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**FINAL DECISION DOCUMENT**



**ORLANDO RANGE AND CHEMICAL YARD**  
**DEMONSTRATION RANGE MRS**  
**ORANGE COUNTY, FLORIDA**

**FORMERLY USED DEFENSE SITE PROPERTY NUMBER: I04FL0396**

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

**22 July 2014**

## **EXECUTIVE SUMMARY**

This Decision Document is being presented by the United States Army Corps of Engineers (USACE) to describe the Department of Defense (DoD) selected remedy for the Demonstration Range Munitions Response Site (MRS) within the former Orlando Range and Chemical Yard (ORCY) Formerly Used Defense Site (FUDS), Property Number I04FL0396 located in Orange County, Florida.

The Secretary of Defense designated the Army as the Executive Agent for FUDS, regardless of which DoD component previously owned or used the property. The Secretary of the Army further delegated the program management and execution responsibility for FUDS to the USACE. The USACE is the lead agency for investigating, reporting, evaluating remedial actions, and implementing remedial actions at the former ORCY.

A moderate explosive safety hazard is anticipated at the ORCY Demonstration Range MRS. Based on the munitions constituents (MC) risk assessment completed during the recent Remedial Investigation, 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:

- No Further Action;
- Public Awareness;
- MEC Removal from Surface to Maximum Depth of UXO or MD; and
- Excavation, Sifting, and Restoration.

The Public Awareness Alternative is the appropriate selected remedy for the ORCY Demonstration Range MRS. 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 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.

The Florida Department of Environmental Protection (FDEP) concurs with the selected remedy.

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 E.1

**TABLE E.1**  
**SUMMARY OF SELECTED REMEDY AND COST**

<b>MRS</b>	<b>SELECTED REMEDY</b>	<b>COST</b>
<b>DEMONSTRATION RANGE MRS</b>	Public Awareness Program	\$245,700

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**ATTACHMENT**

Figure 1      Site Location Map

## **LIST OF ACRONYMS AND ABBREVIATIONS**

ABP	Agent Breakdown Product
ARAR	Applicable or Relevant and Appropriate Requirements
BIP	Blown-in-Place
CA	Chemical Agent
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CRP	Community Relations Plan
CWM	Chemical Warfare Materiel
DDT	Dichloro-Diphenyl-Trichloroethane
DERP	Defense Environmental Restoration Program
DGM	Digital Geophysical Mapping
DoD	Department of Defense
FDEP	Florida Department of Environmental Protection
FUDS	Formerly Used Defense Sites
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
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
ORCY	Orlando Range and Chemical Yard
RAO	Remedial Action Objectives
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROE	Right-of-Entry
SARA	Superfund Amendment and Reauthorization Act
SI	Site Inspection
SLRA	Screening Level Risk Assessment
T&E	Threatened and Endangered Species
TBC	To Be Considered
TP	Target Projectiles
U.S.	United States
USACE	U.S. Army Corps of Engineers
USAESCH	U.S. Army Engineering and Support Center, Huntsville
UU/UE	unlimited use and unrestricted exposure
UXO	Unexploded Ordnance

## PART 1: DECLARATION

### 1. SITE NAME AND LOCATION

Site Name: Orlando Range and Chemical Yard (ORCY) Demonstration Range MRS

Formerly Used Defense Site Property Number: I04FL0396

Federal Facility Identifier: FL49799F721500

The former ORCY is located approximately four miles north of the Orlando International Airport, partly within the City of Orlando, in Orange County, Florida. The former ORCY FUDS property is heavily developed. The only undeveloped areas are a few wetlands located toward the center and the western half of the FUDS property, outside of the MRSs. The majority of the structures within the FUDS consist of businesses, schools, single-family dwellings, and apartments. The Demonstration Range MRS is located in the southern-central portion of the former ORCY and encompasses approximately 115 acres. The site is heavily developed with small residential parcels. Figure 1 shows the former ORCY boundaries and the boundary of the Demonstration Range MRS within the former ORCY.

### 2. STATEMENT OF BASIS AND PURPOSE

This Decision Document presents the Selected Remedy for the Demonstration Range MRS. The Selected Remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendment and Reauthorization Act (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

The FUDS Charter designated the Army as the Executive Agent on behalf of the DoD charged with meeting all applicable environmental restoration requirements at FUDS, regardless of which DoD component previously owned or used the property. The Secretary of the Army further delegated the program management and execution responsibility for FUDS to the USACE. The USACE is the lead agency for investigating, reporting, evaluating and implementing remedial actions at the former Demonstration Range MRS.

The FDEP concurs with the Selected Remedy.

### 3. ASSESSMENT OF PROJECT SITE

An evaluation of site data indicates a potential for human receptors to come in contact with MEC at the Demonstration Range MRS. The most likely MEC exposure scenario in the MRS is associated with human receptors (e.g. residents, construction workers, commercial workers, recreational users, and visitors) interacting with MEC on the surface or 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 those selected in this Decision Document, could better protect the public health and welfare and the environment from the actual and threatened hazards of MEC.

