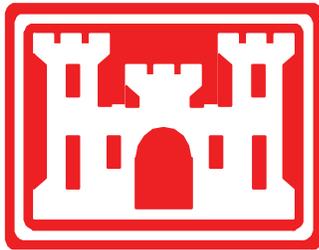


FINAL DECISION DOCUMENT
*WITHLACOOCHEE CHEMICAL WARFARE SERVICES FIELD TRIALS
AND AIR TO GROUND BOMBING AND GUNNERY RANGE
TEST AREAS MRS*

FINAL DECISION DOCUMENT



**FORMER WITHLACOOCHEE CHEMICAL WARFARE
SERVICE FIELD TRIALS AND AIR TO GROUND
BOMBING AND GUNNERY RANGE**

TEST AREAS MRS

SUMTER AND HERNANDO COUNTIES, FLORIDA

FORMERLY USED DEFENSE SITE PROJECT NUMBER: I04FL00780102

**U.S. Army Corps of Engineers
Jacksonville District
701 San Marco Boulevard
Jacksonville, Florida 32207**

September 2016

EXECUTIVE SUMMARY

The United States Army Corps of Engineers (USACE) prepared this Decision Document (DD) to describe the Department of Defense (DoD) selected remedy for the Test Areas Munitions Response Site (MRS), Project Number I04FL007802. The MRS is within the former Withlacoochee Chemical Warfare Service Field Trials & Air-to-Ground Bombing & Gunnery Range (hereafter the Withlacoochee Site) Formerly Used Defense Site (FUDS), Property Number I04FL0078. The site is located in Sumter and Hernando Counties, Florida.

The Secretary of Defense designated the Secretary of the Army as the Lead Agent for DoD's FUDS Program, regardless of which DoD Component previously owned or used the property. The Secretary of the Army further assigned to USACE execution responsibilities for the Program. USACE, Jacksonville District, is the lead agency for investigating, reporting, evaluating remedial actions, and implementing remedial actions at the Test Areas MRS. The Florida Department of Environmental Protection is the lead regulatory agency for the site.

Based on results of the Remedial Investigation (RI), the Withlacoochee Site was recommended to be divided into two MRSs based on the potential for human receptors to come into contact with Munitions and Explosives of Concern (MEC). The two resulting MRSs became the Test Areas MRS (17,991 acres) and the Remaining Lands MRS (249 acres). This DD presents the selected remedy for the Test Areas MRS.

The Test Areas MRS is comprised of 249 acres of non-contiguous land carved out of the Withlacoochee Site (18,240 Total acres) in areas where actual ordnance trials or training had taken place during DoD use. Specifically, the Test Areas MRS makes up the following areas where munitions may still be present:

- NP Forest (46 acres)
- A and B Forests (74 acres)
- D Meadow (15 acres)
- F Meadow (60 acres)
- Air-to-Ground Range (35 acres)
- G Forest (19 acres)

All areas of the Withlacoochee Site *outside* of the six test areas are referred to as the Remaining Lands MRS (17,991 acres). The selected remedy for the Remaining Lands MRS is addressed under a separate FUDS Project Number in a separate DD.

Based on the munitions constituents (MC) risk assessment completed during the recent RI, no significant risk to human health or the environment due to MC has been identified. However, since munitions and explosives of concern (MEC) hazards were identified, the following alternatives were considered:

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- No Action;
- Land Use Controls (Education Program);
- Remedial Action (MEC Removal at Surface) and Land Use Controls (Education Program); and
- Remedial Action (MEC Removal), this alternative would achieve unlimited use and unrestricted exposure.

The Land Use Controls (Education Program) Alternative is the appropriate selected remedy for the Test Areas MRS. This remedy includes the following actions:

The Education program to be conducted would help educate other public users of the land (e.g., hikers, hunters). The focus is on ensuring people respond appropriately if they suspect they have found munitions. Educational information would be sent to landowners and site managers (Florida Forest Service) within the site requesting the information be made available to recreational users and others who may live or work in the area. Information could be posted in the kiosks situated throughout the area as well as on the Forest Service website and in other materials the Forest Service produces. Information would include a description of the military history of the site, the potential munitions hazards, and steps to be taken in the event someone finds something suspicious. Contact numbers for the local authorities, including the Withlacoochee Forestry Center, would be included. The flyers would describe the minimal risks potentially present at the site in a straightforward and non-alarming manner.

The Public Involvement Plan would also be updated to a Community Relations Plan (CRP), which would also be updated periodically, potentially in conjunction with five-year reviews. The CRP would include a revised project summary, updated flyers, stakeholder lists, media contacts, and information on the community. The CRP provides the framework for public outreach activities that USACE will use to communicate with the community and address their concerns and expectations. Updating the CRP will include revising the project summary, updating fact sheets and brochures, updating stakeholder lists, media contacts, and information on the community.

Though not part of the remedy, a five-year review would be required for Alternative 2 to monitor and ensure that the remedy remains protective of human health and the environment.

This remedy was selected in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S. Code § 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, and, the National Oil and Hazardous Substances Pollution Contingency Plan, 40 Code of Federal Regulations (CFR) Part 300 et seq., as amended. The remedy will remain in place until a determination is made that the remedy is no longer necessary and the site conditions allow for unlimited use/unrestricted exposure based on CERCLA criteria. This means that the selected remedy will place no restrictions on the potential use of land or other natural resources.

Based on information currently available, the selected remedy is protective of human health and the environment and satisfies the statutory requirements of CERCLA §121(b). The estimated cost for the selected remedy is summarized in Table ES.1

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The Florida Department of Environmental Protection (FDEP) was consulted in the development of the selected remedy. The Florida Department of Agriculture and Consumer Services – Florida Forest Service concurs with the selected remedy.

TABLE ES.1
SUMMARY OF SELECTED REMEDY AND COST

SITE	SELECTED REMEDY	COST
Test Areas MRS (I04FL007802) (249 Acres)	Land Use Controls (Education Program)	\$388,100

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ATTACHMENT

- Figure 1 Site Location Map
- Figure 2 Test Areas MRS

LIST OF ACRONYMS AND ABBREVIATIONS

ARAR	Applicable or Relevant and Appropriate Requirements
BIP	Blown-in-Place
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CRP	Community Relations Plan
CWM	Chemical Warfare Materiel
DD	Decision Document
DERP	Defense Environmental Restoration Program
DGM	Digital Geophysical Mapping
DoD	Department of Defense
FDEP	Florida Department of Environmental Protection
FFS	Florida Forest Service
FS	Feasibility Study
FUDS	Formerly Used Defense Sites
FWC	Florida Fish and Wildlife Conservation Commission
GPS	Global Positioning System
MC	Munitions Constituents
MD	Munitions Debris
MDAS	Material Documented As Safe
MEC	Munitions and Explosives of Concern
MRS	Munitions Response Site
msl	mean sea level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OB/OD	Open Burn/Open Detonate
PA	Preliminary Assessment
RAO	Remedial Action Objectives
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
SARA	Superfund Amendment and Reauthorization Act
SLRA	Screening Level Risk Assessment
T&E	Threatened and Endangered Species
U.S.	United States
USACE	U.S. Army Corps of Engineers
UU/UE	unlimited use and unrestricted exposure
UXO	Unexploded Ordnance
WMA	Wildlife Management Area

PART 1: DECLARATION

1. SITE NAME AND LOCATION

Site Name: Former Withlacoochee Chemical Warfare Service Field Trials & Air-to-Ground Bombing & Gunnery Range, Test Areas Munitions Response Site (MRS) (hereafter referred to as Test Areas MRS).

Formerly Used Defense Site (FUDS) Project Number: I04FL007802

Federal Facility Identifier: FL49799F721500

The Test Areas Munitions Response Site MRS is comprised of 249 acres of non-contiguous land carved out of the 18,240 acre Withlacoochee Site (Figure 1) where actual ordnance trials or training had taken place during DoD use. The Test Areas MRS includes the following six areas:

- NP Forest (46 acres)
- A and B Forests (74 acres)
- D Meadow (15 acres)
- F Meadow (60 acres)
- Air-to-Ground Range (35 acres)
- G Forest (19 acres)

The remaining 17,991 acres of the Withlacoochee Site are now in the Remaining Lands MRS which is addressed in a separate Decision Document (DD). Both the Test Areas MRS and the Remaining Lands MRS are shown in Figure 2.

