Recovery Act (RCRA) Section 7003 Unilateral Administrative Order (UAO) was established.	February 6, 2008
Army signed an Federal Facility Agreement (FFA) with EPA Region 3, DOI, and the U.S. Architect of the Capitol.	October 2009
First 5-Year Review of the NTCRA was conducted.	2009

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3.0 BACKGROUND

3.1 PHYSICAL CHARACTERISTICS

FGGM formerly occupied 13,596 acres of land in the northwest corner of Anne Arundel County, approximately halfway between Washington, D.C., and Baltimore, Maryland. Figure 3-1 illustrates the regional location of FGGM with respect to the State of Maryland and the Baltimore-Washington metropolitan area. It also shows the PRR-NT and other adjacent properties.

The PRR-NT is approximately 8,100 acres with 24 identified high-use areas (see Table 3-1 and Figure 3-2). The site is currently used for wildlife management and research, and for recreational activities including hiking, fishing, hunting, and wildlife viewing. The 24 high-use areas are where people are most likely to visit and where remaining MEC exposure is a concern. Among the areas are marked trails (foot, bicycle, and equestrian), the shores of public-accessible ponds, camping areas, a downstream portion of the Little Patuxent River, and several open sites such as the Ball Fields, training areas, and wildlife feeding areas.

Much of the 8,100 acres are woodlands. However, wetlands and marshes are present along the Patuxent River, the Little Patuxent River, and the tributary streams. Ponds have been established in several drainage areas. Refuge management maintains some of the former military roads for access, but the other roads were allowed to return to natural conditions.

Table 3-1: NTCRA Areas of Concern and Clearance Depths

Area Name	Clearance Depth	Area Name	Clearance Depth
Blue Trail	4 Feet	Cattail Pond	26 Inches
Forest Habitat Trail	26 Inches	Rieve's Pond	26 Inches
Green Trail	4 Feet	Lake Allen	26 Inches
Orange Trail	4 Feet	Stables	26 Inches
Pine Trail	26 Inches	Ball Fields[(1)]	4 Feet
Red Trail	4 Feet	Upland Dog Training Area	26 Inches
River Trail	26 Inches	Scout Site #1	4 Feet
Yellow Trail	4 Feet	Scout Site #2	4 Feet
Wildlife Loop (WLL)	4 Feet	Area I (Wildlife Feeding Area)	4 Feet
New Marsh	26 Inches	Area G[(2)]	26 Inches
Bailey Bridge Marsh	26 Inches	Area W (New Wildlife Feeding Area)	4 Feet
Little Patuxent River	Surface	Range 1	4 Feet

Notes:

[(1)] Grids 2 and 3 clearance not completed.

[(2)] Clearance not completed.

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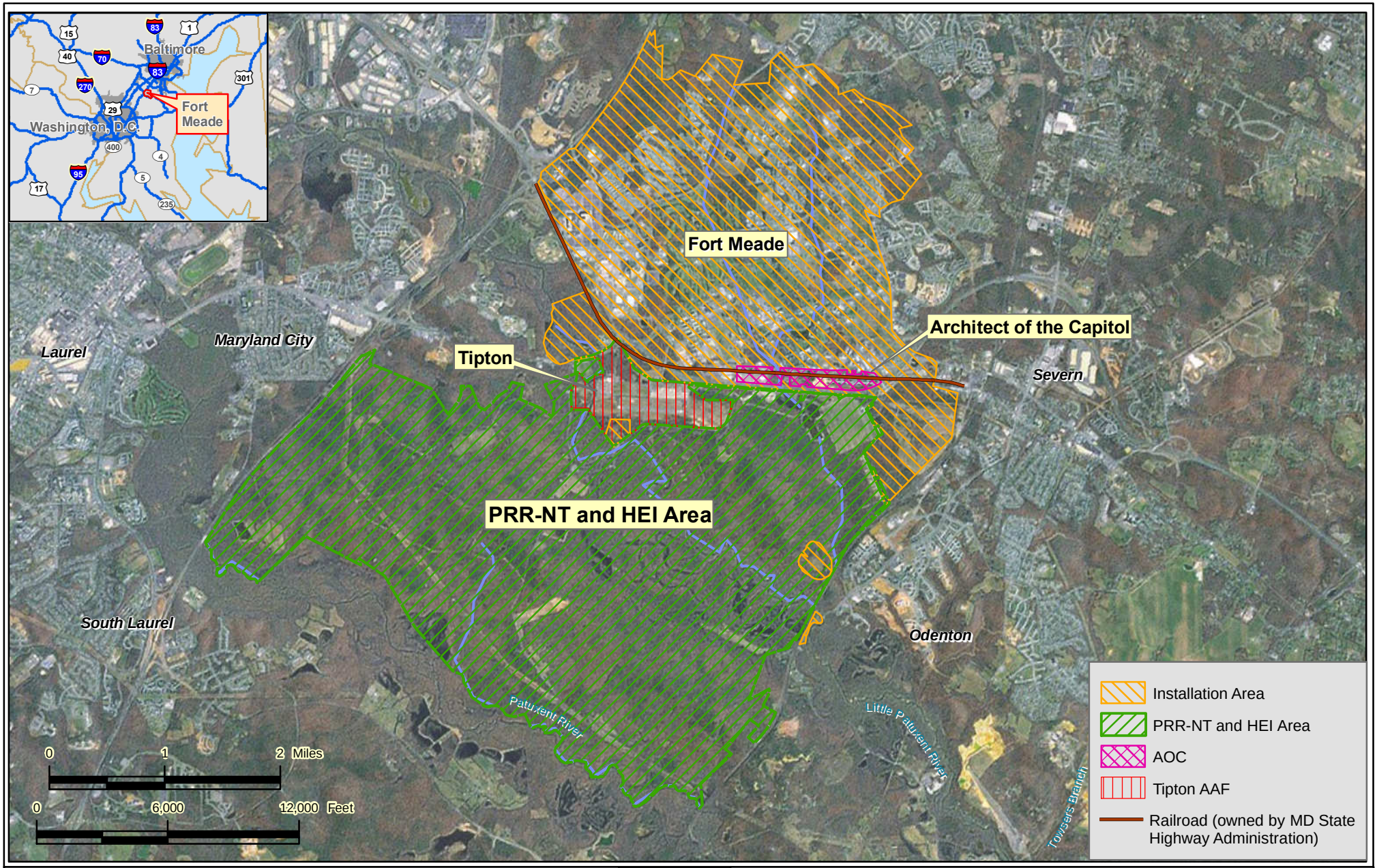

CLIENT	U.S. Army Corps of Engineers, Baltimore District			
DATA SOURCE	USA Prime Imagery, 11/15/2008.			
REVISION NO	0	GIS:	AER	10/18/10
SCALE	1:72,000	CHECKED:	GK	10/18/10
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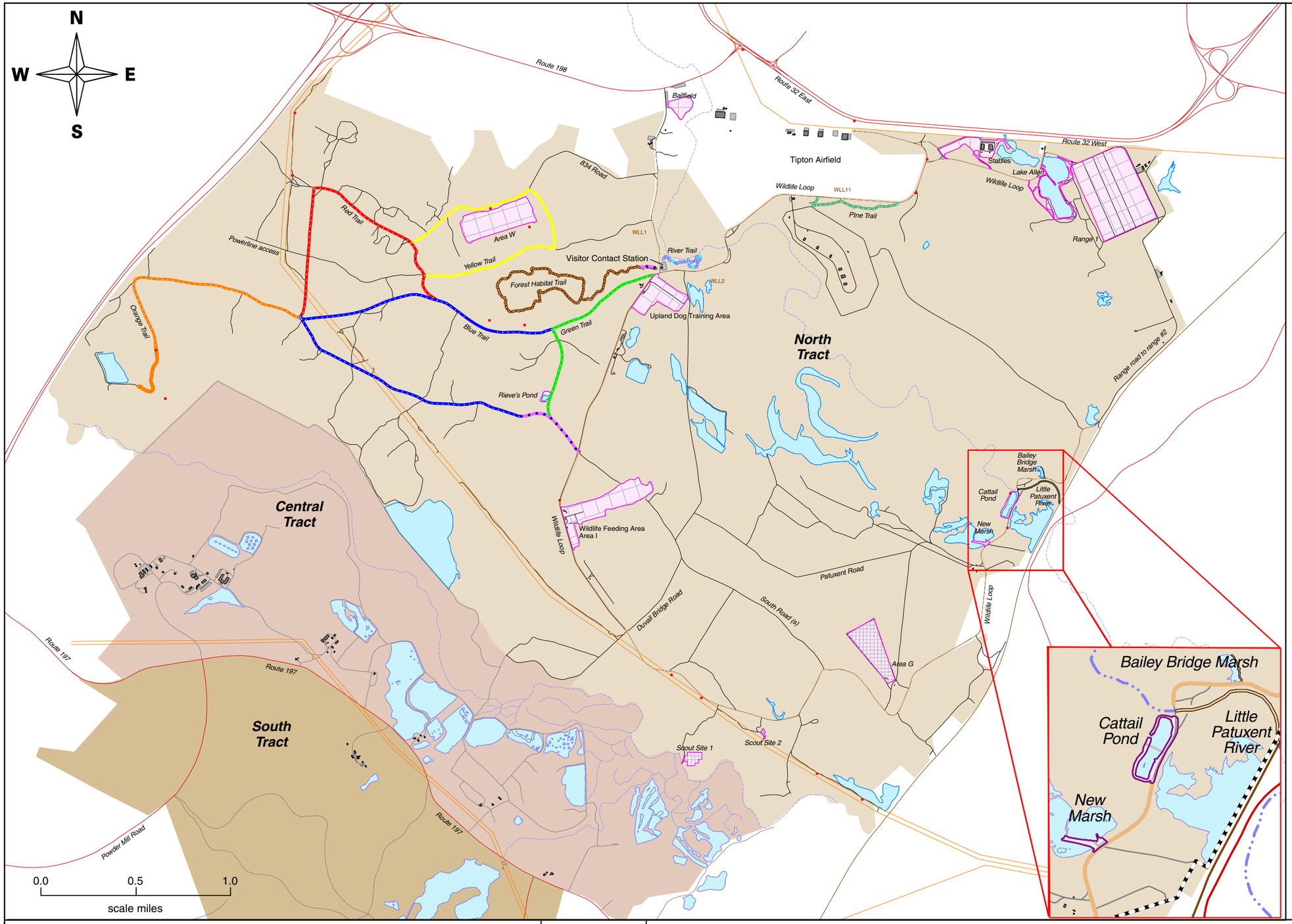
TITLE

Fort George G. Meade
Property Boundaries Map

URS

200 Orchard Ridge Drive
Gaithersburg, MD 20878

Figure 3-1



PRR – NT NTCRA Areas of Concern

Trails

- Blue Trail
- Forest Habitat Trail
- Green Trail
- Orange Trail
- Pine Trail
- Red Trail
- River Trail
- Yellow Trail
- Wildlife Loop

Areas

- New Marsh
- Bailey Bridge Marsh
- Little Patuxent River
- Cattail Pond
- Rieve's Pond
- Lake Allen
- Stables
- Ball Fields
- Upland Dog Training Area
- Scout Site #1
- Scout Site #2
- Area I (Wildlife Feeding Area)
- Area G
- Area W (New Wildlife Feeding Area)
- Range 1

CLIENT USACE			
DATA SOURCE NTCRA, USACE 2006			
REVISION NO	DES BY		
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PATUXENT RESEARCH REFUGE NORTH TRACT NON-TIME CRITICAL REMOVAL ACTION (NTCRA) AREAS OF CONCERN

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FIGURE

Figure 3-2

3.2 LAND AND RESOURCE USE

The PRR-NT is currently managed by the DOI FWS and serves a variety of functions including wildlife conservation, research, and management. The PRR-NT offers the public various recreational opportunities including hunting, fishing, hiking, wildlife observation, and educational programs. The future land use is to continue as a wildlife refuge under DOI FWS management, providing wildlife management and research functions and recreational opportunities to visitors.

