

Draft Final

# Site Specific Chemical Warfare Materiel Scoping and Security Study Report

Formerly Used Defense Sites  
Site Inspection Report

*Prepared for:*



U.S. Army Engineering  
and Support Center  
Huntsville

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*Prepared by:*

**PARSONS**



South Atlantic Division Properties

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Orlando AAF, Toxic Gas Yard  
FUDS No. I04FL039600

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## **CHAPTER 1 INTRODUCTION**

### **1.1. BACKGROUND**

In accordance with Defense Environmental Restoration Program (DERP) guidance and project initiation requirements under the Formerly Used Defense Site (FUDS) program, the U.S. Army Corps of Engineers Jacksonville District (CESAJ) prepared an Inventory Project Report (INPR) to determine whether the former Orlando Army Airfield (AAF), Toxic Gas and Decontamination Yard is eligible as a FUDS. The former Orlando Army Airfield (AAF), Toxic Gas and Decontamination Yard was included in the inventory of FUDS as a site potentially containing Chemical Warfare Materiel (CWM). The FUDS project number for the former Orlando AAF is I04FL039600.

### **1.2. PROJECT OBJECTIVE**

1.2.1. The objectives of the CWM Scoping and Security Study (CWM Study) are to prioritize the FUDS eligible suspect CWM project properties (suspect CWM sites) for future funding and actions; involve the public, federal, state, tribal, and local stakeholders in the decision process for determining potential further action; and identify security and safety concerns. The process for evaluating the suspect CWM sites was developed in a manner consistent with FUDS Program Policy (ER 200-3-1) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process guidance and provides for a phased approach for determining which sites require further investigation.

1.2.2. This Site-Specific CWM Scoping and Security Study Report serves as the Site Inspection (SI) Report for the former Orlando AAF, Toxic Gas and Decontamination Yard. The SI Report addresses the safety and security issues regarding the past use of CWM and makes recommendations based on the available information and from previous investigations conducted at this site. The recommendations and associated costs to complete the work at the site, along with the information collected at the other suspect CWM sites, will be used to develop a comprehensive management plan for non-stockpile CWM at FUDS.

## **CHAPTER 2**

### **SITE DESCRIPTION**

#### **2.1. SITE LOCATION**

The former Orlando AAF, Toxic Gas and Decontamination Yard is located approximately three miles northeast of the Orlando International Airport, east of the City of Orlando, in Orange County, Florida. The general location of the former Orlando AAF, Toxic Gas Decontamination Yard is presented on Figure 2.1.

#### **2.2. PHYSICAL DESCRIPTION**

Most of the area comprising the former Orlando AAF, Toxic Gas and Decontamination Yard has been heavily developed with businesses along the eastern edge on Goldenrod Road and houses throughout the former decontamination yard area. The only undeveloped areas are the swamplands along the western side of the former decontamination yard area. The majority of the residences in the area consist of single-family, single-story dwellings.

#### **2.3. HISTORY AND PAST USE**

##### **2.3.1. History**

2.3.1.1. Between the period of 1943 through 1945, the United States acquired from various owners, by condemnation and lease, a total of approximately 2,111 acres in leasehold for the Orlando AAF, Toxic Gas and Decontamination Yard. A portion of the site referred to as real estate tract 51 was improved with a roadway, ordnance storage igloos, a storage warehouse, latrines, bleachers, and a few smaller buildings near the center of the tract. A small arms range was also developed in the southern area of the tract. The official start of operations at the former Orlando AAF, Toxic Gas and Decontamination Yard is unknown. In June 1946, much of the Orlando AAF, Toxic Gas and Decontamination Yard was declared excess except for six tracts of land and approximately 40 percent of tract 51. These six tracts and the portion of tract 51 were then referred to as the Pinecastle Army Air Field Ordnance Storage Area. In October of 1946, the Pinecastle AAF Ordnance Storage Area was declared excess. A document entitled "Warning Notice" notes that effective December 2, 1946, the Orlando Ordnance Storage Area, used by the AAF for a Toxic Gas and Decontamination Yard, was classified as surplus. A Certificate of Clearance issued in February 1950 stated that all land in tract 51, containing approximately 220 acres of the Toxic Gas and

Decontamination Yard, had been given a careful visual inspection and was declared clear of all dangerous and/or explosive materials reasonably possible to detect. It also recommended that this land be used for any purpose for which it was suited.

2.3.1.2. The former Orlando AAF, Toxic Gas Yard is believed to be the source of chemical munitions on planes flying out of nearby Pinecastle AAF and from planes flying out of the Orlando AAF. A considerable number of demonstrations and tests were held at the nearby Pinecastle Bombing Range, with more than one demonstration per month in the first half of 1945. A Real Property Utilization Inspection Report dated April 10, 1946 refers to the installation as Narcoosee Road Toxic Gas and Decontamination Yard of Orlando Army Air Base and lists the property size as 2,105.1 acres. The report stated that the site was used for instruction and training and that demonstrations were periodically given at the site. The report also stated that 2,000 square feet of closed storage space was 100 percent utilized and that 5,200 square feet of igloo space was 100 percent utilized. The Archives Search Report contained no record of what type or types of chemical munitions may have been stored at the site.

### **2.3.2. Previous Investigations**

2.3.2.1. The U.S. Army Corps of Engineers Jacksonville District (CESAJ) prepared an Inventory Project Report (INPR) for Orlando AAF in May 1993. This INPR included performing real estate searches and historical background searches specific to Orlando AAF in order to determine if the site was eligible under the FUDS program.

2.3.2.2. The U.S. Army Corps of Engineers, St. Louis District prepared an Archives Search Report (ASR) for Orlando AAF, Toxic Gas and Decontamination Yard in July 1993. Preparation of the ASR included a site visit, research at various archives and records holding facilities, and interviews with individuals associated with the site or familiar with its operations. Particular emphasis was placed on establishing the chemical agent or agents used at the site, the quantity of agent used at the site, and potential areas of disposal at the site. The ASR findings are summarized in Section 3 of this document.

### **2.3.3. Past Property Use**

The exact use of the approximately 2,111 acres comprising the former Orlando AAF, Toxic Gas and Decontamination Yard prior to acquisition by the DoD could not be established. Based on interpretation of a 1943 aerial photograph, the area appeared to be rural with very few structures and no evident crop farming or orchard operations in the area. No visible improvements were noted in the area where the ordnance bunkers and facilities were eventually constructed.

## **2.4. CURRENT AND FUTURE USE**

### **2.4.1. Current Use**

Most of the area making up the former Orlando AAF has been heavily developed with businesses along the eastern edge of Goldenrod Road and houses throughout the former yard area. The only undeveloped areas are the swamplands along the western side of the yard. The residences in the area consist mostly of single-family, single story dwellings that appear to be approximately 30 years old. A new county park was noted to be under construction during the site visit conducted in February 2004.

### **2.4.2. Future Use**

Future land use in the area is expected to remain as a mix of commercial, residential and recreational property.

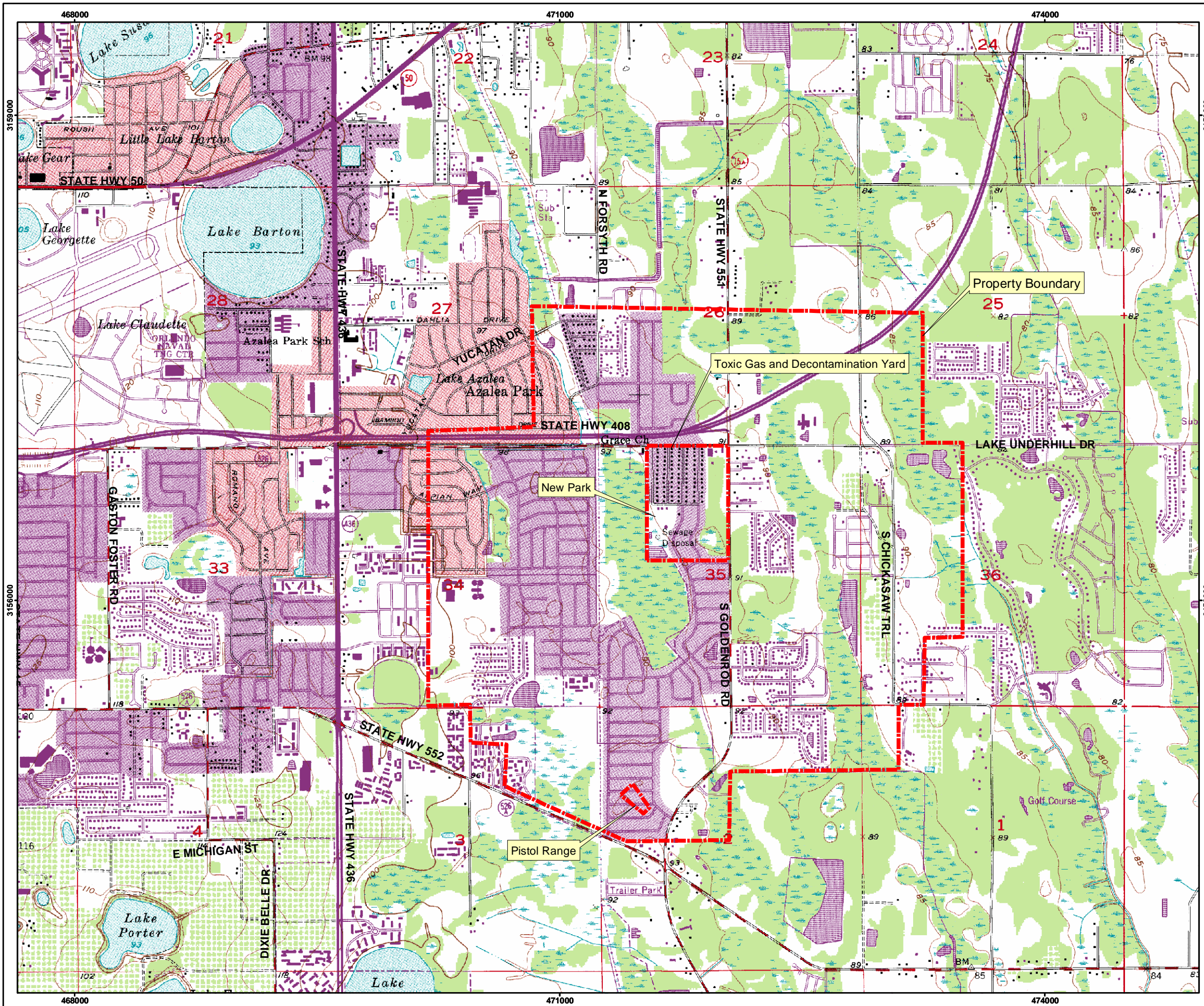


Figure 2.1  
Orlando Army Airfield  
Toxic Gas and Decontamination Yard  
(Topo Map 1980)

Orlando, Florida

**For Official Use Only**

### Legend


 Area of Interest



Image Source: USGS 7.5' Orlando East Topo Quadrangle, 1980.