The former Withlacoochee Site is located approximately 18 miles northeast of Zephyrhills, in Sumter and Hernando counties, Florida.

The site is now part of the Richloam Wildlife Management Area of the Withlacoochee State Forest. The Florida Forest Service (FFS) manages the site for timber, and the public uses it for recreation. It also includes the Florida Bass Conservation Center offices and the Richloam State Fish Hatchery.

2. STATEMENT OF BASIS AND PURPOSE

The United States Army Corps of Engineers (USACE), Jacksonville District, prepared this DD to describe the Department of Defense (DoD) Selected Remedy for the Test Areas MRS. The Secretary of Defense designated the Secretary of the Army as the Lead Agent for DoD's FUDS Program, regardless of which DoD Component previously owned or used the property. The Secretary of the Army further assigned to USACE execution responsibilities for the Program. USACE is the lead agency for investigating, reporting, and evaluating response actions; and

implementing remedial actions at the Test Areas MRS.

The Selected Remedy for the Test Areas MRS is Land Use Controls. This remedy was selected in accordance with CERCLA, as amended by the Superfund Amendment and Reauthorization Act (SARA) of 1986, 42 U.S. Code § 9601 et seq., and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300 et seq., as amended.

The FDEP is the lead regulatory agency. The FDEP has actively participated throughout the investigation process, has reviewed this DD, and was consulted in the development of this Selected Remedy.

3. ASSESSMENT OF PROJECT SITE

The Remedial Investigation (RI) Report for the Withlacoochee Site noted that a potential for a complete exposure pathway exists from munitions potentially remaining within the MRS, but no significant risk exists for the munitions constituents. A Feasibility Study was recommended to address the complete exposure pathway for human receptors to come into contact with MEC at the six Test Areas.

The most likely MEC exposure scenario in the Test Areas MRS is associated with human receptors (e.g. commercial/industrial workers and recreational users) interacting with MEC in the subsurface during intrusive activities. If sufficient activation energy is applied, MEC could be a safety hazard and could constitute an imminent and substantial endangerment to on-site personnel. Therefore, response actions, such as the Selected Remedy presented in this DD, could better protect the human health and the environment from the actual and threatened hazards of MEC.

4. DESCRIPTION OF SELECTED REMEDY

Because MEC hazards were identified, and given the current and future land use scenarios, the Land Use Control (Education Program) Alternative is the appropriate selected remedy for the Test Areas MRS. This remedy includes the following actions:

- Provide educational flyers for FFS to distribute and make available at area kiosks which provide information regarding potential MEC hazards at the site and the appropriate response if suspected MEC is encountered.
- Update the Public Involvement Plan to a Community Relations Plan; and
- Provide updates on a periodic basis.

Since there is potential for human receptors to come into contact with MEC, a completed exposure pathway is still possible. Risk would not be managed by source removal but, instead, through controls to limit an exposure pathway (i.e., limiting interaction). The education program would address the appropriate response to finding MEC, but cannot completely control behavior.

There is also a risk associated with a person who may encounter MEC and has not had exposure to the public education program. This alternative provides a reduction in the potential for humans to come into contact with MEC and therefore, meets the Remedial Action Objective and the protectiveness criterion for the Test Areas MRS.

5. STATUTORY DETERMINATIONS

USACE, as the lead agency, has determined based on the information currently available, the selected remedy of Land Use Controls (consisting of an Education Program) for the Test Areas MRS is protective of human health and the environment and satisfies the statutory requirements of CERCLA §121(b). The Public Awareness Program will protect human health and the environment by educating landowners (and land users) of the possible dangers associated with the area. Public Education will provide information for landowners and land users to respond appropriately if suspect MEC are found.

The Selected Remedy is protective of human health and the environment. In addition, the remedy is cost-effective and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable. There is also a statutory preference for treatment as a principal element of the remedy, and although the education program does not include a treatment process, this remedy reduces the potential hazards to human health, welfare, and the environment.

The remedy for this MRS will result in hazardous substances, pollutants or contaminants (i.e., MEC) remaining on-site above levels that allow unlimited use and unrestricted exposure (i.e., the selected remedy will place no restrictions on the potential use of land or other natural resources); in accordance with 40 CFR 300.430(f)(4)(ii) a statutory review will be conducted every five years after initiation of the selected remedy to ensure that the remedy remains protective of human health and the environment.

6. DATA CERTIFICATION CHECKLIST

The following information is included or otherwise addressed in the Decision Summary section of this DD. Additional information can be found in the Administrative Record file for this site.

- Information on MEC and munitions debris (MD) encountered at the project site.
- A summary of the MC risk.
- How source materials constituting principal threats will be addressed.
- Current and reasonably anticipated future land use assumptions for the project site.
- Key factors that led to selecting the remedies for the MRS.
- Estimated cost related to the Selected Remedy.
- The basis for a public education program regarding the MEC hazards. MC cleanup levels are not necessary and have not been established for this site.

7. AUTHORIZING SIGNATURES

This DD presents the Land Use Controls (Education Awareness) Alternative as the remedy for the Test Areas MRS. The USACE, Jacksonville District, is the lead agency under the Defense Environmental Restoration Program (DERP) at the former Withlacoochee Site FUDS and developed this DD consistent with CERCLA, as amended by SARA, and the NCP. This DD will be incorporated into the existing Administrative Record file, which is available for public review at the EC Rowell Public Library located at 85 East Central Avenue in Webster, Florida.

This document, presenting the Land Use Controls (Education Awareness) recommendation, is approved by the undersigned pursuant to Memorandum, DAIM-ZA, September 9, 2003, Subject: Policies for Staffing and Approving DDs, and to Engineer Regulation 200-3-1, *Formerly Used Defense Sites Program Policy*.

APPROVED:

MCCALLISTER.LARRY.
~~DWAYNE.1144889661~~

Digitally signed by
MCCALLISTER.LARRY.DWAYNE.1144889661
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ou=USA, cn=MCCALLISTER.LARRY.DWAYNE.1144889661
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Date

LARRY D. McCALLISTER, Ph.D., PE, PMP, SES

**Director of Regional Business, Military, IIS, and
Environmental Programs**

PART 2: DECISION SUMMARY

1. PROJECT NAME, LOCATION, AND BRIEF DESCRIPTION

The former Withlacoochee Site is located in Sumter and Hernando Counties, approximately 45 miles west of Orlando, Florida. The former Withlacoochee Site Formerly Used Defense Site (FUDS) property covers approximately 18,240 acres within the Richloam Tract of the Withlacoochee State Forest. Hunting, fishing, wildlife viewing, camping, horseback riding, hiking and bicycling are popular recreational activities within the Richloam Tract. Several highways pass near the site and many secondary roads and trails run throughout the entire Withlacoochee Site.

The Withlacoochee Site is a FUDS property; the Department of Defense (DoD) has not occupied or used any portions of the property after declaring it excess in 1946. Buildings and structures that do exist within the MRA include a few residential properties and those buildings occupied by the Florida Bass Conservation Center. Figure 1 shows the former Withlacoochee Site boundaries.

The Test Areas MRS consists of 249 acres within the Withlacoochee Site. This MRS was separated out from the Remaining Lands MRS, which comprises the remaining 17,991 acres of the Withlacoochee Site. The Test Areas MRS is located within areas of the Withlacoochee Site formerly known as the Chemical Use Area #1 and Chemical Use Area #2. Specifically, the Test Areas MRS makes up the following areas (presented in Figure 2):

Within Chemical Use Area #1

- NP Forest (46 acres)
- A and B Forests (74 acres)
- D Meadow (15 acres)
- F Meadow (60 acres)
- Air-to-Ground Range (35 acres)

Within Chemical Use Area #2

- G Forest (19 acres)

The USACE, Jacksonville District, is the lead agency under the Defense Environmental Restoration Program (DERP) for this FUDS (Site Project Number: I04FL007802).

2. PROJECT HISTORY AND ENFORCEMENT ACTIVITIES

2.1 Project History

Prior to government acquisition of the area that now includes this site; the land was either undeveloped or used for agricultural practices (including livestock grazing). The U.S. Department of Agriculture acquired the property in 1936 and managed it as the Withlacoochee

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Land Utilization Project under the Soil Conservation Service in an effort to repurpose the land (ill-suited for crops) for forestry or forestry and grazing.