Even though the DOI FWS currently owns the PRR-NT, the Army still remains responsible for any and all decontamination, cleanup, and remediation action that may be required. However, this only applies to contamination that occurred before the transfer of the property from the Army to the owners. As noted in the Transfer Assembly documents, the Army has authority and control over the management of the property with respect to conducting cleanup and remediation activities relating to the environmental restoration of the property.

3.3 HISTORY OF CONTAMINATION

The chronology of events table in Section 3.0 outlines the key historical events that contribute to the MEC contamination of the PRR-NT. Table 3-2 identifies the site investigations and removal actions that were conducted for this site.

Camp Meade was originally authorized by Congress in 1917 as one of sixteen training cantonments to be built for troops drafted for World War I. Two parcels of 4,000 and 9,000 acres were acquired. Camp Meade became a permanent military reservation in 1928 and was renamed FGGM. During World War II, roughly 3.5 million men and women passed through the installation for training.

In the early 1950's, branches of the NSA were established at the installation and remain there today. Tipton Army Airfield was constructed in 1960 to support infantry and armor activities. In 1965, the 1st and 2nd U.S. Army Districts were consolidated and headquartered at FGGM. In the early 1970's, the 1st U.S. Army began a transition from being mission-oriented to the active duty components of the Army to being dedicated to the Reserve components.

The Defense Authorization Amendments and BRAC of 1988 mandated that the FGGM installation close and excess an area of approximately 9,000 acres. The Fiscal Year 1991 Military Construction Appropriations Act (MCAA) directed transfer of 7,600-acres of the 9,000 acres to the DOI FWS for addition to the Patuxent Research Refuge (PRR). Since the land transfer, the parcel has been managed for restricted public use as part of the PRR-NT. In 1992, an additional

Table 3-2: Site Investigations and Removal Actions at the PRR-NT

Site Investigations and Removal Actions	Purpose	Reference
Ordnance Survey, 1,400-acre Parcel, June 1994	The objective of the survey was to locate, identify and remove UXO located on the surface and within a depth of six inches below the ground surface (bgs) in the accessible portions. This survey addressed the 500-acre BRAC parcel that was transferred to DOI.	USAEC, 1994
Ordnance Survey, 7,600 Acre Parcel, December 1995	The objective of the survey was to locate, identify and remove UXO located on the surface and within a depth of six inches bgs in the accessible portions of the parcel. Roughly 7,400 of the 7,600 acres were covered, with the remainder inaccessible (e.g., wetland areas, environmentally sensitive areas, lakes, rivers, streams and areas of dense brush).	USAEC, 1995
FGGM BRAC Parcel UXO Survey and Data Analysis, June 1997	A quality assurance survey was conducted to evaluate the effectiveness of the previous surveys that only went to 6 inches bgs and not 12 inches bgs as stated in the Transfer Assembly documents which released the property from the DOD control and gave it to the DOI.	SAIC, 1997.
EE/CA, June 2001	An EE/CA is prepared for all non-time-critical removal actions per Section 300.415(b)(4)(i) of the NCP. The report identified the extent of the MEC hazard, identified the objectives of the response action, and analyzed various alternatives that may be used to remediate the PRR-NT.	USACE, 2001a
Ordnance and Explosives Risk Impact Assessment (OERIA), June 2001	As part of the EE/CA, the OERIA determined the qualitative risk to the public from potential MEC exposure at the 24 high-use areas that the FWS identified within the PRR-NT.	USACE, 2001a
Final NTCRA Report, June 2006	The report documents the MEC clearance activities that occurred within the 24 high-use areas identified in the EE/CA.	USACE, 2006
Instrument Assisted Visual Inspection of the Tipton Airfield Inactive Landfill 3 and Ball Field, May 2011	In May 2011, the USACE conducted a spring MEC sweep of the Ball Fields prior to use of the fields. The inspection showed no evidence of MEC migrating to the surface. The sweep results indicate that any potential MEC item remains a minimum of 3 feet bgs and presents no hazard.	USACE, 2011a

500-acre parcel was transferred to the DOI. The PRR-NT is comprised of the 7,600- and 500-acre BRAC parcels that were transferred to the DOI FWS.

Included in the land transfers to the DOI FWS are the inactive sites, the Ordnance Demolition Area (ODA), Trap and Skeet Range 17, Uncontrolled Waste Site, Medical Waste Site, and the Ammunition Supply Point (ASP) No. 2. The Clean Fill Dump (CFD) is also located within the PRR-NT, but the property is still pending transfer from the Army to the DOI. An UXO surface clearance at the CFD was not conducted due to the presence of ubiquitous metal and that intrusive activities to remove the ordnance could also pose unacceptable risk to the unique environment associated with a magnolia bog located within the confines of the CFD. The ODA and CFD sites are addressed as separate groundwater operable units under the FFA (October 2009).

In recognition of the former use of the land as training ranges, language regarding the presence of MEC and the recommendation that future use of the land be compatible with the probable continued presence of MEC is found throughout the PRR-NT. Issues such as construction support pertaining to MEC and surveys to be completed as part of the transfer were also outlined in the 1991 and 1992 land Transfer Assembly documents. Surveys were to identify items that are representative of troop training and fighting using ordnance and explosive (OE) practice items to simulate a service item in weight design and ballistic properties. These items may be inert or have a small quantity of explosive filler. The items may also contain incendiary material used for signaling and creating smoke screens, which were typical training activities.

The environmental remediation at the PRR-NT is managed in accordance with the CERCLA because its usage had been associated with FGGM. Fort Meade was listed by the EPA as a Superfund site. FGGM was proposed for the NPL on April 1, 1997, and finalized on the NPL on July 28, 1998.

For federal facility sites under the jurisdiction, custody, or control of the Department of Defense (DOD), Executive Order 12580 delegates the lead agency responsibilities to the DOD. Therefore, the Army is the lead agency responsible for the remedy selection and cleanup of the PRR-NT. The Army, EPA Region 3, DOI, and the Architect of the Capitol signed an October 2009 FFA to direct the comprehensive remediation of FGGM.

3.4 INITIAL RESPONSE

The Army conducted two ordnance surveys and removal of munitions debris and MEC to a depth of 6 inches bgs over all accessible portions of the 8,100-acre PRR-NT in 1992 and 1993 (USAEC, 1994 and 1995). Excluded were wetlands, surface water bodies, environmentally sensitive areas, and areas of dense brush that could not be traversed. This action included visual

and magnetometer sweeps and clearing magnetometer contacts up to 6 inches bgs. Contacts deeper than 6 inches were mapped and recorded. This survey/clearance (upper 6 inches) of the 8,100-acre property resulted in the retrieval of over 14,000 UXO items, over 18,000 munitions debris items, and identification of 1,388 magnetometer anomalies where the item was not retrieved because it was below 6 inches bgs.

Continuing concerns for the safety of PRR-NT users prompted additional study of the possible MEC risk. An EE/CA (USACE, 2001a) investigated the risk to the public from potential MEC exposure. The EE/CA concluded that the appropriate remedial action protective of human health and the environment was an NTCRA with Land Use Controls (LUCs), focused on the 24 high-use areas within the PRR-NT. The associated August 2001 *Action Memorandum for the Patuxent Research Refuge North Tract* (USACE, 2001b) reiterated the LUCs discussed in the Transfer Assembly documents (see Table 3-3).

Table 3-3: August 2001 Action Memorandum LUCs for PRR-NT

LUCs for the PRR-NT NTCRA
Prohibit intrusive activities to minimize the possibility of accidental contact with buried MEC;
Implement and maintain an educational program informing PRR-NT users and employees of the MEC risk and the appropriate response actions if MEC is observed (e.g., retreat and report); and
Prohibit the usage of groundwater resources.

A qualitative OERIA evaluated risk levels on an area-by-area basis by considering the anticipated visitor activities, the expected type of munitions, and the stability of the site. The OERIA provided the basis for the area-specific clearance depths (26 inches or 4 feet bgs). Site-specific risk factors included characteristics of the potential OE (type, sensitivity, density, depth) site characteristics (accessibility, stability), and human activities (recreational or occupational), and the frequency and density of site use. Geophysical contacts were cleared minimally to the frost line (26 inches) and to 4 feet in areas with high impact activities. Table 3-1 identifies these high-use areas and the clearance depths.

3.5 BASIS FOR TAKING ACTION

The August 2001 Action Memorandum (USACE, 2001b) reiterated the recommended remedial action of LUCs and the NTCRA for surface and subsurface clearance in selected areas to depths consistent with the risk assessment findings. It states that the accidental detonation of the OE poses the primary hazard rather than the toxic effects of the explosive or incendiary substances. Exposure to potentially explosive items may occur by unearthing the item either by forces like frost heave or excavation.

4.0 REMEDIAL ACTION

4.1 REMEDY SELECTION

Table 4-1 summarizes the selected remedy for the 24 high-use areas. It should be noted that this 5-Year Review is evaluating the effectiveness of the remedial actions made following the 2001 EE/CA and Army Action Memorandum. It is anticipated that the LUCs from the PRR-NT Action Memorandum (2001b) and the NTCRA (2006) will serve as the final remedy for the PRR-NT; however, MEC wastes remain in place, so post-response action risk management activities and long-term monitoring is required.

Table 4-1: Summary of Affected Media and Selected Remedy for the PRR-NT NTCRA

Affected Media	Selected Remedy
Surface and Subsurface MEC	**NTCRA[(1)]** Conduct MEC surface and subsurface clearance at the 24 high-use areas to selected depths (see Table 3-1).
	LUCs[(2)] 1) Prohibit intrusive activities to minimize the possibility of accidental contact with buried MEC; and 2) Implement and maintain an educational program informing PRR-NT users and FWS employees of the MEC risk and the appropriate response actions if MEC is observed (e.g., retreat and report).
Groundwater	**LUCs[(2)]** Prohibit the usage of groundwater resources.