Projection: UTM Zone 17 NAD83, Map Units in Meters, Distance Units in Feet.

2,000 1,000 0 2,000 Feet

PARSONS

U.S. ARMY CORPS  
OF ENGINEERS  
HUNTSVILLE CENTER

DESIGNED BY:  
BT

DRAWN BY:  
BT

CHECKED BY:  
JC

SUBMITTED BY:  
JC

### Orlando Army Airfield Toxic Gas and Decontamination Yard

SCALE: As Shown

DATE: September 2004

FILE: x:\CWM\_gis\Maps\  
Orlando\Fig2\_1.mxd

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742675

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## CHAPTER 3

### SITE EVALUATION

#### 3.1. INTRODUCTION

3.1.1. The CWM Study process for evaluating and characterizing the sites consists of a phased approach for determining which sites require further action. This approach is consistent with the Preliminary Assessment (PA) and Site Inspection (SI) phases of the CERCLA process.

3.1.2. The PA consists of historical records review, limited aerial photographic analysis, and site data collection. If the PA indicates further investigation is warranted, the site is evaluated in the next step of the process, the remedial SI. The SI may involve a site visit and surface inspection, mapping and spatial analysis, additional aerial photographic analysis, interviews with current landowners and local officials, and if warranted and feasible, geophysical surveys, intrusive investigation, and limited munitions constituent sampling. Based on the results of this additional evaluation, an appropriate response action is recommended.

#### 3.2. HISTORICAL RECORDS SUMMARY

Records review for the former Orlando AAF, Toxic Gas and Decontamination Yard consisted of reviewing the INPR, the ASR, and the list of Technical Escort Unit (TEU) Movement Reports. In addition to the reports referenced above, two documents published by the War Department in the 1940's were also reviewed. The first document is entitled *War Department Technical Manual TM 3-305, Use of Chemical Agents and Munitions in Training* and the second document is entitled *Disposition of CWS Items*.

##### 3.2.1. Archives Search Report

3.2.1.1. According to the ASR, no records could be found detailing the operations conducted at the former Orlando AAF, Toxic Gas and Decontamination Yard. Aerial photographs and real estate documents indicate that ordnance storage igloos, closed warehouses, other small buildings, bleachers, and latrines were constructed in a portion of the site. Figure 3.1 illustrates the former Orlando AAF, Toxic Gas and Decontamination Yard in 1999. The stated original purpose of the yard was for the School of Applied Tactics at Orlando AAF. The site was likely used for on-site chemical training and demonstrations as well as possibly providing the chemical munitions for the Pinecastle Bombing Range. The ASR also identified records showing that the Dugway

Mobile Chemical Warfare Service (CWS) Unit requested that an aircraft be made available at Orlando AAF to assist in the chemical bombing activities at the Withlacoochee Range. It was not clear if only a plane was needed, or if a plane loaded with chemical munitions was needed. The ASR also referenced a memorandum dated October 30, 1946 declaring the toxic yard to be an excess property and that the “toxic gas handling areas were being neutralized.” A Certificate of Clearance was issued on February 2, 1950 for a 220-acre portion of Tract 51, which was the area of the actual toxic gas yard. Soon after this, in the 1950’s, development of the area was begun. The ASR referenced the INPR for the Orlando AAF that stated city and county officials have had no complaints or reports of toxic materials related to the toxic gas yard.

3.2.1.2. Aerial photographs of the site from 1943, 1952, 1963, 1969, and 1990 were obtained and reviewed during the ASR. Analysis of these photographs shows a steady progression from undeveloped rural land to an intensely developed residential urban area. The ASR reported that on the 1943 photograph there were no developed features in the area of the gas yard. By 1952, the roadways, bunkers, buildings of the gas yard, and small arms range are evident. Analysis of the topography in the gas yard did not reveal any excavations or unusual features in the 1952 aerial photograph. Review of the aerial photograph from 1963 showed that heavy development occurred in the area of the gas yard from 1952 through 1963. In the 1963 photograph, the former gas yard area is almost completely covered by a subdivision.

### **3.2.2. List of TEU Movement Reports**

A listing of the TEU Movement Reports from 1944 to 1993 was reviewed for any references to the Orlando AAF Toxic Gas and Decontamination Yard. The TEU Movement Reports document the movement of CWM shipments from facility to facility. Two reports related to Orlando, Florida were included in the list of TEU Reports (Included in Appendix). A report dated September 13, 1944 documents a one-car shipment of ANM50 from Pine Bluff Arsenal, Arkansas to TAC in Orlando, Florida with an arrival date of September 17, 1944. Ordnance data sheets reviewed identify an ANM50 as a 4-pound incendiary bomb, which is not classified as CWM. A second report dated January 5, 1945 documents a one-car shipment of mustard from Huntsville, Alabama to the AAF Tech Center, Orlando, Florida with an arrival date of January 9, 1945. Although the reports do not specifically identify the Orlando AAF Toxic Gas and Decontamination Yard, the reference to TAC, Orlando and AAF Tech Center, Orlando are believed to be the former Orlando AAF. Two of the references in the ASR also suggest this; one is a 1944 map titled “AAFTAC and Orlando Army Air Base Layout Plan”; the other is titled 1945 Historical Data, 901<sup>st</sup> AAF Base Unit (Tactical Wing), AAF Tactical Center, Orlando, Florida, 1 January 1945 to 1 February 1945. Since the Orlando AAF, Toxic Gas and Decontamination Yard was the only known facility in Orlando with the capacity to store CWM; it is likely that the Orlando AAF was the destination of the shipments.

### 3.2.3. Report of Controlled Equipment

3.2.3.1. A Report of Controlled and Other Critical Items of Equipment for the AFTAC, Orlando, was found. Again, this location is interpreted to be the Orlando AAF, Toxic Gas and Decontamination Yard. The report was dated March 1, 1945 and is essentially an inventory list of CWM and related equipment. The equipment held on property account was categorized as either “On Hand” or “Loaned Out on Memo Receipt.” Table 3.1 lists the equipment.

3.2.3.2. A large amount of equipment was either authorized or on hand for this site, including decontamination equipment and airplane smoke tanks. M1 Detonating Gas Identification Sets, also known as Chemical Agent Identification Sets (CAIS) were on hand in March 1945. A full description of CAIS and their uses is provided in Chapter 3 of the CWM Scoping and Security Study Report. In addition, one Type D 1-Ton Steel Container was on hand. These containers were used to store bulk chemical agent or gases such as chlorine.

**Table 3.1**  
**Chemical Warfare Items**  
**(from Report of Controlled and Other Critical Items of Equipment, dated March 1, 1945)**

Item	Authorized	Items Held on Property Account (i.e. Assigned)	
		Number Currently On Hand	Number Currently Loaned Out on Memo Receipt
M4 Power-Driven Decontaminating Apparatus (400 gal.)	4	3	1
M1 3-gal. Decontaminating Apparatus	22	14	27
M2 1-½ qt. Decontaminating Apparatus	22	16	2
M1 Complete Crane Tractor	1	0	1
M1 Swinging Boom Crane Truck	1	0	1
M2 Chemical Handling Trailer	4	0	4
M1 Chemical Service Truck	5	0	5
4.2” Chemical Mortar	1	0	1
M1 (1-ton container) Grab Beam	2	0	2

**Table 3.1 (Continued)**  
**Chemical Warfare Items**  
*(from Report of Controlled and Other Critical Items of Equipment, dated March 1, 1945)*

Item	Authorized	Items Held on Property Account (i.e. Assigned)	
		Number Currently On Hand	Number Currently Loaned Out on Memo Receipt
M2 Airplane Smoke Tank Hoisting Beam	6	0	6
Type D 1-Ton Steel Container	1	1	0
M4 HS Vapor Detector Kit	4	20	1
M8 Universal Gas Mask Repair Kit	2	3	1
M3 Airplane Smoke Tank Filling Line	12	0	12
M2 Chemical Spray Tank Filling Line	10	0	10
M1 Valve Replacement Mechanism	2	0	2
M1 Maintenance & Repair Equipment Set	1	0	1
M1 Detonating Gas Identification Set		36-1/4	0
M1 Airplane Smoke Tank Carrying Stand	33	0	33
M5 Airplane Smoke Tank Holding Stand	65	65	0
M6 Airplane Smoke Tank Platform Stand	8	0	8
M10 Airplane Smoke Tank	121	94	1
M20 Airplane Smoke Tank	0	10	1
M21 Airplane Smoke Tank	0	10	1
M33 Airplane Smoke Tank	73	73	0
M1 Hand Tank Truck	0	9	0
M1A1 Portable Flamethrower	2	2	0
Gas Mask Diaphragm	0	16	0
Service Gas Mask	513	1283	261

### **3.2.4. War Department Technical Manual TM 3-305, Use of Chemical Agents and Munitions in Training**

3.2.4.1. Due to the lack of details on the operational history of the former Orlando AAF, Toxic Gas and Decontamination Yard, TM 3-305 was reviewed for information regarding common practices employed during training exercises involving chemical agents and munitions. TM 3-305 was published in June 1942 for officers and noncommissioned officers charged with training troops in defense against chemical attack and in the tactical use of chemical agents. The manual outlines procedures for conducting gas chamber exercises, identification of war gases, gas obstacle course exercises, and operations in contaminated areas. Specifics regarding these training practices are discussed briefly in the following paragraphs. Other exercises presented in TM 3-305 included first-aid exercises, miscellaneous exercises with tear gas, exercises with screening smokes, and exercises with incendiaries.