#### **4. DESCRIPTION OF SELECTED REMEDY**

Because MEC hazards were identified, the Public Awareness Program alternative is the appropriate selected remedy for the ORCY Demonstration Range MRS. This remedy includes the following actions:

- Provide a letter and fact sheets notifying residents of the potential for MEC to remain and steps to take if potential MEC is found; and
- Provide updates on a periodic basis.

Since the MEC hazard evaluation concluded that 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 public awareness 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 awareness 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 Demonstration Range MRS.

#### **5. STATUTORY DETERMINATIONS**

Based on the information currently available, the selected remedy for the Demonstration Range MRS is protective of human health and the environment and satisfies the statutory requirements of CERCLA §121(b). 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 Awareness will make landowners and land users more likely 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 Public Awareness 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 is, or will be, protective of human health and the environment. Statutory reviews will continue to be conducted no less often

than every five years until any pollutants or contaminants remaining on site are at levels at or below those allowing for unlimited use and unrestricted exposure.

**6. DATA CERTIFICATION CHECKLIST**

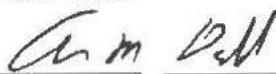
The following information is included or otherwise addressed in the Decision Summary section of this Decision Document. Additional information can be found in the Administrative Record file for this site.

- Information on MEC and munitions debris (MD) encountered at the project site.
- Hazard assessment of MEC.
- 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 awareness program regarding the MEC hazards. MC cleanup levels are not necessary and have not been established for this site.

**7. AUTHORIZING SIGNATURES**

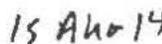
This Decision Document presents the Public Awareness Program Alternative as the recommendation for this MRS. The U.S. Army Corps of Engineers, Jacksonville District, is the lead agency under the Defense Environmental Restoration Program at the ORCY FUDS and developed this Decision Document consistent with CERCLA, as amended by SARA, and the NCP. This Decision Document will be incorporated into the existing Administrative Record File, which is available for public review at the Orlando Public Library Southeast Branch located at 5575 S. Semoran Boulevard in Orlando. The addition of this Decision Document completes the Administrative Record File and becomes the Administrative Record for the ORCY. The Administrative Record is protected from additional documents being added. This document, presenting the Public Awareness Program recommendation, is approved by the undersigned pursuant to Memorandum, DAIM-ZA, September 9, 2003, Subject: Policies for Staffing and Approving Decision Documents, and to Engineer Regulation 200-3-1, *Formerly Used Defense Sites Program Policy*.

APPROVED:

  
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ALAN M. DODD

**Colonel, Corps of Engineers**  
**Commanding**

  
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Date

## PART 2: DECISION SUMMARY

### 1. PROJECT NAME, LOCATION, AND BRIEF DESCRIPTION

The former ORCY is located approximately four miles north of the Orlando International Airport, partly within the City of Orlando, in Orange County, Florida. The former ORCY FUDS property is heavily developed. Businesses and residences exist along and between the major roads of the site. The ORCY is a FUDS property; the DoD has not occupied or used any portions of the property after declaring it excess in 1946. The only undeveloped areas are a few wetlands located toward the center and the western half of the FUDS property, outside of the MRSs. The majority of the structures within the FUDS consist of businesses, schools, single-family dwellings, and apartments. Demonstration Range MRS is 115 acres and is completely developed with small residential parcels and an apartment complex. Figure 1 shows the former ORCY boundaries and the boundaries of the Demonstration Range MRS.

The USACE, Jacksonville District, is the lead agency under the Defense Environmental Restoration Program (DERP) for this FUDS (Site Property Number: I04FL0396). The FDEP supports this Decision Document and concurs with the Selected Remedy.

### 2. PROJECT HISTORY AND ENFORCEMENT ACTIVITIES

#### 2.1 Project History

Between 1942 and 1943, the United States acquired from various owners, by condemnation and lease, approximately 2,111 acres for the ORCY FUDS (Figure 1). The acquired land was originally used to support the operation of the Orlando Air Base as a rifle training range that was arranged with a series of firing lines oriented to fire northward from the southern end of the property. Later, the Army Air Corps abandoned the rifle range and constructed a Toxic Gas Yard (storage yard for cylinders and drums of chemical agents) with other improvements such as ordnance storage igloos, a storage warehouse, latrines, and a few smaller buildings near the center of the tract. A pistol range was added west of the abandoned rifle range.

The southern part of the FUDS was used for conducting training demonstrations that were incorporated into the curriculum for the Army Air Forces School of Applied Tactics. Typically, several demonstrations were conducted per month with as many as 1,000 persons attending. Chemical warfare demonstrations involved aircraft spray tanks and the dropping or static firing of smoke and incendiary bombs (during this era, smoke and incendiary weapons were categorized as chemical weapons). The Army Air Force conventional weapons demonstrations were also performed at this site and included simulated anti-tank mines, demolition equipment, small arms firing from ground and aircraft, rifle grenades, rocket launcher (bazooka), fragmentation grenades, aircraft signal flares, ground-fired munitions, and simulated (300-lb) bomb detonations.