In 1943, Zephyrhills Army Air Field sought additional land for the purpose of establishing an Air-to-Ground Gunnery Range for the Army Air Forces School of Applied Tactics. The Withlacoochee Land Utilization Project site was a prime candidate, being a well-suited tract of land lying approximately 18 miles north-northeast of the Zephyrhills Airfield. In October 1943, the War Department issued a real estate acquisition directive to acquire 10,562 acres (as well as an existing truck trail) through a temporary use permit for the gunnery range. The War Department acquired additional land in Hernando County, bringing the total acquisition to 18,240 acres. The School of Applied Tactics cleared an area 4,000 by 2,500 feet for the purpose of establishing six strafing targets spaced approximately 600 feet apart. An emergency landing strip was also constructed on top of an existing service road.

In October 1943, the School of Applied Tactics was redesignated as the Army Air Forces Tactical Center tasked with organizing activities throughout the Orlando, Florida area. In March 1944, the Tactical Center transferred authority for the gunnery range to the Third Air Force. In July 1944, the Assistant Secretary of Agriculture approved a modification to the Special Use Permit allowing use of the tract as a practice bombing range in addition to the gunnery range. The practice bombing range (now identified as the Ladoochee Bombing and Gunnery Range) was to be used by heavy bombardment groups from MacDill and Drew Fields. By May 1945, the Third Air Force reassigned the Bombing and Gunnery Range to Bartow Army Air Field under the auspices of the Third Fighter Command. Bartow constructed additional facilities by the end of the summer of 1945, which included a complete gunnery range, spotting towers, low-level bombing target, hutments for range personnel, and logistics facilities.

The U.S. Army Chemical Warfare Service conducted field trials of persistent and non-persistent chemical agents at the site beginning in November 1943. In October 1943, the Dugway Proving Ground commander requested and received permission allowing use of the Raulerson Hammock Inviolable Area of the Richloam Unit of the Withlacoochee Land Use Project site for the Chemical Warfare Service tests. Personnel from the Army and the National Defense Research Committee cut an access road into the selected area and established a 400 x 400 yard sampler grid and a system of five Japanese foxholes, bunkers, and dugouts. Non-persistent agent testing began on November 25, 1943 and ended on January 11, 1944. Personnel from Dugway Proving Ground were mobilized in December 1943 for the purpose of setting up the site for persistent agent field testing. Test support facilities, including a decontamination center and Toxic Gas Yard for bulk agent storage and filling apparatus, were built at the area later occupied by the East Richloam Fire Tower and Ranger Station. Field testing of persistent agents began in January 1944 and included static firing and dropping of chemical bombs from aircraft spray tanks, chemical munitions (e.g. mortars), thermal generators, and the testing of protective clothing. Documents in the Archives Search Report, dated July 1993, indicate that bombs, clusters, chemical rockets, spray tanks, and mortar shells containing phosgene, cyanogen chloride, hydrogen cyanide, tearing agent, Levinstein mustard, other mustard variants, and nitrogen mustards were tested at the site. In some tests, agent simulants such as methyl salicylate were used, or non-standard gas fillers such as ammonia and nitrous oxide.

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By November 1945, the Third Air Force declared that it no longer required the use of the Bombing and Gunnery Range, and requested that the range be declared surplus. In December 1945, the War Department placed the Lacoochee Bombing and Gunnery Range in the Surplus Category, subsequently being decontaminated for release back to the U.S. Department of Agriculture, which occurred formally in November 1946. The Chemical Warfare Service tests were conducted by the Dugway Proving Ground Mobile Unit based at nearby Bushnell AAF from October 1943 to September 1945. The unit moved to Brooksville AAF in the fall of 1945 and conducted operations at the Withlacoochee site from October 1945 to February 1946. Equipment and supplies were demobilized from Brooksville AAF in May 1946. The Florida Forest Service purchased the land from the Federal government between 1958 and 1983 as part of the Richloam Tract of the Withlacoochee State Forest.

Between October 1943 and the fall of 1946, the military used approximately 18,240 acres to create the Withlacoochee Chemical Warfare Service Field Trials and Air-to-Ground Bombing and Gunnery Range (Withlacoochee Site). The site had two distinct purposes—as a practice range for conventional munitions and as a testing area for chemical agents and munitions. The Army Air Force constructed targets for strafing, dive and skip bombing and rockets. The Chemical Warfare Service conducted field trials to determine the effectiveness of chemical agents.

The site, approximately 18 miles northeast of Zephyrhills, is now part of the Richloam Wildlife Management Area of the Withlacoochee State Forest. The FFS manages the site for timber, and the public uses it for recreation. It also includes the Florida Bass Conservation Center offices and the Richloam State Fish Hatchery.

2.2 Previous Investigations

In 1950 the U.S. Army Corps of Engineers investigated the site, removed munitions and recommended surface use only in some areas. Subsequently, the Corps completed a number of additional studies, which included historical records research and site visits. The site was divided into three areas and a Remedial Investigation (RI)/Feasibility Study (FS) was recommended. The Withlacoochee Site consisted of one Munitions Response Site, the Chemical Use Area. For the convenience of conducting the Remedial Investigation, the Munitions Response Site was separated into three units: the Chemical Use Area #1 and Air-to-Ground Bombing and Gunnery Range (16,960 acres) and two geographically separate areas known as Chemical Use Area #2 (640 acres) and Chemical Use Area #3 (640 acres).

The U.S. Army Corps of Engineers conducted a Chemical Warfare Materiel (CWM) Scoping and Security Study, which evaluated and prioritized 91 suspected CWM sites nationwide. The project began in Fall 2002 and was completed by December 2007. The former Withlacoochee Site was one of the sites evaluated. In January 2003, the project team conducted a site visit to evaluate current conditions and confirm previous findings. During the visit, the team toured the site and met with two people familiar with historic DoD operations. Both interviewees recounted hearing of former encounters with munitions (including chemical) or MD. The final report, issued in August 2007, recommended that a RI be conducted at the site.

The USACE St. Louis District prepared a Preliminary Assessment (PA) for the former Withlacoochee Site to update the Archives Site Report. The intent of this report was to compile the information obtained through historical research at various archives and records holding facilities. The PA has been instrumental in obtaining information regarding the property boundaries of the FUDS. The PA uncovered hundreds of reports and memos regarding the Chemical Warfare Service field trials that were helpful in identifying potential MEC and CWM that might be encountered during the RI field activities. Following the completion of the PA, one of the scientists (Harold Johnston) who worked at the site during the field trials found a copy of a 1945-era map that showed the locations of 15 test areas. Prior to this discovery, only the location of the “Non-Persistent Forest” had been identified.

A RI was conducted on the project site from February 2012 to February 2014 to characterize the former Withlacoochee Site with regard to location, concentration, and nature of MEC, and possible MC contamination. Within the Test Areas MRS, the field team conducted a geophysical survey of approximately 17 miles of transects and 1.1 acres of grids, and investigated 136 anomalies. 33 samples were collected during the RI and were analyzed for chemical agents and their breakdown products, explosives, and select metals (antimony, arsenic, barium, copper, lead, manganese, nickel, and zinc). A baseline risk assessment was conducted using the data collected. Using the results of these investigations, the risk assessment concluded that no unacceptable human health or ecological risk due to MC remains at the Test Areas MRS.

The RI found two MEC and 116 MD items within the investigation grids. The first MEC discovered was a EK-4 bomblet with burster but the outer casing had been ruptured and there was no liquid fill; later this bomblet was destroyed on site. The second was a liquid-filled EK-4 10-lb chemical bomblet later determined to contain mustard agent, thus classifying it as CWM. The CWM was packaged and stored in an onsite Interim Holding Facility until it could be transported to the Edgewood Chemical Biological Center in Aberdeen, Maryland. The MD discovered were related to 4.2-inch mortars, EK-4 10-lb chemical bomblets, AN-M47 100-lb bombs, and a 500-lb bomb. Both of these munitions were found in the Test Areas MRS, resulting in a Feasibility Study for the Test Areas MRS.

2.3 Enforcement Activities

There have been no CERCLA enforcement activities at this project site.