Notes:
FGGM = Fort George G. Meade; MEC = munitions and explosives of concern; LUCs = land use controls; PRR-NT = Patuxent Research Refuge-North Tract
[(1)] USACE, 2001a and 2006.
[(2)] USACE, 2001b.

In accordance with the FGGM FFA (October 2009), the Army is currently preparing a Proposed Plan (PP) and Record of Decision (ROD) for selection of a Preferred Alternative for mitigating risk from MEC at the 8,100-acre PRR-NT, otherwise known as the High Explosive Impact and Disposal Area ("HEI Area"). Future MEC risk at the PRR-NT will be addressed under the HEI Area. The Army plans to address future MEC LUCs and remediation under the Military Munitions Response Program (MMRP) and the HEI Area. A Land Use Control Implementation Plan (LUCIP) will be submitted in fiscal year 2012 that will consolidate the LUC requirements of the Transfer Assembly documents, the April 2001 ODA Action Memorandum (Army, 2001), the July 2000 CFD Action Memorandum (Army, 2000), and the August 2001 PRR-NT Action Memorandum (USACE, 2001b) into one comprehensive set of LUCs for the HEI Area.

The proposed LUCs consist of the following:

- Residential use of the property without evaluation of residential exposure risk will be prohibited. Residential restrictions are permanent for areas such as the ODA and other areas where MEC is likely to be concentrated or non-clearable.
- Intrusive activities will be prohibited to minimize the possibility of accidental contact with buried MEC.
- An educational program will be maintained that informs PRR-NT users and employees of the MEC risk and describes the appropriate response actions to take if MEC is observed (e.g., recognize, retreat, and report).
- The use of groundwater will be prohibited from the upper Patapsco aquifer for potable or non-potable use except for environmental testing until the groundwater is safe for unrestricted use.
- Reviews will be conducted every 5 years to ensure that the LUCs remain protective of human health and the environment. The 5-year review process will address the need for sweeps of ordnance, appropriate disposal of ordnance, and LUCs to ensure the continued protectiveness of the previous MEC removal activities and that site conditions continue to meet the NCP section 300.415(b)(2) criteria for implementing the chosen risk reduction alternative.

The Army will conduct periodic inspections of the NTCRA high-use areas for MEC. The Army continues to work hand-in-hand with the PRR to develop techniques, processes, and procedures which the PRR incorporates into their daily activities to help them ensure the safety of Refuge visitors, employees, volunteers, interns, research partners, and contractors.

4.2 REMEDY IMPLEMENTATION

A NTCRA was conducted during 2003 and 2004 at the 24 high-use areas identified in the OERIA to eliminate or reduce risk from MEC to FWS visitors' health and safety (USACE, 2006). Open areas were gridded for systematic sweep/removal, including selective brush removal in some areas. The NTCRA resulted in removal of 80 UXO items and over 6 tons of scrap metal (primarily munitions debris).

Clearance activities at two areas (Ball Fields and Area G) were only partially completed. At the Ball Fields, the NTCRA encountered large quantities of munitions debris interpreted to be burial pits. Specifically, clearance within survey grids 2 and 3 containing the burial pits was suspended. The boundaries of the pits had not been determined at the time work was suspended. Due to suspension, not all magnetometer contacts were excavated. Further, USACE (2006) does

not indicate that all unexcavated contacts were covered with clean fill; therefore, the depth of unexcavated contacts below the present ground surface is not known for all contacts.

Clearance within the other two ball field grids (1 and 4) was completed to the planned 4-foot clearance depth. No MEC was encountered during the Ball Field clearance effort (i.e., all cleared material was munitions debris). Soil and grass were placed to restore the playing field grade where excavation occurred, and signage warning of MEC potential, prohibiting metal detector use, and providing a phone number to report suspect MEC that might be discovered at the site was erected on ball field backstops. The Ball Fields are currently used for athletic activities.

In May 2011, the USACE conducted a spring MEC sweep of the Ball Fields prior to use of the fields. The inspection showed no evidence of MEC migrating to the surface. The sweep results indicate that any potential MEC item remains a minimum of 3 feet bgs and presents no hazard (USACE, 2011a). A copy of the memorandum that documents these results is provided in Appendix D.

At Area G, clearance activities were terminated by a stop-work order before the entire area was cleared. The surface of all of the 128 survey grids within Area G was cleared. However, 71 of the 128 survey grids within Area G were not fully cleared to the planned 26-inch depth. Prior to stoppage, a large quantity of spent bazooka training rounds was removed from the surface. Twenty-five (six in 2003 and 19 in 2004) UXO items were recovered from Area G before the stop-work order was issued. Access to Area G is restricted to hunters during the legal hunting season. The PRR-NT Refuge Manager has recently stated that the NTCRA action is sufficient for this area since it is closed to PRR-NT hunters and visitors.

The original NTCRA statement of work included review of Area H. However, prior to NTCRA completion, Area W, New Wildlife Feeding Area, was substituted for Area H because DOI judged Area W to be a higher priority. Area H is a parcel near Scout Site 1, between Wildlife Loop (a road) and the power line easement that was formerly used for crops in the wildlife management program. This land is now fallow and is restricted to hunters during the legal hunting season. Since: 1) Area H was included in the initial 8,100 acre MEC surveys and removals conducted in 1991 and 1993 and intended to reduce risks to acceptable levels (USAEC, 1994 and 1995), and 2) assuming hunters comply with the PRR-NT education program rules, then this substitution is acceptable.

4.3 SYSTEM OPERATIONS/O&M

The implementation of the NTCRA with LUCs did not include system operations or operations and maintenance (O&M) activities. This section is not applicable for the 5-Year Review.

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5.0 PROGRESS SINCE LAST REVIEW

This is the first 5-Year Review for the PRR-NT NTCRA.

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6.0 FIVE-YEAR REVIEW PROCESS

6.1 ADMINISTRATIVE COMPONENTS

The objective of stakeholder notification and involvement is to ensure that people and organizations impacted by the 5-year review are given the opportunity to participate in the planning and decision making process. The stakeholders involved include representatives of the DOD, PRR (DOI), EPA, Maryland Department of the Environment (MDE), and the surrounding community. Table 6-1 presents key stakeholder point of contact information.

Table 6-1: Stakeholder Points of Contact

Name/E-Mail	Title	Organization	Phone
Ms. Andrea Graham andrea.a.graham@.usace.army.mil	Baltimore District USACE Project Manager	USACE	(443) 986-3444
Steve Cardon steven.c.cardon.ctr@mail.mil	Ft. Meade BRAC Environmental Coordinator	Department of the Army	(301) 677-9178
John Burchette burchette.john@epamail.epa.gov	Federal Remedial Project Manager	EPA	(215) 814-3378
Dr. Elisabeth Green egreen@mde.state.md.us	Remedial Project Manager	MDE	(410) 537-3346
Brad Knudson brad_knudsen@fws.gov	Refuge Manager and Project Leader	PRR (DOI)	(301) 497-5582

6.2 COMMUNITY NOTIFICATION AND INVOLVEMENT

After the Draft Final NTCRA 5-Year Review Report is approved by the EPA and MDE, a notice will be placed in the *Maryland Gazette*, *Crofton-West County*, and *Bowie Blade* newspapers to solicit comments from the public and will be documented in Appendix C. The public comment period will be in effect for 30 days. Public meetings will be held after it is identified that enough public interest exists to warrant such a meeting. An additional 30-day extension will be provided if requested by interested stakeholders. A copy of the report will be included in the Administrative Record, which is available for public review.

The Administrative Record is available for public review at the following two locations:

1) Provinces Public Library
   2624 Annapolis Road
   Severn, MD 21144
   Phone: (410) 222-6280
   Hours: Mon, Tue, and Thu: 1:00 to 9:00 pm;
   Wed and Sat: 9:00 am to 5:00 pm; and
   Fri: 1:00 pm to 5:00 pm

2) Environmental Management Office
   Attn: ANME-PWE
   Fort Meade, MD 20755
   Phone: (301) 677-9648
   Hours: 7:30 am to 4 pm (Mon - Fri)

Any questions or requests for more information about the PRR and this review may be addressed to:

Department of the Army
Markus Craig
Office of the Assistant Chief of Staff for
Installation Management; BRAC Division
NC3-Taylor Building; 5064-A
2530 Crystal Drive
Arlington, VA 22202
Phone: (703) 545-2474

John Burchette
NPL/BRAC/Federal Facilities Branch
USEPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029
Phone: (215) 814-3378

Dr. Elisabeth Green
Federal Facilities Division, Land Restoration Program
Maryland Department of the Environment
1800 Washington Boulevard; Suite 25
Baltimore, MD 21230-1719
Phone: (410) 537-3346

Andrea Graham
Program Manager, Environmental and Munitions Design Center
USACE
10 South Howard Street
Baltimore, MD 21201
Phone: (443) 986-3444

6.3 DOCUMENT REVIEW

A review of relevant historic documents describing MEC occurrence and management at the PRR-NT was conducted as part of this 5-Year Review. They are as follows:

- *Fort George G. Meade, Ordnance Survey (1400-Acre Parcel), Final Report.* Prepared by International Technology Corporation (ITC), June (USAEC, 1994).
- *Fort George G. Meade, Anne Arundel County, Maryland, Ordnance Survey, 7600 Acre Parcel, Final Report*. Prepared by OHM Remediation Services Corp. (OHM), December (USAEC, 1995).
- *Fort George G. Meade BRAC Parcel, UXO Survey and Data Analysis, Final Report.* June [Science Applications International Corporation (SAIC), 1997].
- *Action Memorandum: Safety Precautions to Be Taken at Clean-Fill Dump, Fort George G. Meade, Maryland*. Final. July (Army, 2000).
- *Action Memorandum: Safety Precautions to Be Taken at Ordnance Demolition Area, Fort George G. Meade, Maryland*. Final. April (Army, 2001).
- *Engineering Evaluation/Cost Analysis Report for the Patuxent Research Refuge North Tract, Laurel, Maryland*, June (USACE, 2001a).

- *Action Memorandum for the Patuxent Research Refuge North Tract, Laurel, Maryland*. August (USACE, 2001b).
- *Final, Site Specific Final Report, Non-Time Critical Ordnance and Explosives Removal Action at the Department of Interior, North Tract Area, Fort George G. Meade, Anne Arundel County, Maryland*. June (USACE, 2006).

6.4 DATA REVIEW AND EVALUATION

Table 6-2 summarizes the data review findings for the response actions implemented at the PRR-NT NTCRA.