In April 1946, much of the former ORCY was declared excess. A Certificate of Clearance issued in February 1950 stated that approximately 220 acres of Tract 51 was given a careful visual inspection and was declared clear of all dangerous and explosive materials reasonably possible to

detect. The certificate also recommended that this land be used for any purpose for which it was suited. In the years since the closure of the facility, no munitions finds have been reported by the community.

## **2.2 Previous Investigations**

In 1993, the Corps conducted a site visit and archives search. The site visit mostly concentrated on the vicinity of the former storage yard. No buildings from the former storage yard were present. No major excavations or other unusual conditions were noted.

A Chemical Warfare Materiel Scoping and Security Study that evaluated and prioritized 91 suspected Chemical Warfare Materiel (CWM) sites nationwide was conducted between 2002 and 2007. In February 2004, the project team conducted a site visit to evaluate current conditions and confirm previous findings. During the visit, the team met with the general contractor constructing Capehart Park. The contractors had encountered construction debris but not any material that could be directly attributed to the military use of the site. The report, issued in August 2007, recommended that a Site Inspection be conducted at the site.

Aerial photographs taken from 1943 to 1947 showing conditions before, during, and after the military's use of the site were evaluated in 2008. The analysis identified structures and features such as craters. The Historical Photographic Analysis was used for planning specific locations to be investigated during the Site Inspection (SI).

The USACE through its contractor Parsons-conducted a SI at the former ORCY to assess the potential presence of MEC, MD indicative of potential MEC (including CWM), (MC including chemical agents (CA), agent breakdown products (ABPs), and pesticides (specifically dichloro-diphenyl-trichloroethane [DDT]) within the FUDS. The project began in July 2008 and was completed in January 2010. MD, consisting of nose weights from M50-series 4-lb incendiary bombs, were found in two parcels. One AN-M54 4-lb incendiary bomb (considered unexploded ordnance [UXO]) was also discovered, thereby indicating that a MEC hazard existed in the Demonstration Range MRS.

During the SI, MC samples were collected and analyzed based on the munitions known or suspected to have been used at the site. MC samples were collected and analyzed for the presence of metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, vanadium and zinc), explosives, polycyclic aromatic hydrocarbons, volatile organic compounds, pesticides, and perchlorate. Selected samples were also analyzed for the presence of white phosphorous. Based on the analysis results, a potential for human health risk as a result of direct exposure to barium in soil was identified where an MD item was located; however, none of the detected concentrations posed an imminent threat to human health resulting from this exposure.

A Remedial Investigation (RI) was conducted on the project site from June 2011 to March 2012 to characterize the former ORCY with regard to location, concentration, and nature of MEC, and possible MC contamination. Samples collected during the RI were analyzed for explosives and

select metals (antimony, barium, cadmium, chromium, copper, lead, manganese, molybdenum, nickel, strontium, vanadium, 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 Demonstration Range MRS. A qualitative MEC Hazard Assessment was conducted to assess potential explosive hazards to human receptors associated with complete exposure pathways within this area.

The RI found 99 MD items related to M50-4lb, M54-4lb, M74-10 lb incendiary bombs, M38A2-100 lb practice bomb, 20 mm TP projectiles, AN-M40/M72 25-lb parachute fragmentation bomb, and a .30-caliber bullet on the surface and in the subsurface at the site. No additional MEC were found during the RI. Based on available information, the Demonstration Range MRS has a total MEC Hazard Assessment score of 685, which equates to a Hazard Level of 3 (“moderate potential hazard conditions”). The RI resulted in a Feasibility Study.

### **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 Community Relations Plan was developed by the USACE 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.

Community meetings were held at Stonewall Jackson Middle School in January and May of 2011 in preparation of the Remedial Investigation field effort. Each meeting included presentations, fact sheet distribution, and an opportunity for project team members to answer questions from community members. Representatives from Orange County and the Florida Department of Environmental Protection also attended the meetings to help provide answers to questions from the public.

A public meeting took place on December 10, 2013 to present the public with the Proposed Plan for the Site. A notice was placed in the local newspaper to invite the public to this meeting. All of the property owners within the FUDS were sent a letter inviting them to the meeting. At this meeting, USACE representatives answered questions related to the proposed remedy. Attendees included representatives from USACE, FDEP, and contractors. The meeting was also followed by a 30-day public comment period that began on December 11, 2012.

The Proposed Plan was made available to the public prior to the comment period through the Administrative Record filed at the Orlando Public Library Southeast Branch located at 5575 S. Semoran Boulevard in Orlando. Two comments were received from members of the public during the comment period.