3.2.4.2. TM 3-305 divided the gas chamber exercises into four phases. The first two phases involved the use of the tearing agent chloroacetophenone (CN). A CN concentration was developed in the gas chamber by placing CN capsules on an inverted tin can heated by a candle. The manual specified the use of one capsule for every 1,000 cubic feet in the chamber. More capsules were added as needed during the exercises to maintain an effective concentration. Phases three and four involved the use of chlorine gas dispensed from portable chemical cylinder M1A2 or from a commercial cylinder.

3.2.4.3. Identification of war gases exercises involved the use of Instructional Gas Identification Set M1 (sniff set) and the Detonation Gas Identification Set M1. The "sniff set" consisted of seven wide-mouthed 4-ounce bottles, each with a stopper ground to fit. Each bottle was packed in a sawdust-filled metal container with the containers packed in sawdust-filled compartments of a wooden case 30 inches long, 14.25 inches wide, and 11 inches high. Four of the bottles contained activated charcoal with absorbed mustard (2 bottles), chloropicrin (1 bottle), and Lewisite (1 bottle). The remaining three bottles contained 6 grams of triphosgene, 15 grams of CN, and 15 grams of adamsite (DM). These sets were used primarily for indoor instruction prior to a field exercise with the detonation gas identification set.

3.2.4.4. The Detonation Gas Identification Set M1 contained 48 sealed 1-ounce pyrex glass ampoules, 1-inch in diameter and 7.5 inches long. The set contained 12 ampoules each of mustard (5% in chloroform), Lewisite (5% in chloroform), chloropicrin (50% in chloroform), and undiluted phosgene. Training exercises involving the Detonation Gas Identification Set M1 involved digging shallow holes located approximately 10 to 20 yards apart. The manual instructed the gases to be fired one at a time, using as many ampoules as required by the size of the class. Normally one ampoule was considered sufficient for a class of approximately 25 men. To prepare for firing, No. 8 detonators were fastened to each ampoule. One detonator was used with each

phosgene, chloropicrin, and Lewisite ampoule, and two were used with each mustard ampoule. Ampoules were placed in the holes with the detonator underneath so the explosion would throw the liquid into the air producing a better cloud of vapor. The students were instructed to walk into the vapor cloud after the explosion and to take just enough of a sniff to recognize the odor. At the completion of the demonstration, the manual stated that the area should be restricted for one day to prevent injury from contaminated vegetation. The manual also stated that broken glass and detonator wires should be raked up and buried.

3.2.4.5. Gas obstacle course training was designed to provide training in chemical reconnaissance and defense against chemical attack under simulated combat conditions. The gas obstacle contained six stations and included the use of mechanical smoke generators; CN grenades or CN tear pots; ampoules of chloropicrin and phosgene taken from detonation gas identification sets; simulated shell holes contaminated with mustard or Lewisite; and CN-DM grenades.

3.2.4.6. Operations in contaminated areas exercises were intended to make personnel respect blister agents rather than fear them. The manual specified that these exercises must be conducted in isolated areas, away from traffic of humans and domestic animals. The manual also stated that contaminated areas should be posted to a distance of 500 yards with large signs reading: "Poison gas – Keep out".

3.2.4.7. The passage through a contaminated area exercise consisted of several phases including filling of chemical land mines, tactical use of blister gases, chemical reconnaissance, detection, and passage through the area. The filling of chemical landmines operations was accomplished with the field filling apparatus M2 or other improvised equipment. The manual stated that full impermeable clothing and accessories should be worn by personnel engaged in this operation. The manual stated that three mines would be filled during the operation and that the remainder of the training group would stand at a safe distance upwind and observe the operation. Phase two of the operation involved the tactical use of blister agents using the three previously filled land mines to demonstrate techniques in the creation of a mustard barrier. The manual stated that since only three mines would be used, and since tactical considerations must be modified to suit training requirements, mines need not be spaced as they would in an actual barrier. After tactical and technical considerations were explained to the training group, the trainees were moved approximately 200 yards upwind and the mines were exploded. The remainder of the training consisted of identifying and marking the contaminated area, demonstration of detection devices, passage through the contaminated area, and decontamination of two small portions of the contaminated area. The manual stated that if the exercise was properly isolated and posted with warning signs, the area that was not decontaminated during the training exercise could be left to weather.

3.2.4.8. Other training conducted as part of the operations in contaminated areas consisted of decontamination of buildings and decontamination of metal equipment. The manual stated that organizations equipped with a power-driven decontaminating apparatus M3A1 or M4 may use it on buildings, both exterior and interior. It also stated that brooms and brushes were also needed to scrub slurry into the floors and walls. Since the slurry needed to remain on the building for 12 to 24 hours, no flushing was recommended during the exercise but the value of the apparatus for flushing should be explained. The use of an earth-bleach mixture on heavily contaminated floor areas was also mentioned, with the mixture being removed and buried after it had served its purpose. During the decontamination of metal equipment, the manual stated that mustard would be applied using a spray or by hand pouring the agent onto obsolete or unserviceable pieces of equipment such as guns, machinery, or vehicles. The decontamination consisted of one squad preparing a non-corrosive decontaminating agent (DANC), another squad applying the DANC, and a third squad preparing a soap and water emulsion and washing off the DANC.

### **3.2.5. Disposition of CWS Items**

The document entitled, Disposition of CWS Items, dated July 15, 1946, described approved methods of disposal and destruction for various items of the Chemical Warfare Service (CWS). The method of destruction for CAIS and for drums of mustard was burning in a shallow pit. Alternatively, the mustard could be dumped at sea.

## **3.3. SITE INVESTIGATIONS PERFORMED**

U.S. Army Engineering and Support Center, Huntsville (USAESCH) conducted a site visit to the former Orlando AAF, Toxic Gas and Decontamination Yard on February 9, 2004 to evaluate current site conditions and to confirm the findings of the ASR. The site visit team recorded data using a combination of maps, a global positioning system (GPS) receiver, field book, and digital camera. The GPS was preloaded with points of interest and was used to record new waypoints of interest and to record a trackplot of the traverse of the site visit team. The activities, findings, and conclusions of the site visit are summarized below. A copy of the Orlando AAF, Toxic Gas and Decontamination Yard Site Visit Letter Report is presented in the Appendix.

- The team drove to the former Orlando AAF, Toxic Gas and Decontamination Yard located approximately 3 miles to the northeast of the Orlando International Airport.
- Most of the area has been heavily developed with businesses along the eastern edge on Goldenrod Road and houses throughout the former yard area.
- The only undeveloped areas are swamplands along the western side of the yard. The residences consist mostly of single-family, single-story dwellings that look to be at least 30 years old. Driving through the area, the team noticed

construction in the form of road repairs (replacement of sections of the concrete slab) and the construction of a new county park in the southwestern section of the former yard.

- The site visit team met with Dan Baumer, the site manager for D&D Tree Landscape, Hardscape, and Irrigation Construction Co. D&D Tree is the general contractor for the park.
- The construction workers had not encountered any military-related items during the construction on the 11-acre property.
- The work included excavation for a couple of ponds to the depth of about 5 feet, the construction of the lift station to a depth of over 20 feet, and various other foundations and holes.
- They also removed about 10 “dumpsters” full of construction rubble. There were also some pits with household trash and some hot water heaters and car axles on the surface. The park includes a building and a cell phone tower. The park is scheduled to be open by April 1, 2004. The team walked the part of the park that was away from active construction work.
- No evidence of CWM was encountered during the site visit. While documentation exists that training with CWM and storage of CWM occurred at Orlando AAF, Toxic Gas and Decontamination Yard, there is no evidence of disposal or burial of CWM on site.
- The entire area where the Toxic Gas and Decontamination Yard stood has been developed with houses, businesses and, now, a county park.

### **3.4. SOURCE, NATURE AND EXTENT OF CWM**

The results of the SI indicate that CWM was used for training and demonstration at the former Orlando AAF, Toxic Gas and Decontamination yard; however, no records could be found detailing the specific operations conducted at the facility. Records regarding the shipment and use of CWM are incomplete, so no determination can be made as to whether there is a potential source of CWM. Therefore, the nature and extent of any remaining CWM cannot be determined. No evidence has been found indicating CWM spills, accidents, or cleanup occurred at the former Orlando AAF. The results of the site inspection indicate that the area has been extensively developed with no reports of encountering any CWM or CWM related items. A Certificate of Clearance was issued in February 1950 for the area comprising the former Toxic gas yard, which included the ordnance storage igloos and the storage warehouse. The Certificate of Clearance recommended that the land be used for any purpose.

### **3.5. RISK EVALUATION**

3.5.1. The potential for a CWM safety risk depends on the presence of three critical elements: a source (presence of CWM), a receptor, and an interaction between source and receptor. There is no risk if any one of these three elements is missing.