3. COMMUNITY PARTICIPATION

In accordance with CERCLA, DoD, and U.S. Army regulations, the USACE Jacksonville District has kept the local community involved throughout the RI process. A Public Involvement Plan was developed and community involvement was facilitated through public notices and meetings, which allowed members of the community to provide comments and recommendations during the site characterization and remedy selection process.

A community meeting was held at the Florida Bass Conservation Center on August 2012 in preparation of the Remedial Investigation field effort. The meeting included a presentation, fact

sheet distribution, and an opportunity for project team members to answer questions from community members.

A notice was placed in the local newspaper on June 24, 2016 to solicit comments on the Proposed Plan and determine the community interest in having an additional public meeting. The notice also included the notification of a public comment period that ran from 24 June to 26 July, 2016.

The Proposed Plan was made available to the public prior to the comment period through the Administrative Record file located at the EC Rowell Public Library located at 85 E. Central Avenue in Webster, FL. No comments were received from members of the public during the comment period.

4. SCOPE AND ROLE OF RESPONSE ACTION

The contamination to be addressed at the Test Areas MRS is related to MEC hazards resulting from conventional and CWM ordnance testing during World War II (1943–1946). The overall remedial strategy for the Test Areas MRS is to manage risk and protect the public from residual MEC hazards. This strategy will involve implementing an educational awareness program to limit the potential for people to interact with munitions items encountered inadvertently. The MC Risk Assessment conducted during the RI showed that unacceptable human health or ecological risks due to MC are not present, thus no response actions for MC are required at the Test Areas MRS.

Once a Selected Remedy has been approved for the Test Areas MRS that is determined to be protective of human health and the environment, minimizes explosive safety hazards, and satisfies the statutory requirements of CERCLA §121(b) with regard to the former DoD use of the MRS, the lead agency will develop a remedial design/response action plan that details how the Selected Remedy will be conducted. Following the completion of the remedial design/response action plan, the remedial action will be implemented.

The final selected remedy described in this DD was agreed upon by the USACE and other stakeholders, and they represent cost-effective remedies for the Test Areas MRS. These remedial actions offers a suitable balance of threshold factors, balancing factors, and modifying factors. The remedial action for the MRS will be implemented under the authority of USACE.

5. PROJECT MRS CHARACTERISTICS

The Test Areas MRS consists of 249 acres within the Withlacoochee Site. The RI for the Test Areas MRS indicates that there is a potential for human receptors to come into contact with MEC. The RI found two MEC during the investigation.

Based on the lack of MC contamination discovered during the RI, no complete MC exposure pathways are present at the Test Areas MRS.

The following sub-sections provide an overview of site surface and subsurface features, sampling strategies, and potential constituents of contamination identified for the entire Withlacoochee Site.

5.1 Site Features

The land surface of the Withlacoochee Site is essentially flat with a gentle east to west slope. The highest land elevations (at approximately 100 feet above mean sea level) occur along the eastern site border and steadily drop to about 80 feet along the western site border. The surrounding terrain is primarily cypress swamp and dense forests. The flat terrain is conducive to extensive wetland conditions, with water ranging in depth from shallow puddles to deeper swamps and ponds.

The State of Florida supports 114 federally-listed Threatened and Endangered (T&E) species consisting of 59 animals and 55 plants. Seventeen of these federally-listed species are known to exist in Sumter and Hernando Counties. No T&E species were observed during the RI field effort.

5.2 Sampling Strategy

During the RI for the Test Areas MRS, the teams searched along 17 miles of transects and in 19 grids and dug up 136 metallic objects to identify them. Two UXO items were found, one of which contained mustard agent. That munition was packaged and safely transported by a special team to a research laboratory in another state. The second item did not contain any chemical warfare agent, and it was destroyed on site. Pieces of MD were identified in 117 locations within 12 grids. Additionally, the team collected 33 soil samples throughout the Test Areas MRS.

5.3 Constituents of Concern

No known contaminants or constituents of concern have been identified at the Test Areas MRS. No chemical warfare agents or volatile organic compounds were detected in any sample.

An explosives compound, 2,4,6-trinitrotoluene, was detected in concentrations slightly above project screening values in two samples collected near where a chemical munition was found. Based on the concentrations discovered, a risk assessment was conducted and 2,4,6-trinitrotoluene was determined not to be present in concentrations which would cause unacceptable risks. Additionally, the analytical method used to detect 2,4,6-trinitrotoluene is prone to false positives.

A majority of the samples collected within the MRS contained concentrations of arsenic above U.S. Environmental Protection Agency Primary Remediation Goals, fewer with concentrations above FDEP's residential limit (direct contact). Arsenic occurs naturally in the environment and is prevalent throughout Florida; it is also associated with agricultural uses. Arsenic was not a component of the munitions and chemicals tested at the site. Based on the concentrations

discovered, a risk assessment for arsenic was conducted and it was determined that arsenic was not present in concentrations exceeding risk levels.

A baseline MC risk assessment conducted during the RI followed a phased approach starting with a screening level risk assessment (SLRA) and moving toward a more complex, site-specific risk assessment. In addition, the baseline risk assessment evaluated the magnitude of the risk at the site and the primary causes of that risk.

Based on results of the baseline MC risk assessment and a review of the MC risk assessment objectives, there are no unacceptable human health or ecological risks at the Test Areas MRS.

5.4 MEC Contamination

The RI found two MEC and 117 MD items within the investigation grids. One MEC item was a EK-4 bomblet with burster but the outer casing had been ruptured and there was no liquid fill; later this bomblet was destroyed on site. The other was a liquid-filled EK-4 10-lb chemical bomblet later determined to contain mustard agent, thus classifying it as CWM. The CWM was packaged and stored in an onsite Interim Holding Facility until it could be transported to the Edgewood Chemical Biological Center in Aberdeen, Maryland. The majority of the MD discovered was within the Test Areas MRS and were related to 4.2-inch mortars, EK-4 10-lb chemical bomblets, AN-M47 100-lb bombs, and a 500-lb bomb.

Based on the MEC and MD findings, the potential hazards are concentrated near the surface and decrease in frequency to a maximum depth of 40 inches.

6. CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

6.1 Land Uses

Currently, the FFS manages the Richloam Wildlife Management Area (WMA), which comprises the Remaining Lands MRS. Timber harvesting has been in operation for 40 years with constant planting of pine trees in areas of cleared hardwoods. As part of its management of the WMA, the FFS maintains road access by cleaning drains along both sides of the sand and gravel roads, occasionally re-placing culverts. Occasional sign posts and wire fences are maintained in a few areas. Timber management includes planting pine trees and conducting controlled burns of the understory vegetation to prevent buildup of combustible materials. In addition to timber management, the public uses the WMA for hiking and hunting – for which a number of primitive camping sites have been established.

Since 1965, the Florida Fish and Wildlife Conservation Commission (FWC) has leased a portion of the WMA for the Richloam State Fish Hatchery. The hatchery covers 180 acres within the MRS and includes 63 out-door ponds, the Florida Bass Conservation Center offices, and a

visitor's center that were constructed in 2007. In addition, there are two employee residences just north of the hatchery.

A small plot (160 acres) of privately owned land remains undeveloped in the northwest section of what was formerly known as Chemical Use Area #2. A right-of-entry was not obtained for this property, but because the area is forested, not fenced, and contained within the WMA, property use is assumed to be the same as the rest of the WMA – timber harvesting, hiking, and hunting.

Future use of the property is expected to remain the same as current use.

6.2 Groundwater and Surface Water Use

Five types of wetlands occupy the majority of the site. Some of these wetlands are seasonal and some are semi-permanently flooded. The Little Withlacoochee River, a tributary of the Withlacoochee River, flows through the site in a northwest course. Almost the entire area surrounding the Withlacoochee Site drains into the Little Withlacoochee River. Discharge from the Little Withlacoochee River is into the Withlacoochee River which ultimately flows into the Gulf of Mexico some 53 miles northwest of the site. Surface water is present as scattered ponds and standing water in wetlands varying with precipitation rates.