#### **4. SCOPE AND ROLE OF RESPONSE ACTION**

There is moderate risk anticipated for explosives safety hazards at the ORCY Demonstration Range MRS. The MC Risk Assessment conducted during the RI showed that unacceptable human health or ecological risks due to MC are not present. Because MEC hazards were identified, the Public Awareness Program Alternative is the appropriate selected remedy for the ORCY Demonstration Range MRS.

Once a Selected Remedy has been approved for the Demonstration Range 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 regards 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.

#### **5. PROJECT MRS CHARACTERISTICS**

The Demonstration Range MRS encompasses 115 acres. The RI for the Demonstration Range MRS indicates that there is potential for human receptors to come into contact with MEC. However, there is a confidence level of 93% that there are less than 0.1 UXO per acre. Additionally, there are no areas of concentrated MEC. An UXO M54 4-lb incendiary bomb was found at a depth of 6 inches during the 2009 SI. No other MEC items were subsequently found during the RI. The majority of the MD found at the Demonstration Range MRS was from incendiary bombs (M50 and M54 4-lb Incendiary Bombs and M74 10-lb Incendiary Bombs) and from 1” to 36” in depth. Based on the MEC and MD findings, the potential hazards are concentrated near the surface and decrease in frequency to a maximum depth of 36 inches.

Current and future receptors for the Demonstration Range MRS include residents, construction workers, commercial/industrial workers and site visitors. There is no unacceptable risk from MC.

##### **5.1 Site Features**

The land that comprises the former ORCY FUDS property is nearly level. From the eastern edge, where the elevation is approximately 85 feet above sea level, the elevation increases toward the west to approximately 100 feet above sea level. The central and eastern portions of the site are crossed by wetland areas slightly lower than the surrounding areas.

The vegetation across the site consists of manicured lawns and gardens in the residential areas.

A majority of the site is underlain by nearly level to gently sloping, poorly drained to moderately well drained soils, sandy throughout, mostly of marine origin. Some have organic stained subsoil at less than 30”, some at 30” to 50”. Most areas were modified for urban use. Surficial permeability is high, ranging from > 6.0 in/hr. The area has a high potential for sheet and rill erosion on slopes, otherwise slight, owing to the nearly level terrain. Wind erosion is a high hazard on these sandy soils.

The state of Florida supports 112 federally-listed Threatened and Endangered (T&E) species consisting of 57 animals and 55 plants. Seventeen of these federally-listed species are known to exist in Orange County. These species include 2 reptiles, 6 birds, and 10 plants. No T&E species were observed during the 2009 SI fieldwork or during this RI field effort.

Wetlands are found in some areas of the former ORCY site. Some of the wetlands are seasonal and some are semi-permanently flooded. There is one predominant type of wetland onsite (PFO7B – Palustrine, forested, evergreen, saturated). The wetlands shown on the U.S. Fish and Wildlife Service Wetlands Online Mapper within the Demonstration Range MRS are no longer present. In their place, apartments, parking areas and two stormwater retention ponds have been constructed.

## **5.2 Sampling Strategy**

To provide sufficient data to determine that there is a 90% confidence that there are less than 0.1 MEC per acre within the Demonstration Range MRS, 19.3 acres were required to be investigated with no MEC being found. The amount of area investigated during the RI was determined using UXO-Estimator, a tool designed to help support the assumption that an area was not used for concentrated munitions use. To have a sufficient area from which to work and to account for the possibility that access may not be obtained in all of the desired areas, the approved Work Plan established that an additional 18 acres of digital geophysical mapping (DGM) and analog survey would be required to supplement the existing 8 acres of DGM conducted during the SI. During the RI intrusive investigations, approximately 22 acres were intrusively investigated within the Demonstration Range MRS with no additional MEC being found. From these surveys, 1,548 DGM anomalies were identified and investigated as well as 696 anomalies from analog surveys. An intrusive investigation of the anomalies resulted in the identification of MD at 99 locations; however, no UXO was found. MD primarily consisted of debris from incendiary bombs (M50, M54, M74 bombs). The remaining MD was from 20mm Target Practice (TP) projectiles, M38A2 100-lb practice bombs, one M40 or M72 25-lb parachute fragmentation bomb, and unidentifiable munitions fragmentation. The only UXO found was during the 2009 SI fieldwork and consisted of one M54 4-lb incendiary bomb found at a depth of approximately 6 inches.

Sixty one soil samples were collected from within the Demonstration Range MRS during the RI and were analyzed for explosives and 12 metals (antimony, barium, cadmium, chromium, copper, lead, manganese, molybdenum, nickel, strontium, vanadium, and zinc). Soil samples were collected at a depth of 0 to 2 inches below ground surface and 10 to 12 inches below ground surface. One sample was collected at 10 to 12 inches below ground surface. The data from the sampling was used in a baseline MC risk assessment that 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, unacceptable human health and ecological risks are not expected at the Demonstration Range MRS.

### **5.3 Constituents of Concern**

No known contaminants or constituents of concern have been identified at the Demonstration Range MRS.