3.5.2. The use of CWM at former Orlando AAF, Toxic Gas and Decontamination Yard likely involved the storage and handling of bulk chemical agent. The risks consist of bulk CWM remaining at the site as a possible source. The risk is mitigated by:

- Historical records providing no documentation of any disposal areas of CWM;
- The area has been extensively developed with no reports of encountering any CWM or CWM related items;
- Any areas that were agent-contaminated areas were neutralized previously;
- A Certificate of Clearance was issued in February 1950 for the area comprising the former Toxic gas yard which included the ordnance storage igloos and the storage warehouse; and
- The Certificate of Clearance recommended that the land be used for any purpose.

A relative risk scoring is provided in Chapter 8 as part of the site prioritization.

### **3.6. SECURITY EVALUATION**

The security risk for the former Orlando AAF site is based on the possible types of CWM present, location, if present, and the accessibility. The site presents a low security risk based on the facts that no location for suspect CWM is known, the area has been extensively developed and subsurface access is restricted by buildings, parking lots, and roadways. Chapter 7 provides a security risk scoring and a more detailed discussion.

### **3.7. PUBLIC INVOLVEMENT**

A Public Involvement Plan for the former Orlando AAF, Toxic Gas and Decontamination Yard will be prepared as part of this study. As part of this document, a fact sheet for this site has been prepared to provide information to stakeholders and the public and is included in the Appendix of the document.

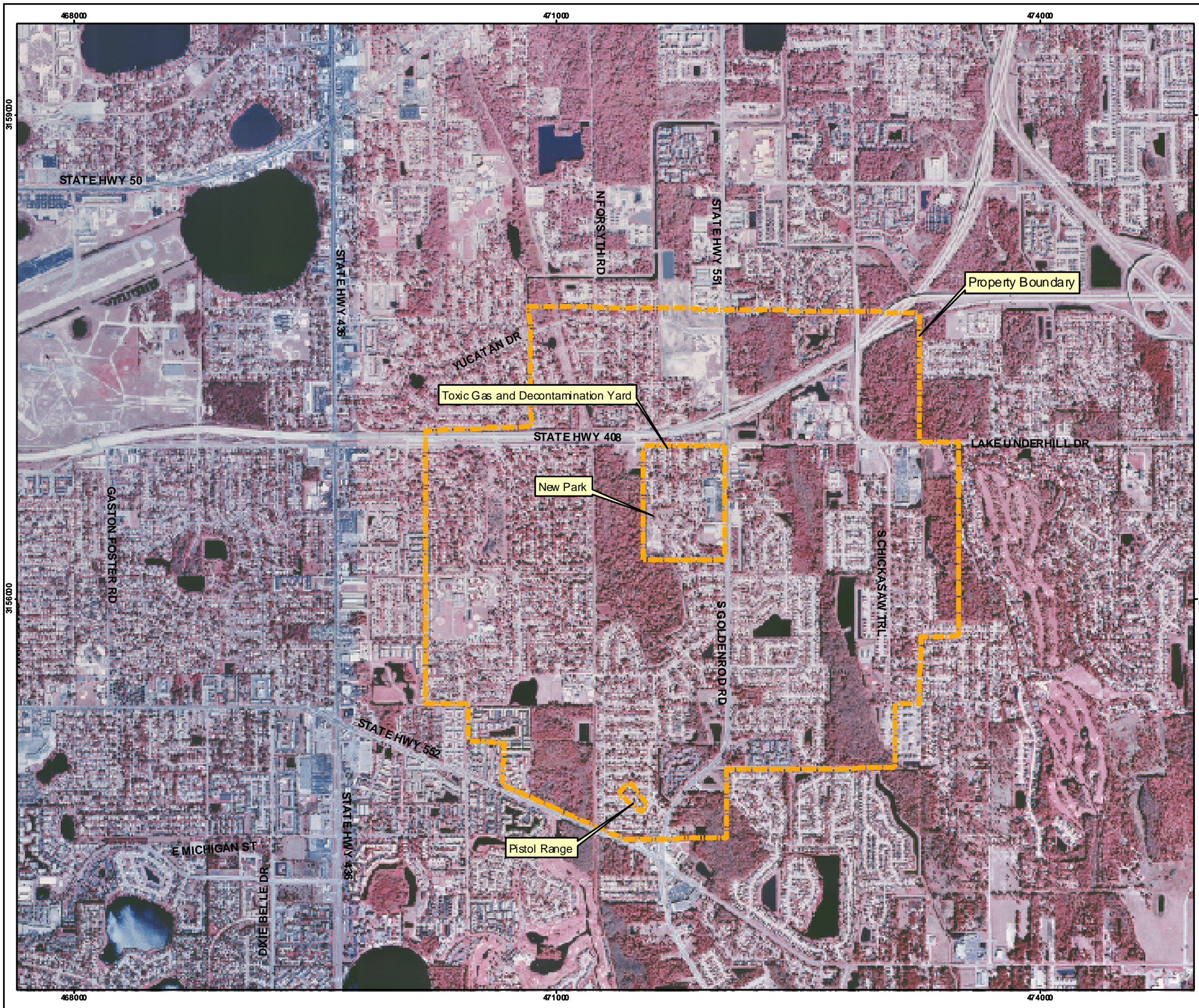


Figure 3.1  
Orlando Army Airfield  
Toxic Gas and Decontamination Yard  
(Aerial Photo, 1999)

Orlando, Florida

For Official Use Only

Legend

Area of Interest



Site Location in Florida

Image Source: USGS Orlando East Orthophoto, 1999.

Projection: UTM Zone 17NAD83, Map Units in Meters, Distance Units in Feet.



PARSONS

U.S. ARMY CORPS  
OF ENGINEERS  
HUNTSVILLE CENTER

DESIGNED BY: BT	<b>Orlando Army Airfield Toxic Gas and Decontamination Yard</b>		
DRAWN BY: BT			
CHECKED BY: JC	SCALE: As Shown	PROJECT NUMBER: 742675	
SUBMITTED BY: JC	DATE: September 2004	PAGE NUMBER:	
	FILE: x:\CWM_gis\gis\Mapsl\OrlandoFig3.1.mxd		

## **CHAPTER 4**

### **RECOMMENDED ACTIONS**

#### **4.1. INTRODUCTION**

4.1.1. The following actions were evaluated to determine the next step:

- Further Action:
  - SI;
  - Removal Response;
  - Remedial Investigation/Feasibility Study (RI/FS);
  - Remedial Action; and
  - Long-Term Management (LTM).
- CWM Project Closeout (PCO).

4.1.2. The text below provides the recommended action for the former Orlando AAF, Toxic Gas and Decontamination Yard. Figure 4.1 shows the site evaluation flowchart for the former Orlando AAF, Toxic Gas and Decontamination Yard.

#### **4.2. RECOMMENDATIONS**

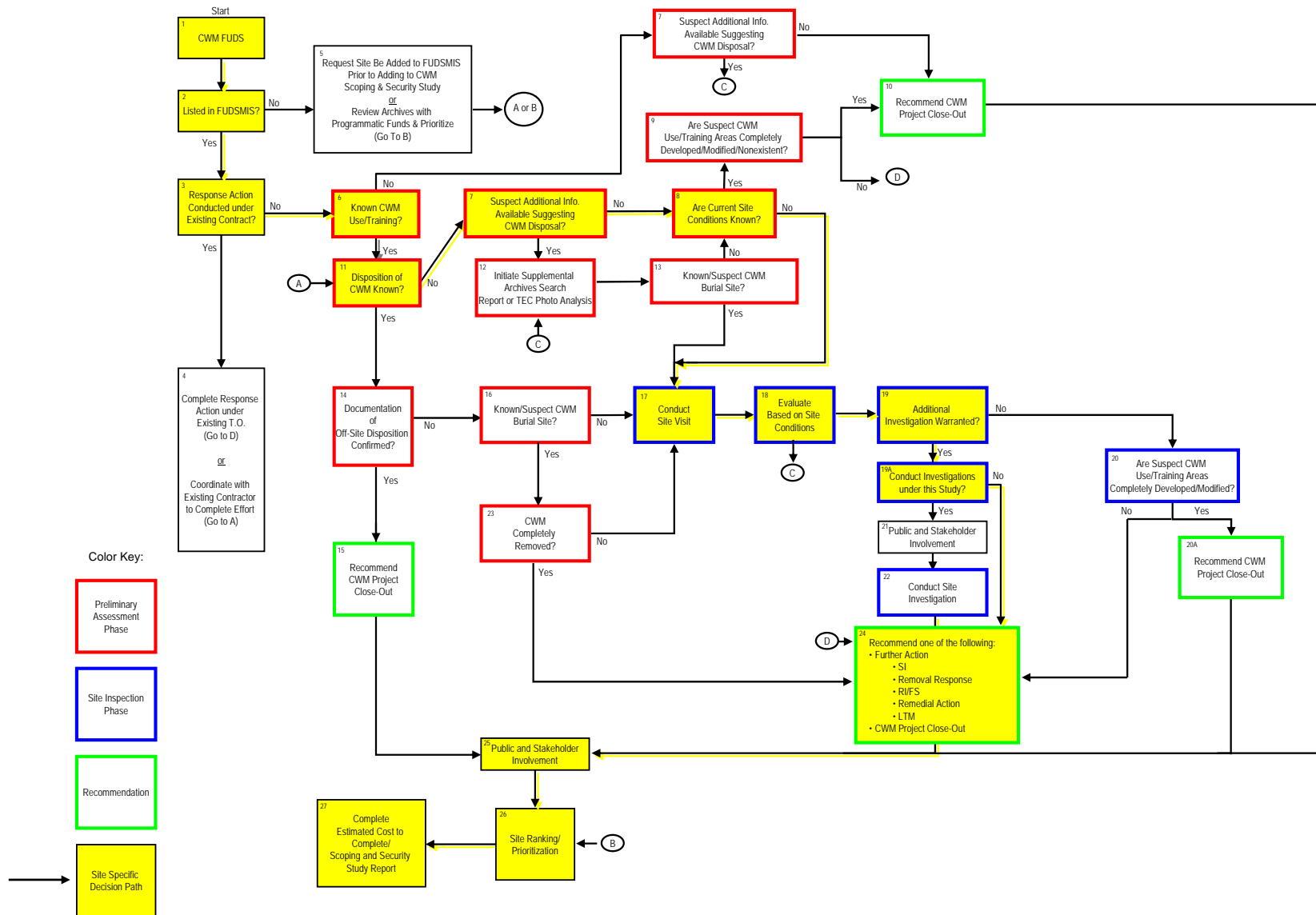
4.2.1. Specific areas of potential CWM contamination were not identified during evaluation of the former Orlando AAF, Toxic Gas and Decontamination Yard during the SI. Nor is there any documented record or knowledge concerning discovery of CWM during previous construction activities conducted in the area of the former gas yard. Historical records for the former Orlando AAF, Toxic Gas and Decontamination Yard are incomplete and do not include information on the final disposition of the mustard identified in the TEU Movement Report. The former Orlando AAF and specifically the area of the former gas yard have been extensively developed, thereby limiting the potential for undiscovered CWM to remain at the site.