The surficial aquifer is comprised mainly of undifferentiated sand and clayey sands. The thickness of the surficial aquifer in Sumter County ranges from 0 to approximately 60 feet and is estimated to be approximately 20 feet in the vicinity of the site. The principal water-bearing aquifer in the west central Florida Peninsula is the Floridan aquifer system and is the primary source of potable water within the county. The upper portions of the Floridan aquifer system in the county is made up of rocks from the Ocala Group, Avon Park Limestone and the Lake City Limestone and is considered to be unconfined throughout most of Sumter County. Throughout the county recharge to this aquifer ranges from high to moderate. The top of the aquifer is generally less than 50 feet in most areas of the county and estimated to be between 60 and 80 feet above msl in the area of the Withlacoochee Site. The potentiometric surface within the Floridan aquifer generally dips to the northwest with the surface ranging from approximately 40 feet above mean sea level (msl) along the Withlacoochee River Valley west of Lake Panasoffkee (northwest Sumter County) to between 90 and 100 feet above msl in the area of the Green Swamp surrounding the Withlacoochee Site. Water leaves the Floridan aquifer system through natural movement down gradient (westward) and subsequent discharge via upward movement through springs, lakes, and wells

No wells were identified and are unlikely to be located in Chemical Use Area #2 and Chemical Use Area #3. No wells were identified in Chemical Use Area #1; however, due to the existence of the fish hatchery and the employee residences onsite, it is possible that wells are located within Chemical Use Area #1.

There are 23 documented water wells known to exist within a 2-mile radius of the Withlacoochee Site. There are 11 wells reported within the Withlacoochee Site boundary. Five

of these wells are classified as “potable”, while the rest are classified as non-potable, groundwater monitoring wells, aquifer test wells, or not reported. The depths to water in these wells are unknown.

7. SUMMARY OF SITE RISKS

The RI concluded that complete MEC exposure pathways are present as a result of the MEC contamination present in the subsurface soil at the Test Areas MRS, coupled with the presence of human receptors. Based on the MEC and MD findings, the hazards are concentrated near the surface and decrease to a maximum depth of 40 inches.

The MC Risk Assessment shows that unacceptable human health or ecological risks due to MC are not present within the Test Areas MRS.

8. REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAO) address the goals for reducing the hazards associated with MEC to ensure protection of human health, safety, and the environment. The RAOs are intended to be as specific as possible but not so specific that the range of alternatives that can be developed is unduly limited.

Based on the findings of the RI and previous investigations, there is a potential for human receptors to come into contact with MEC within the Test Areas MRS. From the historical information about the CWS Field Trials, evidence indicates that weapons testing and training was conducted in six specific areas; any remaining MEC is assumed to be associated with those areas. The six areas associated with the Test Areas MRS had MD or MEC findings from the intrusive investigation of anomalies. The areas, which represent localized concentrated munitions usage areas, were grouped as a single MRS due to their similar terrain, similar land use, and similar munitions history and usage. The depths of the MEC or MD range from surface to 40 inches. An analysis of the RI results and the current and anticipated future land use concluded that no unacceptable human health or ecological risk due to MC has been identified within the Test Areas MRS.

The former Withlacoochee Site is part of the Withlacoochee State Forest, with a fish hatchery included within the boundaries. Future land use is expected to remain the same. Typical activities within the forest include many types of outdoor recreational activities, like hiking, biking, hunting, and camping. These activities are not likely to expose visitors and workers to subsurface MEC. However, the Florida Forest Service employees grade and repair the roads and utility work is possible at ranger stations or the fish hatchery. These activities have the potential to expose subsurface MEC; therefore, both surface and subsurface exposure pathways are considered potentially complete for human receptors within the Test Areas.

Test Areas MRS RAOs

MEC Hazards: MEC hazards have been identified in the form of an unexploded liquid-filled (mustard agent) EK-4 10-lb chemical bomblet and another EK-4 10-lb chemical bomblet (burster only, ruptured). MD has been found at subsurface depths in six areas, as deep as 40 inches in one area. Much of the MD found were related to 4.2-inch mortars, EK-4 10-lb chemical bomblets, AN-M47 100-lb bombs, and a 500-lb bomb. The MD discovered at 40 inches was from an AN-M47 100-lb bomb.

- Exposure Routes for MEC: Exposure pathways for MEC are considered potentially complete for human receptors conducting activities at the surface and subsurface. Potential human receptors include:
 - Current site visitors, construction workers, and commercial/industrial workers; and
 - Future site visitors, construction workers, and commercial/industrial workers.
- RAO for Human Exposure to MEC in Subsurface Soil: To reduce the unacceptable risk due to the presence of EK-4 10-lb Bombs, Chemical, Tail Ejection, within the Test Areas MRS to a maximum depth of 36 inches below surface (the maximum depth munitions were found and the depth of digging anticipated from installation of utilities) in order to address the likelihood of human direct contact exposure such that a negligible risk can be determined acceptable.

Contaminants of Concern: No unacceptable risks to human health or the environment have been identified for MC for the Test Areas MRS.

Applicable or Relevant and Appropriate Requirements (ARARs): There are no ARARs associated with the selected remedy.

9. DESCRIPTION OF ALTERNATIVES

Four remedial alternatives were initially evaluated during the Feasibility Study and major components of each alternative are summarized below.

9.1 Description of Remedy Components

Alternative 1: No Action

- No remedy implemented to reduce the potential safety hazards posed by MEC.
- Assumes continued use of the site in its current condition.

Alternative 2: Land Use Controls (Education Program)

- Provide information to the Florida Forest Service and Florida Fish and Wildlife Commission for distribution to employees and site visitors.
- Development of educational fact sheets aimed at making the public aware of potential hazards and reducing the risk of exposure.
- Initial public meeting and updating the existing Public Involvement Plan into a Community Relations Plan.

Alternative 3: Remedial Action (MEC Removal from Surface); Land Use Controls (Education Program)

- Removal of brush and lower story vegetation to facilitate access to the MRS;
- Detection and demilitarization of MEC on surface by qualified personnel using accepted technology;
- Destruction of recovered unexploded ordnance (UXO);
- Inspection and certification of MD for shipment offsite as material documented as safe (MDAS);
- Restoration of detonation locations to original condition.
- Implementation of an Education Program (see Alternative 2).

Alternative 4: Remedial Action (MEC Removal)

- Removal of brush and lower story vegetation to facilitate access to the MRS;
- Detection and demilitarization of MEC by qualified personnel using accepted technology;
- Collection and interpretation of Digital Geophysical Mapping (DGM) data to identify potential locations of subsurface MEC;
- Excavation of anomalies with potential subsurface MEC;
- Destruction of recovered UXO;
- Inspection and certification of MD for shipment offsite as MDAS;
- Restoration of excavation and detonation locations to original condition.

9.2 Common Elements and Distinguishing Features of Each Alternative

The four alternatives were initially screened for effectiveness, cost, and implementability to determine which alternatives should be carried forward to a detailed analysis.

Applicable or Relevant and Appropriate Requirements

The NCP requires that all project sites meet ARARs (or that an ARAR waiver be obtained). Suggested alternatives would need to be in compliance with requirements associated with the Resource Conservation and Recovery Act (RCRA) 40 Code of Federal Regulations 264 Subpart X (Miscellaneous Units OB/OD) Subsection 264.601 (Environmental Performance Standards) as applicable to the management and treatment of military munitions through the detonation of munitions consolidated at another location, if detonations are conducted.

Long-term Reliability

Alternative 4 is expected to provide the best long-term effectiveness based on the ability to significantly reduce the potential hazards due to MEC (for areas where removal can be completed). Alternative 2 is effective through maintenance of the public education program. Though not part of the remedy, Alternatives 2 and 3 require five-year reviews to verify that the remedies remain protective.

Time Required for Implementation

The USACE conducted a public outreach campaign during the RI; therefore, time required to implement Alternative 2 would be minimal. Alternative 4 would require extensive planning and work plans would be required prior to implementation of the work. Work plan development and approval is estimated to take approximately one year to complete.

Cost

Estimated capital, annual operations and maintenance, and present worth costs are presented in Table 1.

Quantity of Untreated Waste

If MEC are encountered during implementation of Alternative 4, it is expected that the munitions would be either destroyed in place using blow in place procedures, or if CWM are encountered specialized equipment will be needed.

9.3 Expected Outcomes of Each Alternative

Alternative 1: No Action: Alternative 1 does not reduce potential current and future MEC exposure hazards, if present. The NCP requires the No Action alternative to be evaluated and it means simply that a remedial action will not be implemented. No restrictions or limitations would be placed on land use and no costs are associated with this alternative, since there would be no action.