Table 6-2: Evaluation of NTCRA Response Action

Response Action	Issues	Recommendations
NTCRA at the 24 high-use areas	Clearance activities at the Ball Fields were not completed. EPA expressed concern that the soil cover at the Ball Fields may not be adequate.	In May 2011, the USACE conducted a spring MEC sweep of the Ball Fields prior to use of the fields. No evidence of MEC migrating to the surface was observed. The sweep results indicate that any potential MEC item remains a minimum of 3 feet bgs and presents no hazard. The PRR will continue to enforce their UXO education program so that the visiting public is informed that MEC and munitions debris are potentially present.
	Clearance activities at Area G were not completed due to contractual disputes.	A surface clearance was performed for the entire Area G and clearance to 26 inches was completed in 38 of the 128 grids. The PRR-NT Refuge Manager has recently stated that this action is sufficient for this area since it is closed to PRR-NT hunters and visitors.
	The EPA expressed concern for hunters that go off beaten trails may be exposed to areas not cleared of MEC from the NTCRA.	FGGM has coordinated with the FWS to develop an UXO Management Plan for the PRR-NT that outlines a prudent UXO safety education program that helps ensure Refuge users are aware of UXO and act accordingly. When potential MEC is identified, the FWS are notified; the FWS personnel flag the item and remain at the location until EOD support arrives.
LUCs	The EPA requested clarification of the groundwater LUCs for the PRR-NT.	The Army plans to submit a PP, ROD, and LUCIP for the HEI Area. The LUCs will be clearly defined in these documents.

6.5 SITE INSPECTION

A site inspection was conducted in conjunction with the November 3, 2008 interviews during which representative NTCRA areas were inspected. Prominent signage at the Ball Fields warned of the possibility of UXO and provided contact telephone numbers in the event suspect UXO is

encountered. The mandatory DOI registration form at the Visitor Contact Station includes a notice of possible risk from UXO and provides instructions to notify PRR management if an item is discovered.

Portions of several trails and the Wildlife Loop were visited during June and July 2008, prior to the November 2008 5-Year Review interviews. At that time there were no indications of uncontrolled intrusive activity or soil erosion. Weekday visitor traffic (foot, bicycle) was observed on the paved Wildlife Loop and on gravel surfaced trails running west from Wildlife Loop. UXO information was available at the Visitor Contact Center, and an illustrated notice was erected beside the trail head at New Marsh.

As an improvement to visitor facilities, PRR-NT has renamed several of the trails and changed the designation of one area included in the NTCRA. This 5-Year Review retains the original naming; Table 6-3 relates the names used in this report to the new names.

Table 6-3: PRR-NT Areas of Concern Name Changes

New Name (PRR-NT 2008)	Old Name (NTCRA 2003)
Whip-poor will Way	Yellow Trail
Sweetgum Trail	Red Trail
Wild Turkey Way	Orange Trail, Blue Trail (part), Green Trail (part)
South Road	Blue Trail (part)
Kingfisher Road	Green Trail (part)
Range 11	Area G

6.6 INTERVIEWS

URS Group, Inc. (URS) interviewed PRR personnel on November 3, 2008 and Mr. Tim Dignin with Tetra Tech, Inc. on November 11, 2008.

6.6.1 PRR Interviews

URS interviewed PRR personnel on November 3, 2008 at the PRR-NT Educational Classroom Building on Wildlife Loop. In attendance were Fred Moose and Bill Eaton from URS, and several PRR Staff: Dionne Briggs (Refuge Operations Specialist), Lisa Goncalves (Education Team), Amanda Hardaswick (Law Enforcement Officer), Brad Knudsen (Project Leader / Refuge Manager), Nancy Morrissey (Deputy Refuge Manager), and Holliday Obrecht III (Refuge Biologist). Interview questions are listed below, along with the consensus responses:

1. *Have site conditions changed since the NTCRA was conducted?* Site conditions have not materially changed since the NTCRA was conducted. However, it was noted that Explosive

Ordnance Disposal (EOD) support for PRR-NT is no longer locally staffed out of Fort Meade because Fort Meade no longer has an EOD Unit. The EOD Unit that supports PRR-NT now comes from the more distant Fort Belvoir. Consequently, EOD response times are longer and cause longer disruption of PRR-NT operations when MEC is reported to PRR-NT personnel (typically by a hunter with authorization to access PRR-NT property outside the 24 NTCRA areas). Minor site usage changes identified include:

- The Stables are no longer in use; accordingly MEC exposure potential is decreased.
- The Hunter Contact Station (HCS) was not identified as one of the 24 NTCRA high-use areas. In retrospect, it possibly should have been considered because hunters frequent this station. However, the hunters are aware of the MEC exposure hazards at PRR-NT since they have authorized access to large areas beyond the boundaries of the 24 NTCRA high-use areas. Therefore, exclusion of the HCS from the NTCRA is not a major concern.
- At Boy Scout Area Number 1, fishing is now allowed, which may encourage a slightly higher usage.
- An Environmental Education (EE) Trail is planned proximate to the old Range 17 (Trap & Skeet Range 17), which will encourage an increase in use. One mitigating factor is that this trail will only be used for guided tours and will not be open to the general public.
- A probable pending land use decrease involves the ASP, which is currently used by the NSA. The NSA is planning to terminate its use of the ASP. If this occurs, hunters may then be permitted to have access to the ASP. The land use decrease by NSA will, therefore, be offset somewhat by future hunter usage.
- The Upland Dog Training Area is likely to be decommissioned, which will decrease land use there.

2. *Is the response functioning as intended?* Yes, evidenced by the fact that no MEC has been reported by any PRR-NT user for any of the 24 NTCRA areas.
3. *Are the response action assumptions still valid?* Yes. The primary protective measures are still in place and include: 1) prohibition of excavation without MEC avoidance support; 2) the requirement for an MEC education program to inform all land users of the inherent MEC hazards; and 3) avoidance/reporting requirements.
4. *Does new information indicate that the previously selected response no longer minimizes explosive safety risks or is no longer protective of human health, safety, and the environment considering the best available technology?* No. No new information has come to light that

the selected remedy is no longer minimizing the MEC risks or is not being protective of human health, safety, and the environment at the 24 high-use areas.

5. *What is your overall impression of the project?* Overall, the NTCRA continues to function as intended.

6. *What effects have site operations had on the surrounding community?* Implementation of the NTCRA required the establishment of safe distances associated with managing MEC. The members of the surrounding community who use PRR-NT were restricted from accessing the safe zones and, therefore, their use of PRR-NT was temporarily restricted. The long-term impact on the community is that they are unable to have unrestricted access to all of the PRR-NT because of known residual MEC.

7. *Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.* Community members who use the PRR-NT sometimes complain about the prohibitions to accessing all of the PRR-NT.

8. *Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities?* Trespassing is known to occur. Trespassers bypass the educational program that advises PRR-NT users of the inherent MEC hazards, access restrictions, and MEC avoidance and reporting requirements.

9. *Do you feel well informed about the site's activities and progress?* Overall, yes. However, PRR-NT has some concern that they may not have received all final copies of Army-sponsored environmental investigation reports involving PRR-NT.

10. *Do you have any comments, suggestions, or recommendations regarding the site's management or operation?* PRR notes that, under ideal circumstances, the Army would remove all MEC. However, PRR appreciates that this is technically impractical. The remedial program that has been implemented (LUCs, MEC educational program, and focused near-surface MEC sweeps/removal) appears to be a reasonable alternative to 100 percent MEC removal. PRR Staff also noted that residual MEC affects PRR-NT plans to accommodate new programs such as increasing New Marsh habitat by deepening the pond via dredging and providing fish a better opportunity to survive year-round. Also, MEC avoidance will be required to develop new interpretive trails near the former Trap and Skeet Range (old Range 17) and the Visitor Contact Station.

Other issues discussed during the interviews were:

- The 24 high-use areas for the NTCRA were selected based on consideration of likelihood of visitation by PRR-NT users and the types of activities visitors would engage in. The

selection process also considered the stability of the site (i.e., erosion potential) and the expected types of munitions based on historic land use information.

- There have been no reports of MEC discovery in any of the NTCRA areas subsequent to implementation of the NTCRA.
- MEC continues to be discovered in non-NTCRA areas by DOI staff and hunters. Hunters are the only visitors given access to the non-NTCRA property. For example, trail users are restricted to the established trails.
- Concern was expressed that MEC in the Little Patuxent River might be washed downstream to beyond the southern limit of where the annual river sweep is conducted (Old Forge Bridge), thus requiring expansion of the river sweep scope. URS explained that based on the most recent USA Environmental, Inc. annual river sweep report (USA, Environmental, Inc. 2008) all MEC finds have been restricted to the area far upstream of the Old Forge Bridge and, therefore, expansion of the river sweep scope to the area south of Old Forge Bridge isn't supported by these findings.

6.6.2 Mr. Tim Dignin Interview

A telephone interview was conducted on November 11, 2008 with Tetra Tech's Mr. Tim Dignin, the geophysicist who conducted the EM61 investigation for the NTCRA. He had information concerning investigation of the Ball Fields and Area G.

Regarding the Ball Fields, Mr. Dignin stated that the daily reports from the ball field during excavation indicated that all metallic objects were inert. Because of the high concentration of metallic items, it was thought that burial pits had been encountered. The EM61 results were unable to delineate the extent of pits, and intrusive work was halted before natural soil was encountered (i.e., the suspect burial pits were not completely excavated).

Regarding Area G, Mr. Dignin stated that the high concentration of aluminum practice rounds on the surface of Area G made investigation with the EM61 impossible. Therefore, a high sensitivity cesium magnetometer was used to search for ferromagnetic targets. Numerous magnetic targets were encountered, and 25 UXO items were recovered during the partial clearance of Area G.

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7.0 TECHNICAL ASSESSMENT

7.1 QUESTION A: Is the remedy functioning as intended by the decision documents?

Yes. The PRR-NT NTCRA with LUCs response actions are generally functioning as intended. The effective implementation of LUCs has prevented exposure to MEC at the 24 high-use areas and the groundwater restrictions have prevented exposure to groundwater contaminants above remediation goals that allow for unrestricted use.

7.2 QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Yes. Originally, the MEC clearance activities at the Ball Fields and Area G did not meet the specified depths of the NTCRA remedy. In May 2011, the USACE conducted a spring MEC sweep of the Ball Fields prior to use of the fields. No evidence of MEC migrating to the surface was observed. The sweep results indicate that any potential MEC item remains a minimum of 3 feet bgs and presents no hazard (USACE, 2011a).

The EPA expressed concern for hunters that may go off beaten trails and be exposed to areas not cleared of MEC from the NTCRA remedy. The PRR recognizes that it is technically impractical to remove 100 percent of the MEC in areas not addressed under the NTCRA remedy. Therefore, the Army has coordinated with the FWS to develop an UXO Management Plan for the PRR-NT that outlines a prudent UXO safety education program that helps ensure that PRR users are aware of UXO and act accordingly.