### **5.4 MEC Contamination**

The Demonstration Range was used by the Army Air Corps to conduct small arms training and Air Corps weapons demonstrations. The RI found MD related to M50 4-lb, M54 4-lb, M74 10-lb incendiary bombs, M38A2 100-lb practice bomb, 20-mm TP projectiles, AN-M40/M72 25-lb parachute fragmentation bomb, and a .30-caliber bullet on the surface and in the subsurface at the site. No additional MEC were found during the RI; however, one unexploded M54 4-lb incendiary bomb was found during the SI and was destroyed.

Based on the number of anomalies investigated and the relatively low density of MEC and MD, MEC at the Demonstration Range MRS are considered to be limited to isolated instances of UXO within the central part of the MRS.

## **6. CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES**

### **6.1 Land Uses**

In the 1950s, most of the area making up the former ORCY became a residential development. Over time, businesses were constructed along the main thoroughfares including Goldenrod Road and Lake Underhill Road. The Demonstration Range MRS has been completely developed with single-family residences and multi-family apartments. The MRS contains the following zones: R-1A (single family residential housing), R-2 (medium low density residential), and R-3 (medium density residential). All zones are expected to remain the same as the current use through 2030 (Orange County Property Appraiser, <http://www.ocpafl.org>).

### **6.2 Groundwater and Surface Water Use**

Much of the area is highly urbanized with surface water being directed through a stormwater sewer system into the natural or artificial drainage areas located on the site. Small drainage ponds exist throughout the FUDS, mostly under control of the Orange County Public Works. Two large drainage ditches extend through the site, one starting with its northern end adjacent to Capehart Park (in the central part of the ORCY FUDS) then flowing south. Another drainage ditch starts at the southern boundary of the Chickasaw Elementary School and parallels the north-south power line south of the school. The two ditches are connected by a drainage ditch traversing east-west through the middle of the Demonstration Range MRS. Two stormwater retention ponds exist in the apartment complex in the eastern portion of the Demonstration Range MRS. These ponds are not present on historical aerial photographs and are assumed to have been constructed concurrently with the apartments.

The surficial aquifer, or water table aquifer, is found where poorly consolidated clastic rock or unconsolidated sediments overlie the limestones and dolomites of the Floridan aquifer. The

thickness of the shallow aquifer is highly variable due to large variations in the thickness of sands. The shallow aquifer may directly overlie the Floridan aquifer, or they may be separated by confining beds. Recharge to the water table aquifer is almost entirely from local rainfall, except in those areas where it is hydraulically connected to the Floridan aquifer. Discharge from the shallow aquifer may be by downward percolation into the Floridan aquifer, seepage into streams, lakes, sinkholes, and pumpage from wells. The primary source of drinking water for Orange County Florida public water system consists of the Floridan aquifer (Orange County Utilities Annual Drinking Water Report 2011, <http://www.orangecountyfl.net>).

There are 170 documented water wells known to exist within a 4-mile radius of the ORCY (USACE, 2010). There are 11 wells reported within the ORCY boundary. Eight of these wells are classified as “other”, one is classified as “irrigation,” and two are classified as “domestic.” The depths to water in these wells are unknown.

During the collection of geophysical data during the 2009 SI fieldwork, the field crew noted two instances of residential wells, thought to be for gardening or irrigation use only. The operation of these wells could not be verified, nor was it known as to their depths. They were not thought to be for potable use, as water for this area is supplied from municipal water sources. A resident living near Capehart Park (i.e., north of the Demonstration Range MRS, 7104 Flanders) stated that, when built, every house in that neighborhood had a well option to water their grass, but that many people removed the wells.

## **7. SUMMARY OF SITE RISKS**

The RI for the Demonstration Range MRS indicated that there is a potential for human receptors to come into contact with MEC. During the SI, one UXO 4-lb incendiary bomb was found at a depth of 6 inches in the front yard of a home on Barksdale Drive. Based on the MEC and MD findings, the hazards are concentrated near the surface and decrease to a maximum depth of 36 inches. Only one UXO item was found and any other UXO that remain are thought to be limited to isolated occurrences through an approximate 45-acre area.

The MC Risk Assessment shows that unacceptable human health or ecological risks due to MC are not present at the Demonstration Range MRS.

Based on the results of previous investigations and the RI, no MC risks are anticipated for the current receptors. However, based on the UXO identified during the SI, there is a potential MEC hazard to current receptors. Consequently, an FS was completed to assess possible response action alternatives for addressing the issue at the Demonstration Range MRS.

## **8. REMEDIAL ACTION OBJECTIVES**

Remedial Action Objectives (RAOs) address the goals for reducing the MEC hazards 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 at the Demonstration Range MRS. 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 at the MRS.