Alternative 2: Land Use Controls (Education Program): An educational awareness program would focus on providing information on the areas containing the MEC hazards and the appropriate response if suspected MEC is encountered, with an emphasis on making the information easily available to the many recreational users of the site (i.e., hikers, campers, hunters). Letters and fact sheets would be sent to landowners and site managers (FFS) within the MRS. The Public Involvement Plan would also be updated to a Community Relations Plan, and will include a revised project summary, updated fact sheets, stakeholder lists, media contacts, and information on the community. Though not part of the remedy, a five-year review would be required for Alternative 2 to monitor and ensure that the remedy remains protective of human health and the environment.

Alternative 3: Remedial Action (MEC Removal at Surface); Land Use Controls (Education Program): This alternative uses a combination of activities to achieve a reduction in the MEC hazards and also minimizes receptor interaction with MEC on the surface of the MRS. The activities consist of instrument-aided surface MEC removal for the six areas identified in the RI Report as the extent of the area with munitions debris.

FINAL DECISION DOCUMENT
WITHLACOCHEE CHEMICAL WARFARE SERVICES FIELD TRIALS
AND AIR TO GROUND BOMBING AND GUNNERY RANGE
TEST AREAS MRS

The objective of the MEC removal is to identify and remove visible MEC on the ground surface at the site. Surface MEC removal is conducted by UXO-qualified technicians using handheld metal detectors to aid the visual identification of UXO and MD. Depth of removal is surface-only regardless of the maximum depth of known receptor pathways or the maximum depth of the UXO and MD found during the RI. Munitions would be destroyed using Blown-in-Place (BIP) procedures, if possible, or applicable CWM removal and destruction procedures. Munitions that are acceptable to move could be moved to a nearby designated area for demolition. All MD would be inspected, certified as safe, containerized, and shipped to an offsite smelter for destruction. Because of the potential for CWM, the removal action would be conducted as a CWM operation, employing air monitoring equipment for chemical agents, PPE, personnel decontamination station, onsite medical support, rescue team, and the establishment of a secure Interim Holding Facility to store recovered CWM munitions until disposition of the CWM can be arranged.

A Public Awareness program, similar to that described under Alternative 2, would provide additional protection by providing information to the public concerning MEC hazards at the site. In addition, notices would be published and meetings held to inform residents of MEC removal activities and to help plan for evacuations where needed. It is estimated that one meeting would be held prior to the removal work and one at the end of the field investigation. Reports, fact sheets, and other information would also be placed in the information repository and website. Though not part of the remedy, a five-year review would be required to monitor and ensure the remedy remains protective of human health and the environment.

Alternative 3 was dropped from full consideration

Alternative 4: Remedial Action (MEC Removal): This alternative uses a combination of activities to achieve a reduction in the MEC hazards and also minimizes receptor interaction with MEC to maximum depth at the MRS. The activities consist of geophysics and intrusive investigations (MEC removal) for the six areas identified in the RI Report as the extent of the area with munitions debris.

The overall process would begin by conducting brush clearing to remove vegetation from areas where access can be obtained. Those areas with standing water would be avoided. Detection and identification of anomalies attributable to MEC are conducted primarily by DGM with mag-and-dig techniques used only in inaccessible areas (heavily-brushed areas that cannot be cleared sufficiently, rough terrain). Advanced anomaly discrimination technology may be used to reduce the numbers of anomalies selected for digging, if it can be shown to be cost effective. DGM is usually combined with global positioning system (GPS) in open field areas to obtain accurate locations and with fiducial grids established by surveyors for areas with poor GPS coverage. Geophysical data would be processed and anomalies selected will be based on previous data collected at these sites, standardized instrument response curves, geophysical prove-out data, and other data specific to the munitions being targeted.

The objective of the MEC removal is to identify and remove MEC on the ground surface and in the subsurface to a maximum depth based on the deepest potential depth of MEC and depths of

potential receptor intrusive activities at the site. The depth of typical intrusive activities at the Test Areas MRS (e.g., road grading, camping, hiking) is shallower than the maximum depth that UXO and MD were found during the intrusive investigations. For this reason, the maximum depth of MEC removal should be the same as the maximum depth that MD was found, in this case 40 inches. Locations to be excavated would be based on anomalies from DGM data and on areas that are flagged using analog instruments. The MEC removal would not be conducted under existing roads, bodies of water, and structures. Munitions would be destroyed using BIP procedures or if CMW is encountered, permissible destruction techniques conducted by the Army. Because of the potential for CWM, the removal action would be conducted as a CWM operation, employing air monitoring equipment for chemical agents, PPE, personnel decontamination station, onsite medical support, rescue team, and the establishment of a secure Interim Holding Facility to store recovered CWM munitions until disposition of the CWM can be arranged.

This alternative would achieve Unlimited Use/Unlimited Exposure at the site.

10. COMPARATIVE ANALYSIS OF ALTERNATIVES

Alternative 3 was eliminated from the detailed screening process because it would not provide a reduction in hazards posed by subsurface Munitions and Explosives of Concern (only 1% of the anomalies investigated during the RI were found at a depth of 1 inch or less, very little surface MEC is expected). Alternatives 1, 2, and 4 were evaluated in relation to one another using each of the nine CERCLA evaluation criteria to identify the relative advantages and disadvantages of each alternative in terms of the threshold and balancing criteria. The comparative analysis of alternatives for the Test Areas MRS is presented in Table 1. The following conclusions were derived:

- Alternative 1 – No Action - is ineffective in reducing risk to human health and the environment and has no long-term permanence. This alternative was considered only to provide a baseline for comparing the other alternatives. There is no cost for this alternative.
- Alternative 2 – Land Use Controls (Education Program) – This alternative would reduce the MEC risk by informing residents of the hazards associated with the potential presences of MEC. Alternative 2 achieves the balancing factors of long term effectiveness and permanence, short term effectiveness and implementability. The estimated cost to implement Alternative 2 is \$157,700, which is significantly lower than Alternative 4. Alternative 2 would also require 5-year reviews estimated to cost an additional \$230,400 for 30 years.
- Alternative 4 – Remedial Action (MEC Removal) – achieves the balancing factors of long-term effectiveness, permanence, and reduction of toxicity, mobility, and volume through MEC removal. This alternative reduces the source of MEC in exposed areas but does not reduce MEC within ponds or heavily-vegetated areas, roads, or under structures. The estimated cost for Alternative 4 is \$37,202,000.

11. PRINCIPAL MEC ISSUES

The MEC exposure pathway is complete in the Test Areas MRS based on the MEC and MD found during the RI and previous investigations. If MEC are present, a receptor, and interaction between the MEC source and receptor, must also be present for a complete MEC exposure pathway to exist. Public Awareness increases the likelihood of an appropriate response/interaction if a receptor does encounter MEC. This remedy is protective of human health and the environment. In addition, the remedy is cost-effective and uses permanent solutions and alternative treatment technologies to the maximum extent practicable. There is also a statutory preference for treatment as a principal element of the remedy, and although the Public Awareness remedy does not include a treatment process, this remedy reduces the explosive hazards to human health, welfare, and the environment.

The remedy will result in hazardous substances, pollutants or contaminants (MEC) remaining on-site above levels that allow unlimited use and unrestricted exposure (i.e., the selected remedy will place no restrictions on the potential use of land or other natural resources); therefore, a statutory review will be conducted every five years after initiation of the selected remedy to ensure that the remedy remains protective of human health and the environment and will continue until on-site pollutants or contaminants (MEC) are at levels below that which allow unlimited use and unrestricted exposure.

Table 1
Comparative Analysis of Remedial Alternatives for Munitions and Explosives of Concern
Test Areas MRS, Withlacoochee Site

Remedial Action Alternative	Threshold Criteria		Primary Balancing Criteria				
	Overall Protection of Human Health and Environment	Compliance with ARARs	Long-Term Effectiveness	Reduction in the Toxicity, Mobility, or Volume of Wastes through Treatment	Short-Term Effectiveness	Implementability	Cost
Alternative 1: No Action	Not protective of human health and the environment	Not Applicable	Not protective over long-term.	No reduction in toxicity, mobility, or volume (TMV) of wastes (no MEC removal).	No short-term hazards to workers or the surrounding area	Readily implementable, however unlikely to gain approval.	\$0
Alternative 2: Land Use Controls (Education Program)	Protective of human health	Not Applicable	Effective over long-term	No reduction in toxicity, mobility, or volume (TMV) of wastes (no MEC removal).	No short-term hazards to workers or the surrounding area	Readily implementable; more likely to gain State and Community acceptance than munitions removal	\$388,100
Alternative 4: Remedial Action (MEC Removal)	Protective of human health and environment	Complies with applicable ARARs	Most effective over long-term due to the reduction in explosive hazards. Would achieve UU/UE.	Provides greatest reduction in TMV of wastes (MEC removal)	Greatest short-term hazards to workers and surrounding area (MEC removal)	Readily implementable (uses well established technologies)	Test Areas Total: \$37,202,000

(As noted in text above, Alternative 3 was dismissed from the detailed analysis because it would not provide a reduction in hazards posed by subsurface MEC, and only minimal MD was found on the surface.)