The PRR-NT Refuge Manager has recently stated that the NTCRA (2006) MEC clearance to 26 inches in 38 of the 128 grids at Area G is sufficient for this area since it is closed to PRR-NT hunters and visitors.

The Army has identified the following RAOs and plans to document them in the PP and ROD for the HEI Area (i.e., PRR-NT):

- Prevent human exposure to contaminants of concern in groundwater which exceed remedial goals established at levels which poses an unacceptable risk to human health.
- Allow for future use of the property as a wildlife research refuge to be compatible with the probable continued presence of UXO by providing for the ability of Refuge visitors, employees, volunteers, interns, research partners, and contractors to safely conduct activities with minimal risk from encounter with UXO.
- Ensure these measures and any explosive ordnance disposal response action(s) taken remain protective of human health and the environment.

7.3 QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?

No. No new information was identified that would lead to the conclusion that the current response actions are considered no longer protective.

7.4 TECHNICAL ASSESSMENT SUMMARY

The data review, the site inspection, and the interviews indicate that the remedy is functioning as intended. No changes in the physical conditions of the PRR have occurred that would affect the protectiveness of the remedy. No new information calls into question the protectiveness of the remedy. The Army has sufficiently addressed the concerns of the incomplete implementation of the NTCRA remedy at the Ball Fields and Area G.

8.0 ISSUES

Table 8-1: Issues Identified at the PRR-NT NTCRA

Issue	Affects Protectiveness? (Y/N)	
	Current	Future
Clearance activities at the Ball Fields were not completed. EPA expressed concern that the soil cover at the Ball Fields may not be adequate.	Y	Y
Clearance activities at Area G were not completed due to contractual disputes.	N	N
The EPA expressed concern for hunters that go off beaten trails and may be exposed to areas not cleared of MEC from the NTCRA.	N	N

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9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Table 9-1 presents recommendations and follow-up actions to ensure the protectiveness of the selected remedy for the PRR-NT NTCRA. The regulatory feedback on this 5-year review process is presented in Appendix D.

Table 9-1: Recommendations and Follow-Up Actions for the NTCRA High-Use Areas

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
Clearance activities at the Ball Fields were not completed. EPA expressed concern that the soil cover at the Ball Fields may not be protective.	In May 2011, the USACE conducted a spring MEC sweep of the Ball Fields prior to use of the fields. No evidence of MEC migrating to the surface was observed. The sweep results indicate that any potential MEC item remains a minimum of 3 feet bgs and presents no hazard. The PRR will continue to enforce their UXO education program so that the visiting public is informed that MEC and munitions debris are potentially present. The Army plans to complete the removal of the burial pits in fiscal year 2013, pending funding.	Army	USEPA/MDE	Fiscal Year 2011-2012	Y	Y
Clearance activities at Area G were not completed due to contractual disputes.	A surface clearance was performed for the entire Area G and clearance to 26 inches was completed in 38 of the 128 grids. The PRR-NT Refuge Manager has recently stated that this action is sufficient for this area since it is closed to PRR-NT hunters and visitors	Army	USEPA/MDE	Fiscal Year 2011	N	N
The EPA expressed concern for hunters that go off beaten trails and may be exposed to areas not cleared of MEC from the NTCRA.	FGGM has coordinated with the FWS to develop an UXO Management Plan for the PRR-NT that outlines a prudent UXO safety education program that helps ensure Refuge users are aware of UXO and act accordingly. When potential MEC is identified, the FWS are notified; the FWS personnel flag the item and remain at the location until EOD support arrives.	Army	USEPA/MDE	Fiscal Year 2011	N	N

10.0 PROTECTIVENESS STATEMENT

The NTCRA remedy currently protects human health and the environment in the short-term because the LUCs protect the public from exposure to MEC and groundwater contaminants detected above preliminary remediation goals (PRGs) at the PRR-NT.

The USACE has conducted a MEC sweep in May 2011 at the Ball Fields to address concerns of exposure to any remaining subsurface MEC. The results indicate that any potential MEC item remains a minimum of 3 feet bgs and presents no hazard (USACE, 2011a). See Appendix D for a copy of the letter that documents these findings.

No reports of MEC at any of the 24 NTCRA high-use areas have occurred since completion of the NTCRA. This indicates that the ordnance sweeps have effectively removed MEC from the high-use areas. Although there have been minor changes in land use (frequency with which the public is likely to visit the various high-use areas), the function of the response action has not significantly changed.

However, in order for the remedy to be protective in the long term, the Army plans to submit a PP, ROD, and LUCIP to better enforce and document the protectiveness of MEC and groundwater LUCs at the PRR-NT .

The 5-year review process will continue at the PRR-NT (HEI Area) as long as MEC and groundwater contaminants remain onsite at levels that do not allow for unlimited use and unrestricted exposure.

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11.0 NEXT REVIEW

The next 5-year review will take place in 2014 with no changes to the scope of the review.

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Appendix A

References

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APPENDIX A: REFERENCES

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USAEC, 1995. Final Report Ordnance Survey-7,600-Acre Parcel Fort George G. Meade, Anne Arundel County, Maryland. Prepared by OHM Remediation Services Corp, December 1995.

USAEC, 1997. *Fort George G. Meade BRAC Parcel, UXO Survey and Data Analysis, Final Report*. Prepared by Science Applications International Corporation (SAIC), June.

USA Environmental, Inc., 2008. *Addendum 7, Site Specific Final Report for the Non-Time Critical Ordnance and Explosives (OE) Removal Action Long Term Monitoring, Little Patuxent River*; *Fort George G. Meade, Maryland.* Prepared for U.S. Army Corps of Engineers, Baltimore District. Contract No: W912WJ-05-D-0005, Delivery Order No: DA07. Draft. October 17, 2008.

Appendix B

Site Inspection Checklist

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Site Inspection Checklist

I. SITE INFORMATION	
Site name: PRR-NT, NTCRA	**Date of inspection:** Nov 3, 2008
Location and Region: PRR-NT, EPA Region 3	**EPA ID:** MD0910020567
Agency, office, or company leading the five-year review: Bill Eaton with URS Corporation	**Weather/temperature:** Slightly overcast, Temperature in the lower 50s

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment
☒ Access controls
☒ Institutional controls
☐ Groundwater pump and treatment
☐ Surface water collection and treatment
☐ Monitored natural attenuation
☐ Groundwater containment
☐ Vertical barrier walls
☒ Other: Non-Time Critical Removal Action (NTCRA) in 2006

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply) **See Main Report Section 6.6**

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____
   _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____
   _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

4. **Other interviews** (optional) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents**			
	☐ O&M manual	☐ Readily available	☐ Up to date	☒ N/A
	☐ As-built drawings	☐ Readily available	☐ Up to date	☒ N/A
	☐ Maintenance logs	☐ Readily available	☐ Up to date	☒N/A
	Remarks_____			
2.	**Site-Specific Health and Safety Plan**	☐ Readily available	☐ Up to date	☒ N/A
	☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_____			
3.	**O&M and OSHA Training Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_____			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	☒ N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	☒ N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☒ N/A
	☐ Other permits_____	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_____			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_____			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_____			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_____			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_____			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	☒ N/A
	☐ Water (effluent)	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_____			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_____			

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☐ PRP in-house ☐ Contractor for PRP
☐ Federal Facility in-house ☐ Contractor for Federal Facility
☐ Other_____
_____

2. **O&M Cost Records**

☐ Readily available ☐ Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate_____ ☐ Breakdown attached

NO O&M CURRENTLY OCCURS

Total annual cost by year for review period if available

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐G Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: _____
_____
_____
_____
_____
_____

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☒ Gates secured ☐ N/A

Remarks: The Fish and Wildlife Service (FWS) controls access to the PRR-NT. Information regarding MEC hazards are distributed at the gates of the PRR-NT. Some fence segments located between the ball fields and the Little Patuxent River have fallen down.

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A

Remarks The UXO education program informs all land users of the inherent MEC hazards. Also signs are posted at the Ball Fields back stops .

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) Site visit/inspection
Frequency 5 years
Responsible party/agency U.S. Army
Contact Steve Cardon Ft Meade BRAC Coordinator 9/20/10 301-677-9178
Name Title Date Phone no.

Reporting is up-to-date ☒ Yes ☐ No ☐ N/A
Reports are verified by the lead agency ☒ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ☒ Yes ☐ No ☐ N/A
Violations have been reported ☐ Yes ☒ No ☐ N/A
Other problems or suggestions: ☐ Report attached

2. **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☒ No vandalism evident
Remarks

2. **Land use changes on site** ☒ N/A
Remarks

3. **Land use changes off site** ☒ N/A
Remarks

VI. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map ☒ Roads adequate ☐ N/A
Remarks: Refuge management maintains some of the former military roads for access, but the other roads were allowed to return to natural conditions. Some damage to roadway was noted on Wildlife Loop (See Draft Final CFD 5-Year Review Report).

B. Other Site Conditions

Remarks Several of the trails were renamed as follows:

New Name (PRR-NT 2008)	Old Name (NTCRA 2003)
Whip-poor will Way	Yellow Trail
Sweetgum Trail	Red Trail
Wild Turkey Way	Orange Trail, Blue Trail (part), Green Trail (part)
South Road	Blue Trail (part)
Kingfisher Road	Green Trail (part)
Range 11	Area G

MEC clearance activities at two areas (Ball Fields and Area G) were only partially completed.
At the Ball Fields, the NTCRA encountered large quantities of munitions debris interpreted to be burial pits. Specifically, clearance within survey grids 2 and 3 containing the burial pits was suspended. The boundaries of the pits had not been determined at the time work was suspended. Due to suspension, not all magnetometer contacts were excavated.
At Area G, clearance activities were terminated by a stop-work order before the entire area was cleared. The surface of all of the 128 survey grids within Area G was cleared. However, 71 of the 128 survey grids within Area G were not fully cleared to the planned 26-inch depth. Access to Area G is restricted to hunters during the legal hunting season.