Current land use at the MRS is residential with small parcels and an apartment complex. Future land use is expected to remain the same. Typical residential activities, in addition to potential future site construction activities, involve excavation for landscaping, fences, utilities, swimming pools, and other structures. These activities may expose residents and workers to subsurface MEC. Because of the potential for MEC to become exposed due to these activities, both surface and subsurface exposure pathways are considered potentially complete for human receptors at the Demonstration Range MRS.

### **Demonstration Range MRS RAOs**

MEC Hazards: MEC hazards have been identified in the form of M54 4-lb incendiary bombs. MD has been found as deep as 36 inches within the Demonstration Range MRS. The MD discovered at 36" was the body from a M74 10-lb incendiary bomb.

- Exposure Routes for MEC: Exposure pathways for MEC are considered complete for human receptors conducting activities at the surface and subsurface. Potential human receptors include:
  - Current residents, site visitors; and
  - Future residents, and commercial/industrial workers.
- RAO for Human Exposure to MEC in Subsurface Soil: Reduce the potential for human receptors to be exposed to hazardous MEC to a depth of 36 inches while conducting current and anticipated future land use activities (as described above).

Contaminants of Concern: No unacceptable risks to human health or the environment have been identified for MC for this 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 evaluated during the Feasibility Study and major components of each alternative are summarized below.

### **9.1 Description of Remedy Components**

#### ***Alternative 1: No Further Action Alternative***

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

***Alternative 2: Public Awareness Program***

- Development of educational fact sheets aimed at making the public aware of potential hazards and reducing the risk of exposure.
- Send letters with fact sheets to property owners and residents within the Demonstration Range MRS.

***Alternative 3: MEC Removal from Surface to Maximum Depth of UXO or MD*** 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 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 material documented as safe (MDAS);
- Restoration of excavation and detonation locations to original condition; and
- Implementation of a Public Awareness program (see Alternative 2).

***Alternative 4: Excavation, Sifting and Restoration***

- Removal of all vegetation, including tree cover, to facilitate excavating site soil;
- Removal of all of the soil within the area of concentrated MD so that it can be processed through a mechanical sifter to remove MEC and MD
- Detection and demilitarization of MEC by qualified personnel using accepted technology;
- Destruction of recovered UXO;
- Inspection and certification of MD for shipment offsite as MDAS;
- Restoration of site to original condition; and
- Implementation of a Public Awareness program (see Alternative 2).

## **9.2 Common Elements and Distinguishing Features of Each Alternative**

***Applicable or Relevant and Appropriate Requirements***

ARARs are not applicable to the selected remedy.

***Long-term Reliability***

Alternatives 3 and 4 are 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 awareness program. All alternatives except Alternative 1 require five-year reviews to verify that the remedies remain protective.

***Time Required for Implementation***

The USACE conducted a public outreach campaign during the SI and RI projects; therefore, time required to implement Alternative 2 would be minimal. Alternatives 3 and 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 2.

### **Quantity of Untreated Waste**

If MEC are encountered during implementation of Alternatives 3 or 4, it is expected that the munitions would be destroyed using blow in place procedures. It is not anticipated that MEC will be disposed off-site or managed on-site in a containment system.

## **9.3 Expected Outcomes of Each Alternative**

**Alternative 1: No Further Action Alternative:** Alternative 1 does not reduce potential current and future MEC exposure hazards, if present. The NCP requires the No Further 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: Public Awareness Program:** A Public Awareness program would focus on providing information on the areas containing the MEC hazards and the appropriate response if suspected UXO is encountered. These preventive measures would include educational fact sheets that have the goal of modifying behavior to reduce the risk of encountering MEC, to reduce the impact if an MEC encounter occurs, and to appropriately report the find. The fact sheets would contain information including which MEC hazards may remain at the site. Letters with updates would be provided on a periodic basis. The Community Relations Plan (CRP) would also be updated.

**Alternative 3: MEC Removal to Maximum Depth of UXO:** 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 45-acre area identified in the RI Report as the extent of the area with munitions debris.

The overall process would begin by obtaining written right-of-entry (ROE) from the landowners to allow access for the field work. Detection and identification of anomalies attributable to MEC are conducted primarily by DGM with mag-and-dig techniques used only in inaccessible areas (ditches, close to buildings, brushy 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 former ORCY, 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. As shown in Table 1, the depth of typical intrusive activities at the Demonstration Range MRS exceeds 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 36 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, parking areas, bodies of water, and structures. Munitions would be destroyed using Blown-in-Place (BIP) procedures.

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.