4.2.2. Additional investigation under the SI phase is recommended for the Toxic Gas and Decontamination Yard in order to make a determination concerning the potential presence of CWM and need for any further action. Prior to conducting a field investigation of the facility, it is recommended that the U.S. Army's Topographic Engineering Center (TEC) conduct a historic photograph analysis (HPA) of the former Orlando AAF to identify potential investigation areas. The field investigation of the area

will include the collection of soil, groundwater, and surface water samples to fill data gaps and complete the SI phase of the investigation. Due to the heavy development of the former Toxic Gas and Decontamination Yard, geophysical investigation of the area is not feasible unless the HPA identifies a suspect area in a location that remains undeveloped. If a suspect area is identified and a geophysical survey can be performed, identified anomalies will be intrusively investigated to characterize the source of the anomaly.

4.2.3. Following confirmation that all soil, groundwater, and surface water samples are non-detect, the recommendation for the former Orlando AAF, Toxic Gas and Decontamination Yard will be CWM PCO and removal from the project inventory, as historical records reviewed have not identified any reports of CWM contamination or potential areas of CWM disposal that have not already been addressed. The PCO recommendation pertains only to CWM concerns at the site and does not address other potential hazards that may require further action. In the event that CWM contamination is found in the future, USACE will re-evaluate the site status and implement the appropriate response action.

Figure 4.1 Orlando AAF Evaluation Decision Flowchart



## **CHAPTER 5**

### **PROJECTED WORK TO COMPLETE**

The work necessary to complete the site will consist of:

- Continuation of the SI to include soil, groundwater, and surface water sample collection. Geophysical surveys will be conducted if an investigation area is identified through the HPA and the identified area remains undeveloped.
- CWM Project Closeout.

#### **5.1. SI PHASE**

5.1.1. The work to be performed at this site consists of conducting a SI. The SI will involve the collection of soil, groundwater, and surface water samples for the analysis of chemical agents and agent breakdown products. If a suspect area is identified through the HPA and the area remains undeveloped and accessible, a geophysical survey and intrusive investigation of geophysical anomalies will be performed. A public information session will be conducted prior to the beginning of any field work to inform the communities of planned investigations and address any concerns.

5.1.2. Due to the heavy development of the former Toxic Gas and Decontamination Yard, the performance of geophysical surveys during the SI is considered unlikely. However; if an area is identified through the HPA and is accessible for geophysical survey activities, an initial phase of limited brush clearing and surface preparation may be required. The second phase will consist of geophysical surveys over the identified area(s), followed by intrusive investigation of anomalies. Intrusive investigation will be conducted with air monitoring by the Edgewood Chemical Biological Center (ECBC) and with field support by the U.S. Army Technical Escort Unit, as necessary. Emergency support will be provided by an on-site ambulance and a local hospital with staff trained in chemical agent casualty care.

5.1.3. The recovery of CWM items will necessitate emergency destruction of items recovered. Costs will include mobilization of destruction equipment provided by the Product Manager for Non-Stockpile Chemical Materiel (PMNSCM). The intrusive investigation will cease once a single item is recovered and destroyed.

5.1.4. If no areas are identified for geophysical surveys; soil, groundwater, and surface water samples will be collected at locations to be determined in the field based on reconnaissance of the site.

## **5.2. CWM PROJECT CLOSEOUT**

Following completion of the SI, CWM PCO will be conducted for the site. PCO will involve formal state regulatory concurrence and stakeholder coordination. Stakeholders include property owners and local officials. Project Closeout will consist of issuing a public notice of the recommendation, contacting local officials and property owners, and sending a letter to regulators for concurrence. If it is determined that the Orlando AAF site no longer poses a risk, CWM PCO will be achieved.

## **5.3. SCHEDULE TO COMPLETE**

The SI and public information session will be completed in Year 1. CWM PCO will occur in Year 2, following completion of the SI.

## **CHAPTER 6**

### **COST-TO-COMPLETE**

#### **6.1. INTRODUCTION**

The USAESCH was tasked to develop a cost-to-complete for each suspect CWM site under this study. This Chapter provides the estimated cost-to-complete the project as defined by the scope of work recommended in Chapter 5. The factors that were included in the costs are listed below.

#### **6.2. COST BASIS**

6.2.1. Standard costs were used to create the estimated cost-to-complete for this project. Table 6.1 shows the costs for the various work activities.

6.2.2. The estimated costs include funding for the contractors, supporting agencies, and the USACE. The prime contractor will coordinate, conduct, and document all of the activities including the training sessions, recurring reviews, and meetings. It is assumed that the USACE work will be managed by the USAESCH with support for document review, stakeholder involvement, and meetings by the USACE District.

#### **6.3. COST-TO-COMPLETE SUMMARY**

The total cost-to-complete for CWM at the former Orlando AAF, Toxic Gas and Decontamination Yard is estimated to be \$1,902,400. Table 6.1 provides a summary of the cost broken down by phase. The primary uncertainties in the cost estimate are:

- The unknown quantity of CWM that may be recovered at the site, and
- Variability in the cost of executing the activities planned including the estimate for inflation, economic factors, and regulatory changes.

**Table 6.1**  
**Estimated Cost-to-Complete**  
**Former Orlando AAF, Toxic Gas and Decontamination Yard**

Phase	Phase Description	Contractor Cost	Government Cost						Task Total Cost
			Huntsville	District	TEU	ECBC	USATCES	USACHPPM	
<b>SI</b>	<b>Site Inspection</b>	\$870,100	\$179,700	\$72,400	\$245,000	\$491,900	\$5,700	\$5,700	\$1,870,500
<b>RD</b>	<b>Remedial Design</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>RA-C</b>	<b>Remedial Action - Construction</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>LTM</b>	<b>Long Term Management</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>PCO</b>	<b>Project Close-out</b>	\$8,000	\$5,600	\$18,300	\$0	\$0	\$0	\$0	\$31,900
<b>CTC</b>	<b>Total Cost-To-Complete</b>	<b>\$878,100</b>	<b>\$185,300</b>	<b>\$90,700</b>	<b>\$245,000</b>	<b>\$491,900</b>	<b>\$5,700</b>	<b>\$5,700</b>	<b>\$1,902,400</b>

Notes:

Costs presented are rounded to the nearest 100 dollars

## **CHAPTER 7 SECURITY RANKING**

### **7.1. INTRODUCTION**

7.1.1. The former Orlando AAF, Toxic Gas and Decontamination Yard has been evaluated in terms of the site-specific security risks. The security ranking is a component of the overall ranking process for the sites and those security-related elements of the ranking system are discussed in this chapter.

7.1.2. The primary security concern associated with these sites is the risk of the public being exposed to CWM or CWM being recovered by someone intending to use it to do harm. A quantitative risk-scoring procedure was used to establish the relative security risk at the former Orlando AAF, Toxic Gas and Decontamination Yard. The scoring is based on the information collected during this project including records review, site visits, and interviews.

### **7.2. SECURITY SCORING**

The security scoring is based on two data elements from the CWM Hazard Evaluation (CHE) module of the proposed DoD Munitions Response Site Prioritization Protocol (MRSP). The two elements are Information on the Location of CWM and Ease of Access. The scores below are assigned based on which descriptions were selected based on site data. A copy of the MRSP site ranking score sheet is provided in the Appendix.

#### **7.2.1. Information on the Location of CWM**

The potential for CWM remaining at the former Orlando AAF, Toxic Gas and Decontamination Yard is based on the historical documentation of its use and storage at the facility. No historical documentation was found that indicates its final disposition or complete use. The current site conditions indicate that the site is completely developed with residential units, parking areas, and swamp area, all of which constitute physical barriers to subsurface excavation. The Information on the location of CWM is classified as Subsurface (with Physical Constraint) based on historical evidence with a score of 2.

#### **7.2.2. Ease of Access**

With the exception of permanent swamp areas, former Orlando AAF, Toxic Gas and Decontamination Yard has been completely developed. The former toxic gas yard area

now consists of a subdivision, park and commercial areas. The area is considered accessible to the public with no restrictions; however, the commercial and residential structures, parking areas, roadways, and a county park and in the area would limit intrusive investigations to much of the area. The Ease of Access factor is scored as an 8 based on barriers preventing access to only portions of the site.

**7.2.3. Total Security Ranking Score**

The sum of the various security factors for the former Orlando AAF, Toxic Gas and Decontamination Yard is 10 out of a maximum possible score of 35.

## **CHAPTER 8**

### **CONCLUSIONS AND FINAL RANKING**

#### **8.1. CONCLUSIONS**

Review of the data for the former Orlando AAF, Toxic Gas and Decontamination Yard indicates that CWM was used for training and demonstration; however, no records were located detailing the specific operations conducted at the facility. Records indicate that CWM may have been stored at the site as evidenced by the TEU Movement Report identifying a one railcar shipment of mustard to the facility. A Certificate of Clearance was issued in February 1950 for the area comprising the former toxic gas yard which included the ordnance storage igloos and the storage warehouse. The former Orlando AAF and, specifically, the toxic gas yard area have been extensively developed with no reports of encountering any CWM or CWM related items. Since there are no records indicating the final disposition of the CWM potentially used or stored at the site, the possibility exists that CWM may remain. The recommendation for the former Orlando AAF, Toxic Gas and Decontamination Yard is further action in the form of an SI.