VII. LANDFILL COVERS ☐ Applicable ☒ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
Areal extent_____ Depth_____
Remarks_____
_____

2. **Cracks** ☐ Location shown on site map ☐ Cracking not evident
Lengths_____ Widths_____ Depths_____
Remarks_____
_____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
Areal extent_____ Depth_____
Remarks_____
_____

4. **Holes** ☐ Location shown on site map ☐ Holes not evident
Areal extent_____ Depth_____
Remarks_____
_____

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established ☐ No signs of stress
☐ Trees/Shrubs (indicate size and locations on a diagram)
Remarks_____
_____

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
Remarks_____
_____

7. **Bulges** ☐ Location shown on site map ☐ Bulges not evident
Areal extent_____ Height_____
Remarks_____
_____

8. **Wet Areas/Water Damage** ☐ Wet areas/water damage not evident
☐ Wet areas ☐ Location shown on site map Areal extent_____
☐ Ponding ☐ Location shown on site map Areal extent_____
☐ Seeps ☐ Location shown on site map Areal extent_____
☐ Soft subgrade ☐ Location shown on site map Areal extent_____
Remarks_____
_____

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ☐ No evidence of slope instability
Areal extent_____
Remarks_____
_____

B. Benches ☐ Applicable ☐ N/A
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay
Remarks_____
_____

2. **Bench Breached** ☐ Location shown on site map ☐ N/A or okay
Remarks_____
_____

3. **Bench Overtopped** ☐ Location shown on site map ☐ N/A or okay
Remarks_____
_____

C. Letdown Channels ☐ Applicable ☐ N/A
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** ☐ Location shown on site map ☐ No evidence of settlement
Areal extent_____ Depth_____
Remarks_____
_____

2. **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
Material type_____ Areal extent_____
Remarks_____
_____

3. **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
Areal extent_____ Depth_____
Remarks_____
_____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____
_____

5. **Obstructions** Type_____ ☐ No obstructions
☐ Location shown on site map Areal extent_____ Size_____
Remarks_____
_____

6. **Excessive Vegetative Growth** Type_____
☐ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____
_____

D. Cover Penetrations ☐ Applicable ☐ N/A

1. **Gas Vents** ☐ Active ☐ Passive
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Gas Monitoring Probes**
☐ Properly secured/locked G Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked G Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

4. **Leachate Extraction Wells**
☐ Properly secured/locked G Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks_____
_____

E. Gas Collection and Treatment ☐ Applicable ☐ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____
   _____

2. **Gas Collection Wells, Manifolds and Piping**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____
   _____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks_____
   _____

F. Cover Drainage Layer ☐ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks_____
   _____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks_____
   _____

G. Detention/Sedimentation Ponds ☐ Applicable ☐ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
   ☐ Siltation not evident
   Remarks_____
   _____

2. **Erosion** Areal extent_____ Depth_____
   ☐ Erosion not evident
   Remarks_____
   _____

3. **Outlet Works** ☐ Functioning ☐ N/A
   Remarks_____
   _____

4. **Dam** ☐ Functioning ☐ N/A
   Remarks_____
   _____

H. Retaining Walls ☐ Applicable ☐ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____
   _____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____
   _____

I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
   ☐ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____
   _____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

4. **Discharge Structure** ☐ Functioning ☐ N/A
   Remarks_____
   _____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

2. **Performance Monitoring** Type of monitoring_____
   ☐ Performance not monitored
   Frequency_____☐ Evidence of breaching
   Head differential_____
   Remarks_____
   _____

C. Treatment System ☐ Applicable ☒ N/A

1. **Treatment Train** (Check components that apply)
   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   ☐ Air stripping ☐ Carbon adsorbers
   ☐ Filters_____
   ☐ Additive (*e.g.*, chelation agent, flocculent)_____
   ☐ Others_____
   ☐ Good condition ☐ Needs Maintenance
   ☐ Sampling ports properly marked and functional
   ☐ Sampling/maintenance log displayed and up to date
   ☐ Equipment properly identified
   ☐ Quantity of groundwater treated annually_____
   ☐ Quantity of surface water treated annually_____
   Remarks_____
   _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☒ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____
   _____

3. **Tanks, Vaults, Storage Vessels**
   ☒ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
   Remarks_____
   _____

4. **Discharge Structure and Appurtenances**
   ☒ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____
   _____

5. **Treatment Building(s)**
   ☒ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
   ☐ Chemicals and equipment properly stored
   Remarks_____
   _____

6. **Monitoring Wells** (pump and treatment remedy)
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☒ N/A
   Remarks

D. Monitoring Data

1. Monitoring Data
   ☐ Is routinely submitted on time ☐ Is of acceptable quality

2. Monitoring data suggests:
   ☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation			
1. **Monitoring Wells** (natural attenuation remedy)			
☐ Properly secured/locked	☐ Functioning	☐ Routinely sampled	☐ Good condition
☐ All required wells located	☐ Needs Maintenance		☒ N/A
Remarks			

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The NTCRA remedy currently protects human health and the environment in the short-term because the LUCs protect the public from exposure to MEC and groundwater contaminants detected above preliminary remediation goals (PRGs) at the PRR-NT.

The USACE has conducted a MEC sweep in May 2011 at the Ball Fields to address concerns of exposure to any remaining subsurface MEC at the AOC. The results indicate that any potential MEC item remains a minimum of 3 feet bgs and presents no hazard. No reports of MEC at any of the 24 NTCRA AOCs have occurred since completion of the NTCRA. This indicates that the ordnance sweeps have effectively removed MEC from the AOCs. Although there have been minor changes in land use (frequency with which the public is likely to visit the various AOCs), the function of the response action has not significantly changed.

However, in order for the remedy to be protective in the long term, the Army plans to submit a PP, ROD, and LUCIP to better enforce and document the protectiveness of the LUCs that address MEC and groundwater usage at the PRR-NT (HEI Area). The 5-year review process will continue at the PRR-NT (HEI Area) as long as MEC and groundwater contaminants remain onsite at levels that do not allow for unlimited use and unrestricted exposure..

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

There is currently no O&M activities occurring.

C.	Early Indicators of Potential Remedy Problems
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. 1. Clearance activities at the Ball Fields were not completed. EPA expressed concern that the soil cover at the Ball Fields may not be adequate. 2. Clearance activities at Area G were not completed due to contractual disputes. 3. The EPA expressed concern for hunters that go off beaten trails and may be exposed to areas not cleared of MEC from the NTCRA.
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. 1. In May 2011, the USACE conducted a spring MEC sweep of the Ball Fields prior to use of the fields. No evidence of MEC migrating to the surface was observed. The sweep results indicate that any potential MEC item remains a minimum of 3 feet bgs and presents no hazard. 2. The PRR will continue to enforce their UXO education program so that the visiting public is informed that MEC and munitions debris are potentially present. 3. A surface clearance was performed for the entire Area G and clearance to 26 inches was completed in 38 of the 128 grids. The PRR-NT Director has recently stated that this action is sufficient for this area since it is closed to PRR-NT hunters and visitors. 4. The Army has coordinated with the FWS to develop an UXO Management Plan for the PRR-NT that outlines a prudent UXO safety education program that helps ensure Refuge users are aware of UXO and act accordingly. When potential MEC is identified, the FWS are notified; the FWS personnel flag the item and remain at the location until EOD support arrives.

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Appendix C

Public Notices

[Pending Approval of Draft Final 5-Year
Review Report by USEPA and MDE]

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Appendix D

Regulatory Response to Comments Table and Ball Fields Inspection Memorandum

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Army Responses to Regulatory Comments to April 2009 Draft Final Non-Time Critical Removal Action- Patuxent Research Refuge-North Tract 5-Year Review Report

Initial Comments				
Commenter / ORG	**Comment Number**	**Comment Origin**	**Comment**	**Army Responses dated May 21, 2010**
MDE Hazardous Waste Program Federal Facilities Division, April 17,2009				
Kurt M. Scarbro, Remedial Project Manager	--	--	MDE FDD has no comments on this document.	Comment noted.
U.S. Environmental Protection Agency Region III, December 4, 2009 and March 22, 2010				
John Burchette, Remedial Project Manager 12-4-09 Comment Letter	1	--	EPA is concerned with the actions that have taken place with the Ball Field's. Particularly considering their high traffic and the potential exposure associated with the site. Areas of high traffic such as the Ball Fields and Hunter Contact Station should be screened to the highest degree of confidence considering the potential risk to visitors and liability to the Army. Additionally, EPA's stance is that munitions burial pits are considered to be a solid waste subject to RCRA Subtitle C and should be clean up entirely. Please remove the contents of known munitions burial pits.	Army's position is that there is no basis to conclude that any of the referenced solid waste is subject to RCRA Subtitle C or that additional cleanup is required. Of the 2,364 lbs of OE Scrap and miscellaneous metal debris recovered from the Ball Field grids during the NTCRA; no UXO items were found. The assumptions (site conditions, visitor activities) used during the Ordnance and Explosives Risk Impact Assessment (OERIA) remain valid and there has been no physical change to the area that would alter the site's stability. The NTCRA 5-yr Review concluded that the implemented LUCs for the PRR-NT including a MEC/MPPEH educational program remain protective of human health and safety. NOTE: EPA followed this response with addtional comment on 13 August 2010. See EPA ORC follow up comments and the Army responses below
John Burchette, Remedial Project Manager 12-4-09 Comment Letter	2	Page 4-2, 5th bullet	Please provide a response that indicates whether the proper sweeps and clearance techniques that have taken place throughout the refuge have already, or will be taking place at the Ammunition Supply point once hunters are allowed to access this area.	Text will be included in the Final Document that states that a PA is currently being conducted to determine the potential next phase. The ASP No. 2 is currently being used by the NSA.
John Burchette, Remedial Project Manager 3-22-10 Comment Letter	3	General	Thank you for the opportunity to review the 5-Year Review Report and RCRA CMI 5-Year Assessment Report for Patuxent Research Refuge-North Tract. Non-Time Critical Removal Action, April 2009. EPA Regional Counsel has asked that the Army revise the document to follow the 5-Year Review Guidance or provide explanation of why they believe that this does not need to be done. Additionally, it appears the majority of the prior comments require further internal Army discussion. Please incorporate these discussion items into the document so they are able to be tracked. Please use this reference that includes a section by section description as well as a template. http://www.epa.gov/superfund/accomp/5year/	The document will be re-formatted following the EPA 5-Year Guidance document. The Army will coordinate with EPA to resolve any remaining issues and clearly describe the path forward for the NTCRA Site in the report.
U.S. Environmental Protection Agency Region III, August 13, 2010				
EPA Headquarters	--	--	No comments.	Comment noted.
John Burchette, EPA RPM	1	General	As a heads up, once Betsy's comments are addressed, I will be sending a letter with language similar to this: The five-year review process involved reviewing the protectiveness of the Patuxent Research Refuge-North Tract. It is suggested that a Record of Decision is completed for the PRRNT selecting and formally documenting Land Use Controls as a remedial action at the site. EPA does concur that the Patuxent Research Refuge-North Tract is protective in the short-term. However, EPA has made a determination that the long-term protectiveness of the Patuxent Research Refuge-North Tract must be deferred until the Land Use Controls are formally captured within a CERCLA Record of Decision. A Land Use Control Remedial Design should be submitted following the Record of Decision discussing the specifics of the Land Use Controls (i.e. what actions are limited and the extent of their limitation). Furthermore, as part of this five year review, EPA has evaluated the basewide Government Performance and Results Act (GPRA) measures for this site and has determined their status is as follows: **Environmental Indicators** 1. Human Health: There is insufficient data to determine the human exposure status of Fort George G. Meade (primarily due to the off-base groundwater contamination. Extent of the plume is unknown at this time). 2. Groundwater Migration: Groundwater Migration Not Under Control **Sitewide Ready for Anticipated Use** The Site is not Site-Wide Ready for Anticipated Use but is expected to be on 6/30/2022. The requirement for this five-year review at Ft. George G. Meade was triggered by _____ . The next five-year review will be due five years from the date of this concurrence letter.	Comment noted. Comment noted. However, it should be noted that these Environmental Indicators 1 and 2 dreflect the current condition of the Fort Meade active installation, and not the current status of the PRRNT NTCRA 5-Yr protectiveness statement. See above response.
EPA ORC General Comments	1	p. iv, 2nd Paragraph, and p. 1-1, Section 1.2, 1st Paragraph	The document is identified on the cover as an integrated CERCLA 5-Year Review Report and a RCRA CMI 5-Year Assessment Report. In addition, on p. iv, 2nd Paragraph, and p. 1-1, Section 1.2, 1st Paragraph, the document states that all Army BRAC sites where UXO response actions have been conducted require recurring reviews. Throughout the document, the report is sometimes referred to as a "recurring review" and at other times as a "5-Year Review." Please explain all the overlapping functions of this review report and then refer to it as a "5-Year Review."	This report will satisfy the EPA's CERCLA 5-year review requirements as well as the 2003 USACE guidance for munitions sites (*Recurring Reviews on Ordnance and Explosives (OE) Response Actions*). For consistency, all report references will be changed to "5-Year Review."
EPA ORC General Comments	2	See comment	The description of the land use controls (LUCs) should be consistent throughout the document. Use the same wording each time they are discussed. (See, e.g., p. 2-3, incomplete Paragraph at the top of the page and 2nd full Paragraph, where descriptions of the LUCs are not identical.)	The last sentence of the incomplete paragraph at the top of page 2-3 will be deleted.
EPA ORC General Comments	3	--	Need to explain why groundwater use is prohibited through the LUCs. There is no explanation as to why this is necessary.	The Transfer Assembly Documents negotiated by the U.S. Army and the Department of Interior's Fish and Wildlife Service clearly prohibit use of groundwater for the entire PRR until such ground water has been tested by DOI and determined to be safe for use. This information will be added at the end of Section 2.4.