Shading shows alternative desirability with respect to that criterion:

Most desirable	Significantly desirable	Least desirable
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12. SELECTED REMEDY

12.1 Summary and Description

The Land Use Controls (Education Program) Alternative is the Selected Alternative. This alternative is appropriate because it best balances protecting people through education and its long-term effectiveness with a moderate cost for implementation. Based on the information currently available, USACE believes that this Alternative protects people and the environment and satisfies the statutory requirements of CERCLA §121(b).

USACE conducted public outreach prior to the RI fieldwork. A public meeting was conducted and included a few interested members from the local hunt club. The Education program to be conducted under Alternative 2 would increase this effort to help educate other public users of the land (e.g., hikers, hunters). The focus is on ensuring people respond appropriately if they suspect they have found munitions. Educational information would be sent to landowners and site managers (Florida Forest Service) within the site requesting the information be made available to recreational users and others who may live or work in the area. Information could be posted in the kiosks situated throughout the area as well as on the Forest Service website and in other materials the Forest Service produces. Information would include a description of the military history of the site, the potential munitions hazards, and steps to be taken in the event someone find something suspicious. Contact numbers for the local authorities, including the Withlacoochee Forestry Center, would be included. The flyers would describe the minimal risks potentially present at the site in a straightforward and non-alarming manner.

The Public Involvement Plan would also be updated to a CRP, which would also be updated periodically, potentially in conjunction with the five-year reviews. The CRP would include a revised project summary, updated flyers, stakeholder lists, media contacts, and information on the community. The CRP provides the framework for public outreach activities that USACE will use to communicate with the community and address their concerns and expectations. Updating the CRP will include revising the project summary, updating fact sheets and brochures, updating stakeholder lists, media contacts, and information on the community.

Though not part of the remedy, Five-Year Reviews would be required to monitor the effectiveness of the public awareness program and to identify changes to the land use that might require adjustments to the public awareness program.

12.2 Cost Estimate

The 30-year total present worth cost of the Land Use Controls (Education Program) remedy is estimated to be \$388,100, which includes a \$230,400 budget to conduct recurring five-year reviews for 30 years.

Table 2 **Detailed Summary of Selected Remedy Cost**

Activity	Cost
Initial education costs (CRP update, initial fact sheets, brochures)	\$63,800
Subsequent education costs (CRP updates, distribution of fact sheets and brochure periodically)	\$93,900
Cost - LUCs (Educational Program)	\$157,700
Complete 5-year reviews and reports for up to 30 years	\$230,400
Total Cost LUCs + 5-year reviews	\$388,100

12.3 Estimated Outcomes

With the implementation of the Selected Remedy – Land Use Controls (Education Program), the expected outcomes are anticipated to include the following:

- Land use will remain unchanged.
- No restriction will be placed on current or future land use.
- No limitations will be placed on groundwater or surface water use.
- No MEC will be removed.

13. STATUTORY DETERMINATIONS

Based on the information currently available, the selected remedy for the Test Areas MRS is protective of human health and the environment and satisfies the statutory requirements of CERCLA §121(b). An Education Program will protect human health and the environment by educating land owners (and land users) and informing MRS receptors of the possible dangers associated with the area. Awareness will make receptors more likely to respond appropriately if suspect MEC are found. Long term protection is assessed through a statutory review conducted every five years after initiation of the selected remedy to ensure that the remedy continues to minimize explosives safety hazards and continues to be protective of human health, safety, and the environment.

The Selected Remedy is protective of human health and the environment. In addition, the remedy is cost-effective and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable. There is also a statutory preference for treatment as a principal element of the remedy, and although this alternative does not include a treatment process, this remedy reduces the potential hazards to human health, welfare, and the environment.

The remedy for this MRS will result in hazardous substances, pollutants or contaminants (i.e., MEC) remaining on-site above levels that allow unlimited use and unrestricted exposure (UU/UE) (i.e., the selected remedy will place no restrictions on the potential use of land or other natural resources); therefore, a statutory review will be conducted every five years after initiation of the selected remedy to ensure that the remedy continues to minimize explosive safety hazards and the remedy is, or will be, protective of human health and the environment.

Five-year reviews are a requirement for alternatives not allowing for UU/UE in accordance with 40 CFR 300.430(f)4(ii). Five-year reviews would be conducted to:

- 1) Ensure that public health, safety, and the environment are being protected by the response actions implemented;
- 2) Verify the integrity of any site controls;
- 3) Determine if new information has become available that may warrant further action;
- 4) Determine if there is an immediate threat to the public or environment that may require an accelerated response; and
- 5) Review decisions for technical impracticability to determine if new technology will address potential MEC safety hazard. Data gathered during the review process will be used to determine if further action needs to be taken to protect public safety and the environment. If no changes have taken place, the site would continue to be monitored at the specified intervals. At the completion of the review, a Five-year Review Report would be prepared, and a public notice would be placed in the local newspaper concerning the continued effectiveness of the remedy.

14. DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan was released for public comment on June 24, 2016. The Proposed Plan identified the Land Use Controls (Education Program) as the Preferred Alternative. There were no comments from the public, therefore no changes to the Proposed Plan were made.

PART 3: RESPONSIVENESS SUMMARY

This Responsiveness Summary summarizes all comments for the Proposed Plan received from the public and Florida Department of Environmental Protection (FDEP) regarding the preferred alternative made available for public review and general concerns related to the Site.

1. STAKEHOLDER COMMENTS AND LEAD AGENCY RESPONSES

Part 3 of this DD describes the activities used to solicit community input. A public comment period was held between June 24 through July 26, 2016. No written comments were received during the comment period. Letters, along with a Proposed Plan fact sheet were sent to members of the Richloam Sportsman Association to invite them to the meeting, to explain the recommended alternatives and to encourage them to submit comments.

1.1 Florida Department of Environmental Protection Comments

The FDEP was consulted in the development of the selected remedy.

1.2 Public Comments

No Comments were received from the public.