#### **8.2. SITE RANKING**

##### **8.2.1. Previous Ranking Systems (RAC Scores)**

A Risk Assessment Code scoring for the former Orlando AAF, Toxic Gas and Decontamination Yard was conducted in July 1993 by the USACE St. Louis District as part of the ASR. The RAC was 5 recommending no further action for the site.

##### **8.2.2. Overall CWM Site Ranking**

Site ranking was performed for former Orlando AAF, Toxic Gas and Decontamination Yard using the DoD Munitions Response Site (MRS) Prioritization Protocol CHE Module. Evaluations were performed based on the historical and site data collected on this site. The categories of evaluation are whether CWM is known or suspected including Configuration of CWM, Sources of CWM, Information on the Location of CWM, Ease of Access, Population Density, Population near Potential Hazards, Local Activities, and Structures, and Natural and Cultural Resources. Table 8.1 shows the scores for former Orlando AAF, Toxic Gas and Decontamination Yard and a report of the module results is included in the Appendix. The bases for these scores are presented in the paragraphs below.

#### **8.2.2.1. CWM Configuration**

The only CWM documented at the former Orlando AAF, Toxic Gas and Decontamination Yard was the shipment of one car of mustard identified in the TEU Movement Report. No other historical documentation regarding the type of CWM potentially used at the former toxic gas yard could be located. The CWM Configuration classification is interpreted to be bulk CWM with a score of 15 points.

#### **8.2.2.2. Sources of CWM**

Information presented in the ASR indicated that on-site chemical training and demonstrations were conducted at the former toxic gas yard. There were also indications that the former Orlando AAF, Toxic Gas and Decontamination Yard. The Sources of CWM classification is considered a training facility using CWM for a score of 2 points.

#### **8.2.2.3. Information on the Location of CWM**

The potential for CWM remaining at the former Orlando AAF, Toxic Gas and Decontamination Yard is based on the historical documentation of its use and storage at the facility. No historical documentation was found that indicates its final disposition or complete use. The current site conditions indicate that the site is completely developed with residential units, parking areas, and swamp area, all of which constitute physical barriers to subsurface excavation. The Information on the location of CWM is classified as Subsurface (with Physical Constraint) based on historical evidence with a score of 2.

#### **8.2.2.4. Ease of Access**

With the exception of permanent swamp areas, former Orlando AAF, Toxic Gas and Decontamination Yard has been completely developed. The former toxic gas yard area now consists of a subdivision, park and commercial areas. The area is considered accessible to the public with no restrictions; however, the commercial and residential structures, parking areas, roadways, and a county park and in the area would limit intrusive investigations to much of the area. The Ease of Access factor is scored as an 8 based on barriers preventing access to only portions of the site.

#### **8.2.2.5. Status of Property**

The former Orlando AAF, Toxic Gas and Decontamination Yard is a FUDS. The score for the Status of Property classification is 5 for non-DoD control.

#### **8.2.2.6. Population Density**

Based on the U.S. Census Bureau data for the 2000 Census, the population density for Orange County exceeds 500 persons per square mile resulting in a ranking score of 5.

**8.2.2.7. Population Near Hazard**

The number of occupied structures on and within 2 miles of the property exceeds 26 giving a score of 5.

**8.2.2.8. Types of Activities/Structures**

Residential and commercial activities occur on and near the former Orlando AAF giving the Types of Activities/Structures factor a score of 5.

**8.2.2.9. Ecological and Cultural Resources**

Wetland areas are located at the former Orlando AAF, Toxic Gas and Decontamination Yard property. Wetlands qualify as ecological resources giving a score of 3. No cultural resources have been documented for the area.

**8.2.3. Overall Ranking**

The sum of all of the various ranking scores for the former Orlando AAF, Toxic Gas and Decontamination Yard is 52 out of a maximum possible score of 100, which results in a Rating of E.

**Table 8.1**  
**Site Ranking for Former Orlando AAF, Toxic Gas and Decontamination Yard**

Category	Classification	Description	Score
<b>CWM Configuration</b>	Bulk CWM	The CWM known or suspected of being present at the property may include bulk CWM (1-Ton container)	15
<b>Sources of CWM</b>	Training Facility using CWM	CWM used in training and demonstration, possibly supplied chemical munitions for nearby bombing range.	2
<b>Information on the Location of CWM</b>	Suspected (historical evidence)	Historical documentation that CWM was shipped to the site, physical constraints present to restrict subsurface access	2
<b>Ease of Access</b>	No Access Barrier(s)	There are no barriers preventing access to the property.	10
<b>Status of Property</b>	Non-DoD Control	This is a FUDS.	5
<b>Population Density</b>	> than 500 persons per square mile	Population density of Orange County based on 2000 Census data	5
<b>Population Near Hazard</b>	26 or more structures	More than 26 inhabited structures within 2 miles	5
<b>Types of Activities/Structures</b>	Residential and Commercial	Many residences exist within 2 miles	5
<b>Ecological and Cultural Resources</b>	Ecological Resources Present	Wetlands exist on the property.	3
		<b>Total Ranking Points</b>	<b>52</b>
		<b>Rating Classification</b>	<b>E</b>

## CHAPTER 9

### REFERENCES

- U.S. Army Corps of Engineers, St. Louis District, 1993. *Archives Search Report, Orlando Army Air Field, Toxic Gas and Decontamination Yard*, Orlando, Florida, Orange County, Site No. I04FL039600, July 1993.
- U.S. Army Corps of Engineers, Jacksonville District, 1993. *Defense Environmental Restoration Program, Formerly used Defense Sites, Inventory Project Report, Orlando Army Air Field, Toxic Gas and Decontamination Yard*, Orlando, Florida, Orange County, Site No. I04FL039600, May 1993.
- U.S. Army Technical Escort Unit, 1993. List of TEU Trip Reports, September 13, 1944.
- U.S. Army Technical Escort Unit, 1993. List of TEU Trip Reports, January 5, 1945.
- War Department, 1944. *War Department Technical Manual TM 3-305, Use of Chemical Agents and Munitions in Training*, June 2, 1944.
- War Department, 1945. Report of Controlled and Other Critical Items of Equipment, Station Name AFTAC, Orlando, FL. 1 March 1945.
- War Department, 1946. Disposition of CWS Items, July 15, 1945.

# REPORT OF CONTROLLED AND OTHER CRITICAL ITEMS OF EQUIPMENT

(Fill in only blank spaces which are applicable)

Air Force or  
Similar Command **AAPTAC ARMY AIR BASE** Platoon \_\_\_\_\_  
Sub-Command **SUPERVISOR OF SUPPLY** Detachment \_\_\_\_\_  
Wing or Regiment \_\_\_\_\_ Arm or Service **CHEMICAL WARFARE SERVICE**  
Group, Battalion or Depot \_\_\_\_\_ Station Name **AFTAC, ORLANDO, FLORIDA.**  
Squadron, Company, **AAF8580C** Date of Report **1 MARCH 1945**  
Unit or Sub-depot \_\_\_\_\_

## A. CHEMICAL WARFARE ITEMS

108A Index	Item	Serial Number or W. D. Registration number	Author- ized	Items Held on Property Account (i.e. Assigned)	
				Number Currently On Hand	Number Currently Loaned Out On Memo Receipt
(1)	Apparatus, decontaminating, power-driven M3A1 (400 gal.)		0	0	0
(2)	Apparatus, decontaminating, power-driven M4 (400 gal.)	List attached	4	3	1
(3)	Apparatus, decontaminating, 3 gal., M1		22	14	27
(4)	Apparatus, decontaminating, 1½ qt., M2		22	16	2
(5)	Tractor, crane, M1 complete	W-856203	1	0	1
(6)	Truck, crane, swinging boom, M1	W-461536	1	0	1
(7)	Trailer, chemical handling, M2	List attached	4	0	4
(8)	Truck, Chem. Serv., M1 (Obsolete)	List attached	5	0	5
(9)	Mortar, 4.2" Cal		1	0	1
(10)	Beam, grab, M1 (1 ton container)		2	0	2
(11)	Beam, hoisting, airplane smoke tank, M2		6	0	6
(12)	Container, steel, 1 ton, type D		1	1	0
(13)	Kit, HS, vapor detector, M4		4	20	1
(14)	Kit, repair, gas mask, universal, M8		2	3	1
(15)	Line, filling, airplane smoke tank, M3		12	0	12
(16)	Line, filling, chemical spray tank, M2		10	0	10
(17)	Mechanism, valve replacement, M1		2	0	2
(18)	Set, equipment, maintenance & repair, M1		1	0	1
(19)	Set, gas, identification, detonating, M1 (Not a controlled item) W.D. Cir 1 Feb. 1944			361	0
(20)	Stand, carrying, airplane smoke tank, M1		33	0	33
(21)	Stand, holding, airplane smoke tank, M5 (Obsolete - reported)		65	65	0
(22)	Stand, platform, airplane smoke tank, M6		8	0	8
(23)	Tank, smoke, airplane, M10		121	94	1
(24)	Tank, smoke, airplane, M20 (Obsolete - reported)		0	10	1
(25)	Tank, smoke, airplane, M21 (Obsolete - reported)		0	10	1
(26)	Tank, smoke, airplane, M33		73	73	0
(27)	Truck, tank, hand, M1 (Obsolete - reported)		0	9	0
(28)	Flamethrower, Portable, M1A1 /Nos. 2636 & 2750		2	2	0
CHEMICAL WARFARE UNITS ONLY*					
(a)	Mask, gas, Diaphragm		0	16	0
	Mask, Gas, Service		513	1283	261

\*Organizations other than Chemical Warfare units assigned to the Army Air Forces will not make entries in this section.