Army Responses to Regulatory Comments to April 2009 Draft Final Non-Time Critical Removal Action- Patuxent Research Refuge-North Tract 5-Year Review Report

Initial Comments				
Commenter / ORG	**Comment Number**	**Comment Origin**	**Comment**	**Army Responses dated May 21, 2010**
EPA ORC General Comments	4	--	A ROD needs to be done to select LUCs as the remedy for the site.	The Army intends to submit a Proposed Plan and ROD for the PRR-NT NTCRA in FY 2011-2012
EPA ORC General Comments	5	--	The Ball Field removal should be completed to 4 feet throughout the entire AOC as specified in the NTCRA.	The completed NTCRA confirmed that no MPPEH was present at the Ball Fields, despite inspection of over 1 ton of excavated munitions debris. Thus, the probability that MPPEH is present at unexcavated areas is low. Because of 1) this low probability, 2) soil coverage, and 3) public warning signs; the Army finds that adequate public protection is currently afforded. Notwithstanding, the Army ntends to conduct an additional excavation to remove remaining detected anomalies to a depth of 4 feet at the Ball Fields.
EPA ORC General Comments	6	--	Since the statement is made several times that the thickness and extent of the coverage of the soil cover over the Ball Field excavation is unknown, why not cover it with a uniform extra layer of clean soil?	See Response to EPA ORC General Comment #5.
EPA ORC General Comments	7	--	Please provide assurance that areas where hunters are allowed have been or will be screened for possible UXO removal actions.	A survey and removal action in 1992 and 1993 cleared UXO from accessible portions of the 8,100-acre parcel to a 6-inch depth. An education program was instituted to inform hunters of the UXO risk. The NTCRA addressed 24 DOI AOCs that had been evaluated in an OERIA as presenting unacceptable risk for human health and safety. Removal actions involved clearance to a depth of 26 inches on most trails and areas, and to 4 feet in areas supporting higher impact activities.
EPA ORC Specific Comments	1	**Executive Summary** p. iv, 2nd Paragraph, 2nd sentence	This is an incomplete sentence. Suggest inserting "was" before "transferred" so that it reads, "Approximately 8,100 acres of former range and training land was transferred to the Department of the Interior (DOI) Fish and Wildlife Service for wildlife management and research, and for recreational activities including hiking, fishing, hunting, and wildlife viewing."	Text will be revised, as suggested.
EPA ORC Specific Comments	2	p. v, 4th full Paragraph, 1st sentence	Spell out "Engineering Evaluation/Cost Analysis (EE/CA).	Text will be revised, as suggested.
EPA ORC Specific Comments	3	p. vi, 4th Paragraph, 1st & 2nd sentences	This situation at the Ball Fields concerning the burial pits is problematic. The 2nd sentence states that "no guarantees were offered that none of the remaining targets are MEC/MPPEH because not all targets were excavated." In apparent contradiction, the RTC to EPA RPM John Burchette's previous comment that the burial pits need to be excavated was that "there is no basis to conclude that any of the referenced solid waste is subject to RCRA Subtitle C or that additional cleanup is required. Of the 2,364 lbs of OE Scrap and miscellaneous metal debris recovered from the Ball Field grids during the NTCRA, no UXO items were found." This statement appears to ignore the caveat in the Executive Summary that there is no guarantee that none of the remaining targets are MEC/MPPEH. According to regulations promulgated under RCRA Subtitle C, "[a] used or fired military munition is a solid waste: 1) when transported off-range or from the site of use . . . or 2) If recovered, collected, and then disposed of by burial, or landfilling either on or off a range." 40 CFR Section 266.202(c). Such solid waste, if determined to be hazardous pursuant to 40 CFR Section 261.3, must be disposed of in a RCRA Subtitle C, hazardous waste landfill. It is not clear that the requisite determination has been made whether or not the buried munitions could be hazardous waste.	See Response to EPA ORC General Comment #5.
EPA ORC Specific Comments	4	p. vi, 4th Paragraph, 3rd sentence	This situation sounds unduly hazardous. Why would the Army want to risk liability for an accidental explosion at a high traffic area like the Ball Fields? Why not apply additional cover materials to the site, at a minimum?	See Response to EPA ORC General Comment #5.
EPA ORC Specific Comments	5	p. vi, 5th Paragraph	Public outreach does not seem to be a sufficient means to ensure the safety of those using the Ball Fields.	See response to EPA ORC General Comment #5 and EPA ORC Specifc Comment # 28.
EPA ORC Specific Comments	6	**1.0 Introduction** p. 1-2, 1st Paragraph, 1st sentence	The statement is made that the Transfer Assembly conveying the land to the DOI included the requirement for a UXO survey to a depth of 1 foot below ground surface (bgs). At other points in the document, reference is made to the fact that the survey was conducted to a depth of 6 inches bgs. What happened that the depth specified in the Transfer Assembly was not attained? What is the reason for the prohibition of the use of groundwater?	"Fort George G. Meade BRAC Parcel UXO Survey and Data Analysis" was written in July 1997. This report discusses a quality assurance survey conducted to evaluate the effectiveness of previous surveys that only went to 6 inches below ground surface (bgs) and not 12 inches as stated in transfer assembly document. The report concluded that there would have been limited added benefit if the surveys had removed UXO to a depth of 12 or 18 inches bgs. An Engineering Evaluation / Cost Analysis (USACE, 2001) evaluated UXO risk in an OERIA and describes remedial action alternatives including NTCRA for 24 selected areas. See Response to EPA ORC General Comment #3 regarding the prohibition of groundwater use.
EPA ORC Specific Comments	7	p. 1-2, Section 1.4, 1st Paragraph, 3rd sentence	Please change "is" to "are" so the sentence reads, "FGGM and the BRAC parcel are located in Anne Arundel County, Maryland . . .."	Text will be revised, as suggested.
EPA ORC Specific Comments	8	p. 1-2, Section 1.4, 2nd Paragraph, 2nd sentence	Consider revising the reference to the "BRAC Figure 1-2 BRAC parcel, excluding the Tipton Airfield Parcel," to the "BRAC parcel as depicted in Figure 1-2, excluding the Tipton Airfield Parcel."	Text will be revised, as suggested.

Army Responses to Regulatory Comments to April 2009 Draft Final Non-Time Critical Removal Action- Patuxent Research Refuge-North Tract 5-Year Review Report