**Table 1  
 Recommended Depth of MEC Removal**

MRS	Current and Potential Future Intrusive Land Use Activities and Associated Maximum Depths (feet)	Recommended Depth of MEC Removal (Maximum Depth of UXO/MD Identified at MRS)
Demonstration Range	<p><u>Current:</u>                      Gardening and landscaping: 1-2                      Utility repair: 1-6                      Fence post installation: 1-2</p> <p><u>Potential Future:</u>                      Foundation excavation: 6-8                      Utility installation: 1-6                      Swimming pool construction: 6-8</p>	36 Inches

**Alternative 4: Excavation, Sifting and Restoration:** Excavation, sifting, and restoration involve excavation to remove MEC from the entire site. Rather than use metal detectors to identify specific subsurface metallic items and excavate them, this alternative would use mechanical excavation to remove all of the soil within the area and process the soil through a mechanical sifter to remove MEC and MD. The initial excavation depth for this alternative would be based on the maximum depth of known exposure pathways coupled with the maximum depth of UXO and MD found during the SI and RI (see Table 1). If the excavation has reached three feet and there is visual evidence that additional or potential MEC may be present at a greater depth, the excavation would continue until the area has been cleared. Under this alternative, all existing vegetation, including tree cover, would be cleared to facilitate excavating site soils. Typically, no geophysical survey would be performed for this alternative, since all soil would be excavated.

All excavated soils would be sifted by trained UXO technicians to identify MEC. Engineering controls or evacuation may be needed when working close to residences or other inhabited structures and roads. Excavation would not be conducted under existing roads, parking areas, bodies of water, and structures. If UXO is encountered, it is anticipated that the munition would be destroyed using BIP 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.

Residents who reside within the exclusion zone during work hours would be required to evacuate. Excavation and sifting work cannot be conducted if non-essential personnel remain within the exclusion zone.

Soils would be reused at the site for backfilling the excavations. Upon completion of backfilling, these areas would be re-vegetated and restored to their original condition.

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 public 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 yearly while the work is ongoing. Reports, fact sheets, and other information would also be placed in the information repository and website.

## **10. COMPARATIVE ANALYSIS OF ALTERNATIVES**

Alternative 4 was eliminated during the initial screening process due to excessive costs and the extensive site restoration that would be required because of the many residential parcels. The three remaining alternatives 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 Demonstration Range MRS is presented in Table 2. 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 – Public Awareness 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 \$245,700, which is significantly lower than Alternative 3.
- Alternative 3 - MEC Removal to Maximum Depth of UXO or MD with public awareness Program - 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 under pavement or structures, in areas where right-of-entry was not granted, or where residents refuse to evacuate. The estimated cost for Alternative 3 is \$1,722,100.

## **11. PRINCIPAL MEC/MC ISSUES**

A complete MEC exposure pathway is possible in the Demonstration Range MRS. The RI found 98 MD items related to M50-4lb, M54-4lb, M74-10 lb incendiary bombs, M38A2-100 lb practice bomb, 20 mm TP projectiles, AN-M40/M72 25-lb parachute fragmentation bomb, and a .30-caliber bullet on the surface and in the subsurface at the site. No MEC were found during the RI; however, one unexploded AN-M54 4-lb incendiary bomb was found and destroyed during the SI. 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 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 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 is, or will be, 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 2**  
**Comparative Analysis of Alternatives for the Demonstration Range MRS**

<b>Criteria</b>		<b>Alternative 1 - No Further Action</b>	<b>Alternative 2 – Public Awareness</b>	<b>Alternative 3 – Munitions Removal to Maximum Depth of Unexploded Munitions or Munitions Debris</b>
<b>Threshold Factors</b>	<b>Protectiveness</b>	Not Protective	Protective by modifying behavior if munitions are found.	Reduction in munitions. Allows for planned land use activities; supports land use associated with the Removal Action Objective.
	<b>Compliance with ARARs</b>	Not Applicable	Not Applicable	Not Applicable
<b>Balancing Factors</b>	<b>Reduction of Toxicity, Mobility, and Volume through Treatment</b>	No Reduction	No Reduction. Minimizes risk if munitions are found	Reduction of munitions; minimizes subsequent encounters with munitions
	<b>Short-Term Effectiveness</b>	No Impact	No risks imposed as part of implementation	Potential for accidental detonation of unexploded munitions during field operations.
	<b>Long-Term Effectiveness and Permanence</b>	Not Effective	Effective through maintenance of public awareness	More permanent remedy (for areas where removal can be completed); more readily supports unrestricted land use (i.e., the selected remedy will place no restrictions on the potential use of land or other natural resources).
	<b>Implementability</b>	Implementable	Implementable	Implementable
	<b>Cost</b>	<b>\$0</b>	<b>\$245,700</b>	<b>\$1,722,100.00</b>

**Table 2**  
**Comparative Analysis of Alternatives for the Demonstration Range MRS**

<b>Criteria</b>		<b>Alternative 1 - No Further Action</b>	<b>Alternative 2 – Public Awareness</b>	<b>Alternative 3 – Munitions Removal to Maximum Depth of Unexploded Munitions or Munitions Debris</b>
<b>Modifying Considerations</b>	<b>Community Acceptance</b>	No comments or objections relating to the alternative selection were received during the public comment period.	No comments or objections relating to the alternative selection were received during the public comment period.	No comments or objections relating to the alternative selection were received during the public comment period.
	<b>State Acceptance</b>	State acceptance is unlikely due to lack of risk reduction.	Accepted because risk is reduced.	Likely to be accepted because risk of exposure is reduced.