Basis of authorized allowances used \_\_\_\_\_

Signature of Commanding Officer \_\_\_\_\_

Organization \_\_\_\_\_

Responsibility for the accuracy of this report lies with the Commanding Officer.

J. ROBINSON,  
Major, Air Corps,  
Accountable Officer,



**US Army Corps  
of Engineers®**  
Jacksonville District

# Corps Facts

Vol. 1 No. 1

Date: August 2007

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## **SUBJECT: FORMER ORLANDO ARMY AIRFIELD TOXIC GAS and DECONTAMINATION YARD Chemical Warfare Materiel Scoping and Security Study**



### **Background**

The U.S. Army Corps of Engineers is conducting the first nationwide effort to identify, manage, prioritize, and develop cost estimates for future actions at Formerly Used Defense Sites where historical documentation indicates that chemical warfare materiel had been used, produced, stored, and/or tested.

Formerly Used Defense Sites were used by the military to train Soldiers, airmen, sailors, and Marines, as well as to test new weapons and warfare capabilities. After wartime, many of these properties were no longer needed, and they were cleaned up according to the best practices available at the time and then transferred to other owners. Congress established the Formerly Used Defense Sites Program in the mid-1980s to restore properties formerly owned by, leased to, or otherwise possessed by the United States and under the jurisdiction of the Secretary of Defense. The U.S. Army Corps of Engineers is responsible for carrying out the program. The scope and magnitude of the Formerly Used Defense Sites Program is significant, with more than 9,000 properties identified for potential inclusion. Approximately 100 to 200 of these properties have been identified as suspect chemical warfare materiel sites.

The former Orlando Army Airfield Toxic Gas and Decontamination Yard is included as one of these properties. The former Orlando Army Airfield Toxic Gas and Decontamination Yard Site is located 7 miles east of the Orlando central business district. Part of the site lies within the city limits of Orlando; the remainder is in Orange County.

### **Site History**

Land, referred to as Tract 51, was requested for the Orlando Army Airfield (AAF), Toxic Gas and Decontamination Yard in July 1943 but construction did not begin until after

August 1943. The yard consisted of approximately 2,105.1 acres. The Army eventually constructed ordnance storage igloos, a storage warehouse, latrines, bleachers, and a few smaller buildings near the center of the tract. A small arms range was developed in the southern area of the tract.

The site was used for chemical demonstrations, instruction and training. Several chemical demonstrations and tests were held at the nearby Pinecastle Bombing Range, with more than one demonstration per month in the first half of 1945. The source for the chemical munitions for the planes flying out of Pinecastle AAF or Orlando AAF for these demonstrations and tests was logically the nearby Orlando AAF, Toxic Gas and Decontamination Yard.

The site was declared excess in a memorandum dated October 30, 1946. A clearance certificate issued on February 2, 1950, stated that approximately 220 acres of the Toxic Gas and Decontamination Yard (the portion of the actual gas yard) had been given a careful visual inspection and was clear of all dangerous and explosive materials reasonably possible to detect. It was recommended that the land be used for any purpose.

In March 2004, a Site Visit was conducted at the former Orlando AAF, Toxic Gas and Decontamination Yard, for the purpose of evaluating current site conditions and confirming previous findings. The site visit team found no evidence of chemical warfare materiel. While documentation exists that training with chemical warfare materiel and storage of chemical warfare materiel occurred at Orlando AAF, Toxic Gas and Decontamination Yard, there is no evidence of disposal or burial of chemical warfare materiel on site. The entire area where the Toxic Gas and Decontamination Yard stood has been developed with houses, businesses, and, now, a county park.

## **Project Description**

As part of the Chemical Warfare Materiel Scoping and Security Study, the U.S. Army Corps of Engineers is evaluating all Formerly Used Defense Sites where chemical warfare materiel is suspected. Chemical warfare materiel has been defined by the Army as an item configured as a munition containing a chemical substance that is intended to kill, injure, or incapacitate a person. Due to their hazards, prevalence, and military use, chemical agent identification sets are also considered chemical warfare materiel. More recently, the definition of chemical warfare materiel has changed. It no longer includes riot control agents; chemical herbicides; smoke and flame producing items; or soil, water, debris, or other media contaminated with chemical agents. The U.S. Army Corps of Engineers is conducting this Chemical Warfare Materiel Scoping and Security Study to determine if chemical warfare materiel is present, understand the potential security, safety, and health risks, identify the requirements to clean up the sites, and prioritize future actions to be taken.

Research is the first step of the Chemical Warfare Materiel Scoping and Security Study, and while some sites may require additional investigation to determine the need for further response action and the potential cost, the research will determine that other sites are unlikely to have chemical warfare materiel hazards, and therefore no further action will be needed. These latter sites are categorized as chemical warfare materiel project

closeout. Specific areas of potential chemical warfare materiel contamination were not identified during evaluation of the former Orlando AAF, Toxic Gas and Decontamination Yard during the site investigation. The recommendation for the former Orlando AAF, Toxic Gas and Decontamination Yard is to conduct a Site Inspection (SI). The SI will consist of a photographic analysis and the collection of samples for chemical agent and chemical agent breakdown products.

### **For More Information**

The U.S. Army Corps of Engineers wants the public to be a part of study efforts as we work hard to ensure the public's safety, the safety of our on-site workers, and to protect the environment. For more information about the Formerly Used Defense Sites Chemical Warfare Materiel Scoping and Security Study and the former Orlando Army Airfield Toxic Gas and Decontamination Yard site, contact the U.S. Army Corps of Engineers Jacksonville District Public Affairs Office at 904-232-1238 or visit the Formerly Used Defense Sites Program website at:

<http://hq.environmental.usace.army.mil/programs/fuds/fuds.html>.

## **TECHNICAL ESCORT UNIT TRIP REPORTS**

13 Sep 44	PBA, Ark., to TAC, Orlando, FL: 1 car shipment of ANM50, arrival 17 Sep 44**
05 Jan 45	GCWD, Huntsville, AL to AAF Tech Center, Orlando, FL: 1 car shipment of H, arrival 09 Jan 45**

March 17, 2004

Ms. Betina Martin Johnson  
U.S. Army Engineering and Support Center, Huntsville  
ATTN: CEHNC-OE-CW  
4280 University Square  
Huntsville, Alabama 35807-4301

Re: CWM Scoping and Security Study  
Site Visit Letter Report  
Orlando Army Airfield, Toxic Gas and Decontamination Yard, Orlando, Florida

Dear Ms. Martin Johnson:

A Site Visit Team went to the former Orlando Army Airfield (AAF), Toxic Gas and Decontamination Yard, east of Orlando on February 9, 2004. The purpose of the site visit was to evaluate current site conditions and confirm the findings of the Archives Search Report (ASR). The personnel conducting the site visit were:

David Becker – USAESCH  
Kim Meacham - USAESCH  
John Chulick – Parsons  
Clay Edmondson - Parsons

Historical information on the Orlando AAF, Toxic Gas and Decontamination Yard was obtained from the ASR prepared by the U.S. Army Corps of Engineers St. Louis District in July 1993. The yard consisted of approximately 2,100 acres located east of Orlando, Florida in Orange County. Land, referred to as Tract 51, was requested for the yard in July 1943 but construction did not take place until after August. The Army eventually constructed ordnance storage igloos, a storage warehouse, latrines, bleachers, and a few smaller buildings near the center of the tract. A small arms range was developed in the southern area of the tract.

The yard was used for chemical instruction, training and demonstrations. Chemical demonstrations and tests were held at nearby Pinecastle Bombing Range. The source for the chemical munitions for the planes flying the demonstrations out of Pinecastle AAF or Orlando AAF was logically the nearby Orlando AAF Toxic Gas and Decontamination Yard. The ASR contained no record of what chemical munitions may have been stored at the yard.

The ASR also identified records showing that the Dugway Mobile Chemical Warfare Service (CWS) Unit requested that an aircraft be made available at Orlando AAF to assist in the chemical bombing activities at Withlacoochee Range. It was unclear whether only the plane was needed, or if a plane loaded with chemical munitions was needed.

The yard was declared excess in a memorandum dated October 30, 1946. A clearance certificate issued on February 2, 1950, stated that approximately 220 acres of the Toxic Gas and Decontamination Yard (the portion of the actual gas yard) had been given a careful visual inspection and was clear of all dangerous and explosive materials reasonably possible to detect. It was recommended that the land be used for any purpose. During the 1950s, development of the surrounding area was begun.

## **Procedures**

The site visit team recorded data using a combination of maps, a global positioning system (GPS) receiver, field book and digital camera. The GPS receiver was preloaded with points of interest (also shown on maps) and was used to record a track plot of the traverse of the site visit team.

## **Site Visit**

The Site Visit Team met at the Holiday Inn Select just north of the Orlando International Airport to review the plans for the site visit. The team drove to the former Orlando AAF, Toxic Gas and Decontamination Yard located about 3.3 miles to the northeast. The weather was sunny, warm, and breezy. Most of the area has been heavily developed with businesses along the eastern edge on Goldenrod Road and houses throughout the former yard area (Figures 1 and 2). The only undeveloped areas are swamplands along the western side of the yard. The residences consist mostly of single-family, single-story dwellings that look to be at least 30 years old.

Driving through the area, the team noticed construction in the form of road repairs (replacement of sections of the concrete slab) and the construction of a new county park in the southwestern section of the former yard.