Initial Comments				
Commenter / ORG	**Comment Number**	**Comment Origin**	**Comment**	**Army Responses dated May 21, 2010**
EPA ORC Specific Comments	9	**2.0 Site Description** p. 2-3, 1st full Paragraph, last line	Suggest inserting "and provides the clearance depths specified by the NTCRA" so that the sentence reads, "Table 1-1 indentifies these high use areas *and provides the clearance depths specified by the NTCRA*, and Figure 2-1 shows their locations."	Text will be revised, as suggested.
EPA ORC Specific Comments	10	p. 2-5, 2nd Paragraph	See comments #s 3 & 4, above.	See response to comments # 3 & 4 above.
EPA ORC Specific Comments	11	p. 2-5, 3rd Paragraph	Why was work stopped at Area G before the clearance to 26 inches was achieved?	At Area G, clearance activities were terminated by a stop-work order before the entire area was cleared. The stop-work order was a result of a contractual dispute.
EPA ORC Specific Comments	12	p. 2-5, 4th Paragraph, 2nd sentence	Suggest the following minor rephrasing: "However, prior to *completion of the* NTCRA, Area W…"	Text will be revised, as suggested.
EPA ORC Specific Comments	13	p. 2-5, 4th Paragraph, 5th sentence	Suggest the following rewrite: "Since: 1) Area H was included in the initial 8,100 acre MEC/MPPEH surveys and removals conducted in 1991 and 1993 which were intended to reduce risks to acceptable levels (USAEC, 1994 and 1995), and 2) the PRR-NT education program provides hunters with information regarding the likely presence of MEC/MPPEH, this substitution is acceptable." [However, if the initial surveys and removals could be relied on to reduce risks to acceptable levels, why was it necessary to do the NTCRA?]	Text will be revised, as suggested. [Even though the NTCRA successfully removed large amounts of MEC/MPPEH and munitions debris at the PRR-NT, these efforts could not possibly guarantee removal of all MEC/MPPEH in areas visited by the public. Therefore, the possibility that the public may still encounter MEC/MPPEH, although greatly reduced, is not entirely eliminated.
EPA ORC Specific Comments	14	**3.0 Stakeholder Notification and Involvement** p. 3-1, Table 3-1	Update EPA RPM with information for John Burchette.	Text will be revised, as suggested.
EPA ORC Specific Comments	15	p. 3-1, Section 3.3, 1st Paragraph, 1st & 2nd sentences	These public notices occurred in the past. Please revise the first two sentences to change to the past tense: "The public was informed of the 5-Year Review via notice in two local newspapers, the Baltimore Sun (Friday, November 7, [year]) and the Maryland Gazette (Wednesday, November 12, [year]) Appendix B). The notice announced that the 5-Year Review was underway and provided points of contact for the public to add their names as stakeholders if they wished.	Text will be revised, as suggested.
EPA ORC Specific Comments	16	p. 3-1, Section 3.3.2, 2nd Paragraph, 1st sentence	Presumably, this 5-Year Review will be complete when it is issued, so the sentence could be rephrased to state simply, "*A copy of this 5-Year Review report is* included in the Administrative Record, which is available for public review." It is not clear what stage this 5-Year Review is in and whether either of the 2nd or 3rd sentences in the Paragraph should be retained, modified, or simply deleted.	Text will be revised, as suggested and the last two sentences will be deleted.
EPA ORC Specific Comments	17	**4.0 Site Visit and NTCRA Recurring Review Data Evaluation** p. 4-1, Table 4-1	Isn't the date of the EE/CA 2001 rather than 1991? Same question for the Action Memorandum - 2001, right?	Both the EE/CA and Action Memorandum were published in 2001. The years will be corrected in the text. Global search will be performed so that these dates are consistent for these reports throughout the document.
EPA ORC Specific Comments	18	p. 4-1, Section 4.2.1, 1st Paragraph, 2nd sentence	Suggested edit to delete "URS" and insert "from URS" after "Bill Eaton."	Text will be revised, as suggested.
EPA ORC Specific Comments	19	p. 4-2, 2nd & 5th bullet items	Recommend reviewing areas frequently used by hunters for possible additional removal actions. (Especially since EOD response times have increased due to the fact that support is no longer staffed from Ft. Meade.)	Most of the PRR-NT's 8,100-acres is available for hunting. Each year, hundreds of hunters visiting the PRR-NT are provided with an Hunter UXO Education Program which has been extremely successful in educating hunters to recognize, retreat from, and report rare discoveries of MEC. When potential MEC is identified; USFWS personnel flag the items and remain at that location until EOD support arrive on the scene.
EPA ORC Specific Comments	20	p. 4-2, Paragraph #3	If this is a quote, I understand that it can't be significantly edited. If not, I would suggest the following edit: "The *primary protective measures* are still in place and include: 1) prohibition of excavation without MEC/MPPEH avoidance support; 2) the requirement for an MEC/MPPEH education program to inform all land users of the inherent MEC/MPPEH hazards; and 3) avoidance/reporting requirements."	Concur.
EPA ORC Specific Comments	21	p. 4-3, continuation of Paragraph #4, last sentence	Change "Airport" to "Airfield" for consistency.	Text will be revised, as suggested.
EPA ORC Specific Comments	22	p. 4-3, Paragraph #6, 2nd & 4th sentences	What is the "establishment of safe distances" referenced here? I don't see any other discussion of that specific requirement. Suggested rewrite for 4th sentence: "The long-term *impact on* the community is *that they are unable* to have unrestricted access to all of the PRR-NT because of known residual MEC/MPPEH.	Concur.
EPA ORC Specific Comments	23	p. 4-3, Paragraph #9	What is the Army's response to this concern, that PRR-NT may not have received all final copies of Army-sponsored environmental investigation reports involving PRR-NT?	The Army will provide the PRR-NT with the Administrative Record index for the NTCRA project. The PRR-NT is welcome to request documents from the Army for their review.
EPA ORC Specific Comments	24	p. 4-4, 3rd bullet item, 2nd sentence	Are hunters considered to be more careful than other potential recreational users of the PRR-NT? What would be the basis for that assumption?	It is not a question of carefulness, but of access. The areas referenced in that sentence have limited access. The hunters are allowed access because of designated hunting areas within the PRR-NT.
EPA ORC Specific Comments	25	p. 4-4, Section 4.2.2, 2nd & 3rd Paragraphs	What is the justification for not completely excavating the burial pits at the Ball Fields? Considering that 25 UXO items were found at Area G, why was it only partially cleared? Why was a stop-work order issued?	See Reponse to EPA ORC Specific Comment 11. The stop-work order was issued because of a contractual disagreement.

Army Responses to Regulatory Comments to April 2009 Draft Final Non-Time Critical Removal Action- Patuxent Research Refuge-North Tract 5-Year Review Report

Initial Comments				
Commenter / ORG	**Comment Number**	**Comment Origin**	**Comment**	**Army Responses dated May 21, 2010**
EPA ORC Specific Comments	26	p. 4-4, Section 4.3, 2nd & 3rd sentences	What about the fact that hunters are encountering MEC/MPPEH outside of the NTCRA project areas? Does that indicate that the area of removal needs to be expanded?	See Response to EPA ORC Specific Comment 19.
EPA ORC Specific Comments	27	**5.0 Final Site Analysis** p. 5-1, Section 5.2, 1st sentence	Suggest replacing the word "assimilated" with "obtained."	Text will be revised, as suggested.
EPA ORC Specific Comments	28	p. 5-3, Section 5.4, 2nd & 3rd Paragraphs	Burial pits should be removed. (See Comment #3 under the Executive Summary, above.) Furthermore, rather than simply upgrading the public outreach program to provide additional warnings to Ball Field users regarding the potential for encountering UXO, the Ball Fields should be covered with a uniform layer of clean fill to ensure that any unrecovered targets are not immediately below the ground surface. [The statement is made that the public outreach program should be upgraded to more closely match the PRR-NT education program. This area is part of the PRR-NT; why was the PRR-NT education program not being applied here already?]	This statement will be removed as a recommendation since the waiver that is signed by PRR-NT visitors/hunters cannot apply to the Ball Fields since the person reserving the ball field (not necessarily a coach) and is likely the member of some league that plays there. The reservation is just necessary administrative paperwork and thus no enforceable obligation is formed. The point is to educate, not require an individual (who is placed in the position described above) to accept responsibility for informing every team member, all or some of whom might be minors. The Ball Field's UXO public outreach signage program informs all players to recognize, retreat, and report potential MEC and provides contact information to that effect. As stated above, the Army intends to complete the MEC excavations at the Ball Fields., In the interim, the Army will review where soil cover is needed to further protect players and visitors.
EPA ORC Specific Comments	29	p. 5-3, Section 5.4, 3rd Paragraph, 4th sentence	Suggested rewrite: " . . . that they: 1) have been informed of potential MEC/MPPEH hazards at the Ball Fields; 2) are *prohibited from handling or investigating any suspect MEC/MPPEH*; 3) *are required to report any suspect MEC/MPPEH to [insert name/office]*; and 4) commit to informing all team members of the same information."	Text will be revised, as suggested.
	--	--	If you have any questions, please contact me at 215-814-3378.	Comment noted.
U.S. Environmental Protection Agency Region III, January 4, 2011				**Army Responses to Comments Feb 16, 2011**
EPA ORC	1	Additional EPA Comment to Army Responses to EPA Comments #6 (tgeneral) and #'s 3 & 4 (specific)	The soil coverage is listed as one of the safeguards in the response to comment #5. Need to ensure that it is adequate. How expensive would it be to put on an even layer of new cover?	The Army intends to complete excavation of metallic anomolies at the Ball Fields in FY13; provided funding is available. In the interim , the Army will requested funding in February 2011 to conduct a spring UXO sweep prior to use of the fields. The Army will also review the need for additional soil cover.
EPA ORC	2	Additional EPA Comment to Army Responses to EPA Comments #7 (general) and #'s 19 & 24 (specific)	I am still concerned whether the safety precautions taken to protect hunters who go off of the beaten trails are adequate.	Fort Meade has coordinated with the FWS to develop an UXO Management Plan for the PRR-NT that outlines a prudent UXO safety education program that helps ensure Refuge users are aware of UXO and act accordingly.
EPA ORC	3	Additional EPA Comment to Army Responses to EPA Comments #11 & 25	If the stop work order was the result of a contractual dispute, can't that be resolved and completed now? A contractual dispute doesn't provide an excuse for not doing work that is necessary for the protection of human health.	A surface clearance was performed for the entire Area G and clearance to 26" was completed in 38 of the 128 grids. The PRR-NT Director has recently stated that this action is sufficient for this area since it is closed to PRR-NT hunters and visitors.
EPA ORC	4	Additional EPA Comment to Army Response to EPA Comment #29	Are signs at the ballfields going to be enough protection for minors? Glad to read that additional soil cover will be placed where needed to provide an adequate, uniform cover.	The Army intends to complete excavation of metallic anomolies at the Ball Fields in FY12; provided funding is available. In the interim , the Army will requested funding in February 2011 to conduct a spring UXO sweep prior to use of the fields. The Army will also review the need for additional soil cover.
U.S. Environmental Protection Agency Region III, April 26, 2011				**Army Responses to Comments April 26, 2011**
EPA RPM	1	Response to EPA ORC Comment 2	Please put the spring sweep of the ball fields prior to their use as an issue and recommendation of the 5-Year Review and mention the intention to clear to 4' as mentioned in RTC 5 somewhere in the document. Please notify EPA if the Army does not believe funding will be available for this task.	Text will be revised, as suggested.
			Although the suggestion is not necessary as part of this document, as part of the Proposed Plan and Record of Decision fo rthe HEI Area, EPA would like to see reoccurring sweeps of accessible areas that were not cleared below the frost line.	The HEI Area Proposed Plan and ROD will incorporate this recommendation.

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

REPLY TO
ATTENTION OF

MEMORANDUM FOR THE RECORD

SUBJECT: Instrument Assisted Visual Inspection of the Tipton Airfield Inactive Landfill 3 and Ball Field

1. On 5 and 6 May 2011 the Baltimore District Explosive Safety Staff conducted an Instrument Assisted Visual Inspection of the Inactive Landfill 3 (IAL 3) located on Tipton Airfield and the Ball Field located in close proximity to the Tipton airfield. The purpose of this inspection was to determine if erosion and/or frost heave could have resulted in migration and subsequent exposing of Munitions and Explosives of Concern (MEC) items which could represent a hazard to personnel.

2. Both IAL 3 and the Ball Field were subjected to 100% inspection by the team. During the course of this inspection there was absolutely no evidence observed that would indicate that MEC is migrating to the surface. Results of this inspection indicate that any potential MEC item remains a minimum of 3 feet below ground surface (BGS) and presents no hazard.

2. Point of Contact for this MOR is Paul Greene, (410) 962- 6741.

PAUL GREENE
Explosive Safety Manager
USACE Baltimore District

URS

tel. 301.820.3000
fax 301.820.3009
www.urscorp.com