2. TECHNICAL AND LEGAL ISSUES

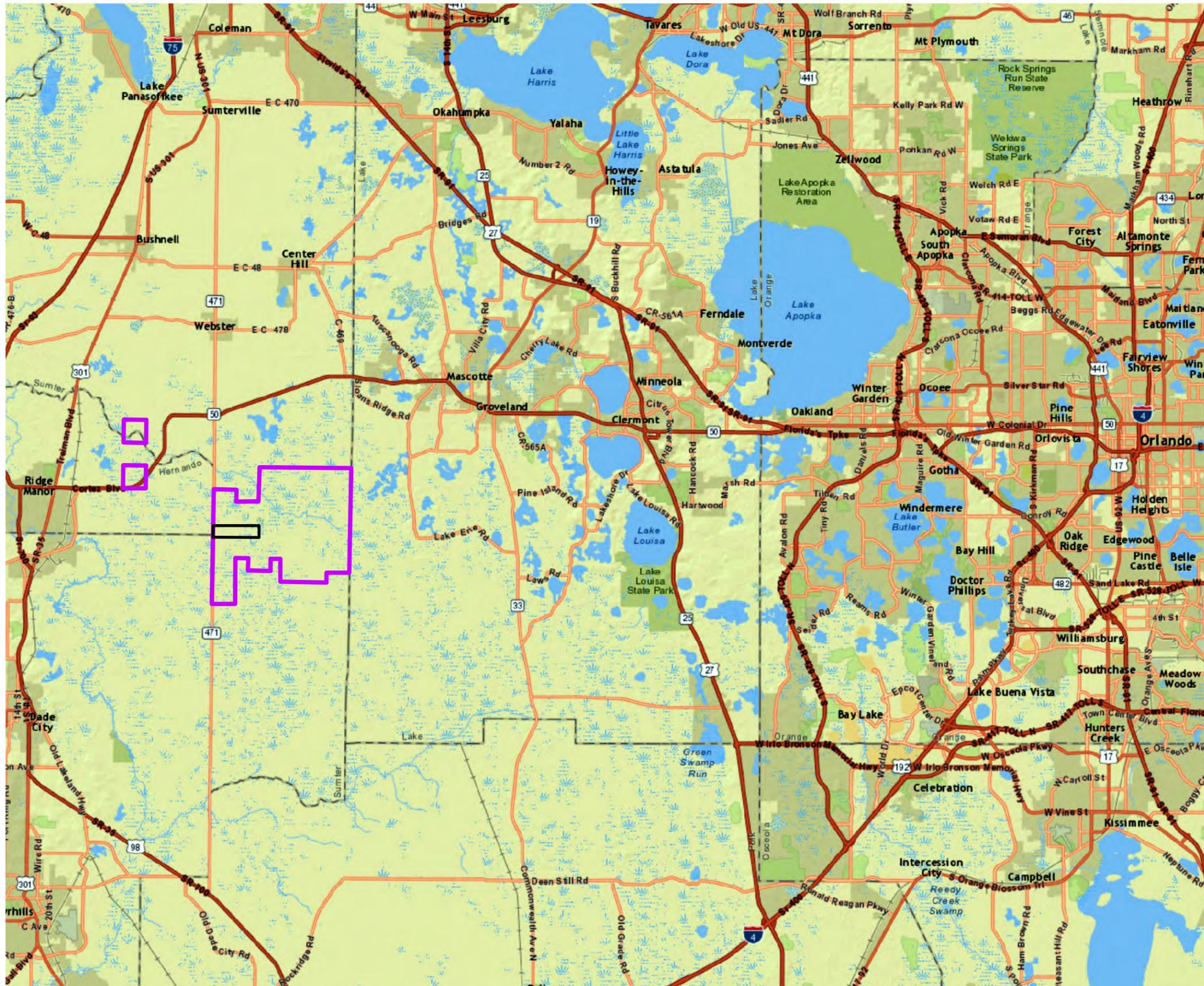
The appropriateness of the Selected Remedy is contingent on the land uses remaining unchanged. No changes are anticipated at this time.

FINAL DECISION DOCUMENT
WITHLACOCHEE CHEMICAL WARFARE SERVICES FIELD TRIALS
AND AIR TO GROUND BOMBING AND GUNNERY RANGE
TEST AREAS MRS

ATTACHMENT

Figure 1

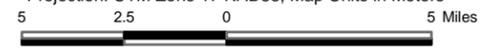
Withlacoochee Site Location
Withlacoochee CWS Field Trials and
ATG Bombing and Gunnery Range
Sumter and Hernando Counties, Florida



Legend

- MRS Boundary
- Air-to-Ground Bombing and Gunnery Range

Image: USGS 7.5' Topo Quadrangles, Date Unknown.
Projection: UTM Zone 17 NAD83, Map Units in Meters



USA Environmental		U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER	
DESIGNED BY: BT	Withlacoochee Site Location		
DRAWN BY: BT			
CHECKED BY: DS	SCALE: As Shown	PROJECT NUMBER: 747826.05000	
SUBMITTED BY: JC	DATE: June 2016	PAGE NUMBER:	
	FILE:		

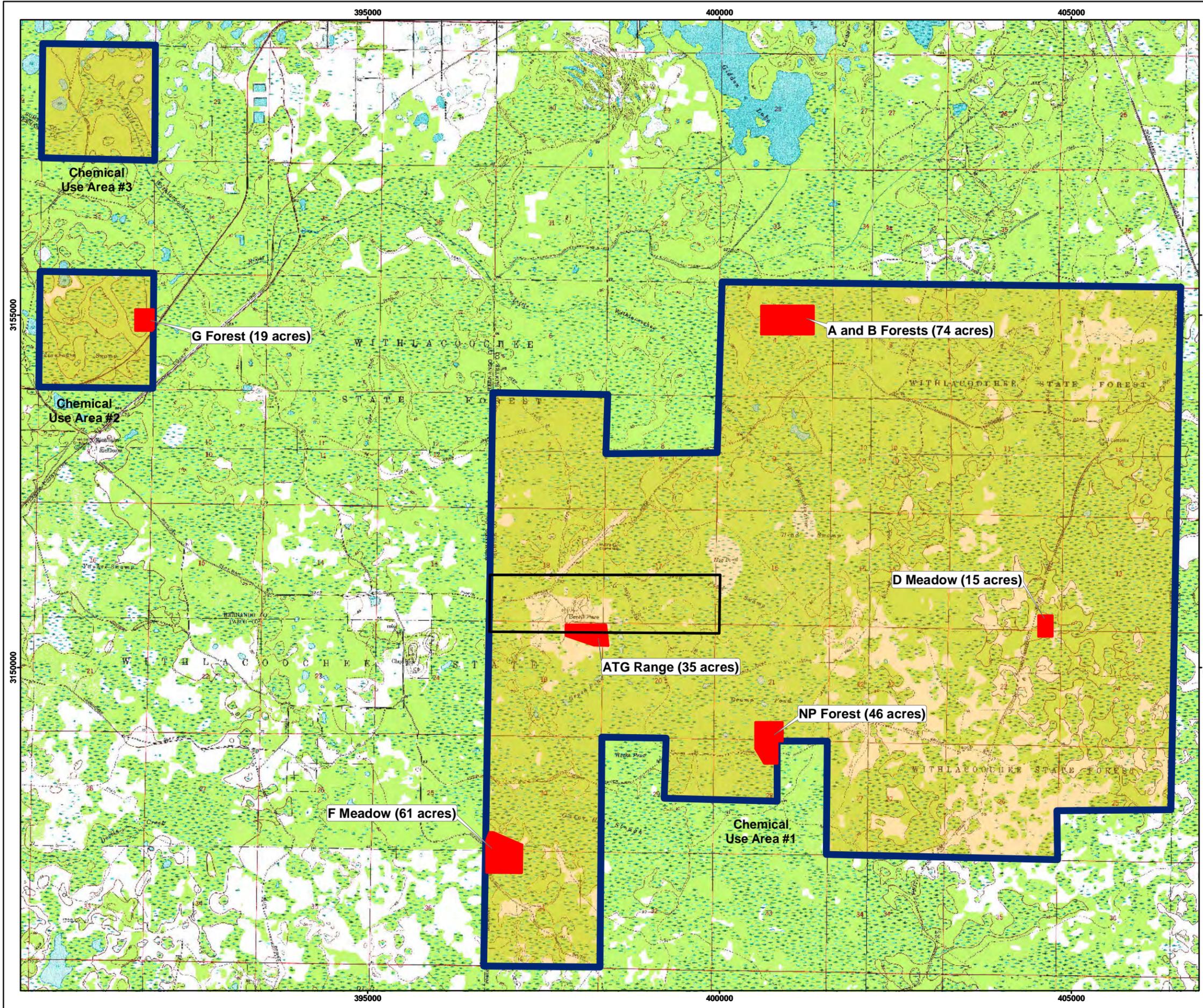


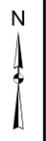
Figure 2

Test Areas MRS
 Withlacoochee CWS Field Trials and
 ATG Bombing and Gunnery Range
 Sumter and Hernando Counties, Florida

Legend

- Test Area MRS (250 Acres)
- Remaining Lands MRS (17990 Acres)
- Air-to-Ground Bombing and Gunnery Range
- MRA Boundary

Image: USGS 7.5' Topo Quadrangles, Date Unknown.
 Projection: UTM Zone 17 NAD83, Map Units in Meters



USA Environmental		U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER	
DESIGNED BY:	BT	Withlacoochee CWS Field Trials and ATG Bombing and Gunnery Range	
DRAWN BY:	BT		
CHECKED BY:	DS	SCALE: As Shown	PROJECT NUMBER: <small>640138.0002.747826.06000.LABOR</small>
SUBMITTED BY:	JC	DATE: June 2016	PAGE NUMBER: <small>640138.0002.747826.06000.LABOR</small>
		FILE:	