## **12. SELECTED REMEDY**

### **12.1 Summary and Description**

The Public Awareness Program Alternative is the Preferred Alternative. The USACE conducted public outreach during the SI and RI projects, and maintaining public awareness for the hazards that exist within the former ORCY can be facilitated by continuing these methods that have already been proven. In the case of the former ORCY, public meetings generally have a moderate attendance, so direct mailing of information to residents and landowners is also recommended. A public awareness program would focus on providing information on the areas containing the MEC hazards and the appropriate response if suspected UXO is encountered. The public awareness program will also provide materials that target children since the site contains mostly residential areas. Although previous projects in the area found that the Orange County Schools were reluctant to allow awareness programs at school, education materials for children can be provided through parents and the website. These preventive measures would include educational fact sheets that have the goal of modifying behavior to reduce the risk of encountering MEC, to reduce the impact if an MEC encounter occurs, and to appropriately report the find. Letters and fact sheets would be sent to landowners and residents on parcels in the Demonstration Range MRS. The fact sheets would contain information including which MEC hazards may remain at the site. Letters with updates would be provided on a periodic basis, corresponding with the five-year reviews. Five-year reviews are needed 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. This alternative includes costs for establishing and maintaining a website to provide information and project reports to the public. The CRP would also be updated periodically, such as in conjunction with the five-year reviews. The CRP provides the framework for public outreach activities that the 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.

### **12.2 Cost Estimate**

The 30-year total present worth cost of the public awareness program remedy is estimated to be \$245,700. An additional \$366,400 includes a budget to conduct recurring five-year reviews.

### **12.3 Estimated Outcomes**

With the implementation of the Selected Remedy – Public Awareness 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 Demonstration Range MRS is protective of human health and the environment and satisfies the statutory requirements of CERCLA §121(b). A Public Awareness 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 the Public Awareness 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); 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 unlimited use and unrestricted exposure (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 December 11, 2013. The Proposed Plan identified the Public Awareness Program as the Preferred Alternative. Comments from the public did not warrant any changes to the Proposed Plan.

### PART 3: RESPONSIVENESS SUMMARY

This Responsiveness Summary summarizes all comments for the Proposed Plan received from the public and FDEP regarding the preferred remedy and general concerns related to the Site.

#### 1. STAKEHOLDER COMMENTS AND LEAD AGENCY RESPONSES

Part 3 of this Decision Document describes the activities used to solicit community input. A public meeting was held on December 10, 2013 to present the Proposal Plan and obtain comments from the community. The meeting also initiated a 30-day public review period. Members of the public made comments during the meeting. No written comments were received during the 30-day review period. Letters, along with a Proposed Plan fact sheet were sent to all of the property owners within the former Range to invite them to the meeting, to explain the recommended alternatives and to encourage them to submit comments. A summary of the concerns raised by the public along with responses are provided below.

##### 1.1 Florida Department of Environmental Protection Comments

The FDEP concurs with the selected remedy.

##### 1.2 Public Comments

Comments were received from two members of the public and are presented below with responses.

Concern: A resident, who lives in the northern part of the Orlando Range and Chemical Yard, west of the Goldenrod Road Field site, expressed concern regarding his house sinking and wanted to know if anyone could answer any questions as to why the house is sinking.

Response: The military used the area for storage and chemical storage. There were no heavy excavation activities conducted in that area. Unfortunately, sink holes may occur and, houses and foundations settling are common in the area.

Concern: A resident expressed concern over two smoke grenades that were found on his property while working in the yard. After a call to 911, a specialty person came to remove these items. This person indicated the smoke grenades were live. There was concern about the possibility of a child finding these items. The resident asked if somebody could come and check the yard out.

Response: The area where the two items were found was not located in the area used by the military. It was unclear where those items came from. It is possible that those were put there after somebody had them as a souvenir and kept them.

Subsequent communication with the bomb squads for both the City of Orlando and Orange County could not locate any records of any response to the resident's address, nor

any record of any ordnance item being recovered from there.

2. **TECHNICAL AND LEGAL ISSUES**

None.

**ATTACHMENT**

Figure 1

Site Location  
Orlando Range and Chemical Yard  
Orlando, Florida

Legend

-  FUDS Property Boundary
-  Streets
-  MRS Boundary
-  Orlando City Boundary



Image Source: 2007 Orthophotos  
Projection: UTM Zone 17 NAD83, Units in Meters



PARSONS

U.S. ARMY CORPS  
OF ENGINEERS  
HUNTSVILLE CENTER

DESIGNED BY  
BT

DRAWN BY  
BT

CHECKED BY  
JC

SUBMITTED BY  
JC

**Orlando Range and Chemical Yard**

SCALE As Shown

PROJECT NUMBER  
747770.02000

DATE September 2013

PAGE NUMBER

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