They met with Dan Baumer, the site manager for D&D Tree Landscape, Hardscape, and Irrigation Construction. D&D Tree is the general contractor for the park. The construction workers had not encountered any military-related items during the construction on the 11-acre property. The work included excavation for a couple of ponds to the depth of about 5 feet, the construction of the lift station to a depth of over 20 feet, and various other foundations and holes. They also removed about 10 "dumpsters" full of construction rubble. There were also some pits with household trash and some hot water heaters and car axels on the surface. The park includes a building and a cell phone tower. The park is scheduled to be open by April 1, 2004. The team walked the part of the park away from active construction work. The team saw some older debris including rubble and pieces of rebar that had been apparently moved out of the area where grass would be planted.

## **Summary**

No evidence of CWM was encountered during the site visit. While documentation exists that training with CWM and storage of CWM occurred at Orlando AAF, Toxic Gas and Decontamination Yard, there is no evidence of disposal or burial of CWM on site.

Ms. Martin Johnson

Page 3

March 17, 2004

The entire area where the Toxic Gas and Decontamination Yard stood has been developed with houses, businesses and, now, a county park.

Contacts and site summary information are attached to this letter report. If you have any questions regarding this submittal, please do not hesitate to contact us at 678-969-2409 and 678-969-2344.

Sincerely,  
PARSONS

John Chulick  
Deputy Project Manager

Joe Cudney  
Project Manager

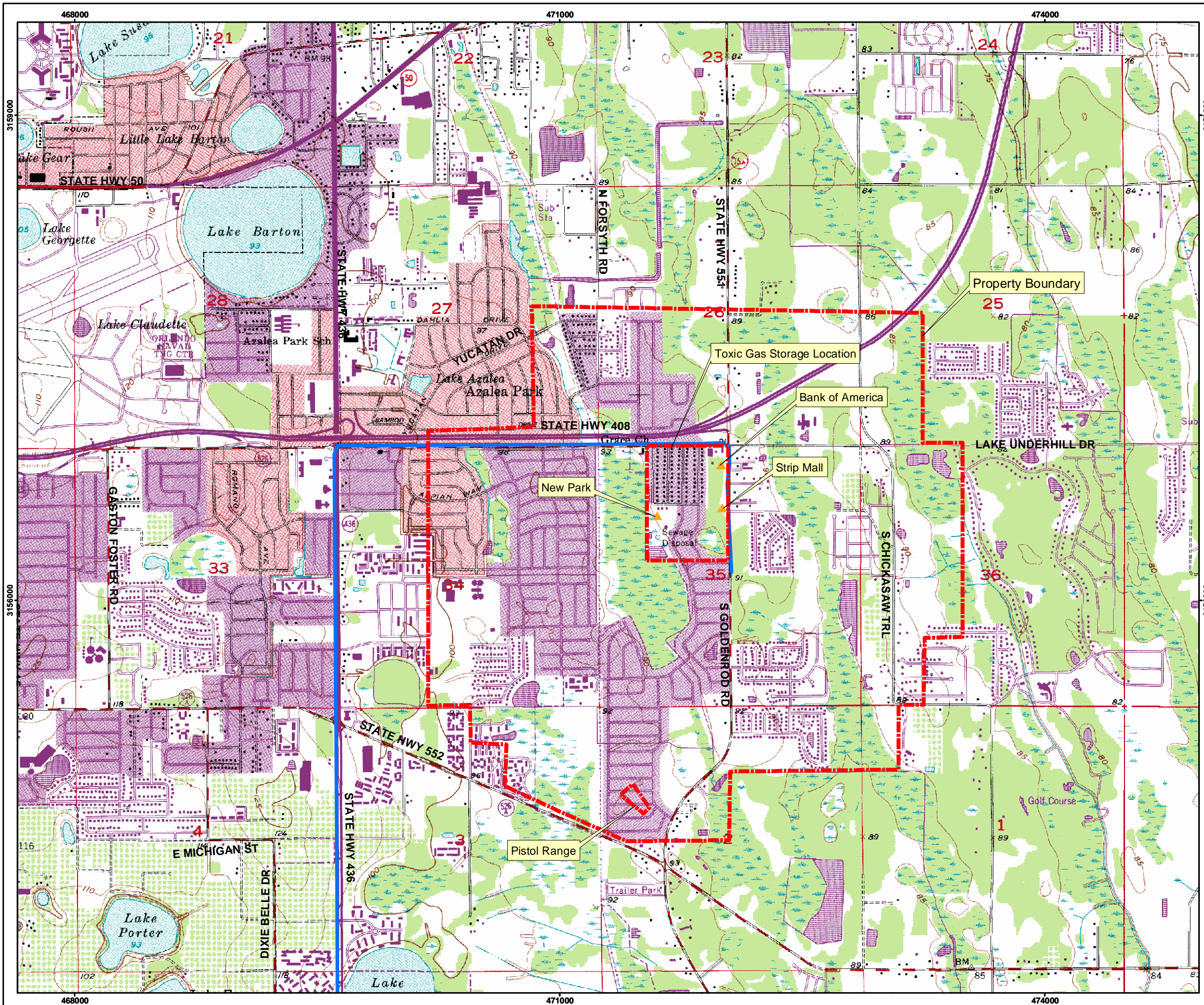


Figure 1  
Orlando AAF Toxic Gas Storage Site Visit  
February, 2004

Orlando, Florida

**For Official Use Only**

### Legend

- ▲ GPS Way Point
- GPS Track Line
- ▭ Area of Interest



Image Source: USGS 7.5' Orlando East Topo Quadrangle, 1980.

Projection: UTM Zone 17 NAD83, Map Units in Meters, Distance Units in Feet.



PARSONS

U.S. ARMY CORPS  
OF ENGINEERS  
HUNTSVILLE CENTER

DESIGNED BY:  
BT

DRAWN BY:  
BT

CHECKED BY:  
JC

SUBMITTED BY:  
JC

Orlando AAF Toxic Gas Storage Site Visit  
February, 2004

SCALE: As Shown

DATE: February 2004

FILE: x:\CWM\_gis\maps\Orlando\Fig1\_sitevisit.mxd

PROJECT NUMBER:  
742675

PAGE NUMBER:



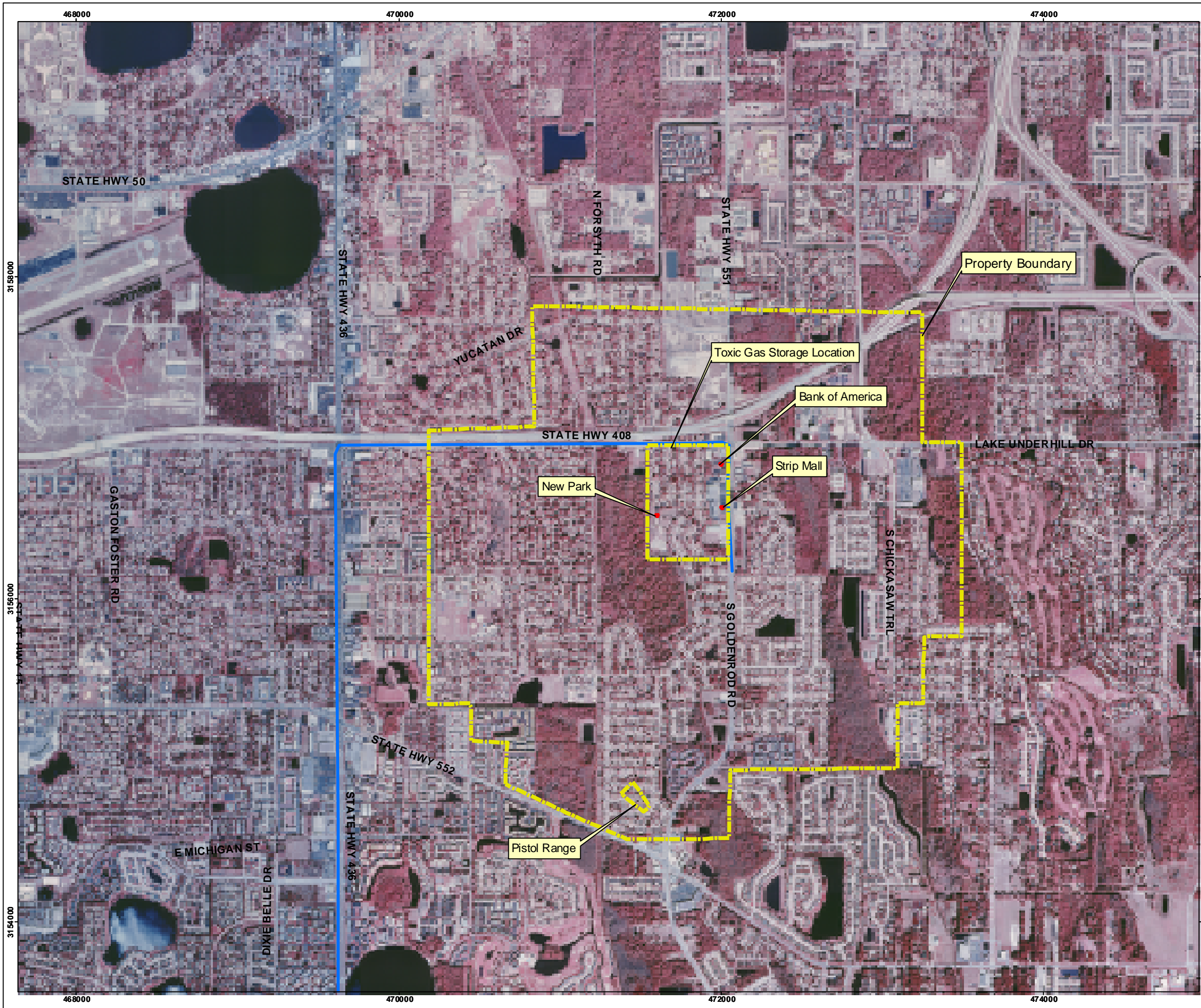


Figure 2  
Orlando AAF Toxic Gas Storage Site Visit  
February, 2004

Orlando, Florida

For Official Use Only

**Legend**

- GPS Way Point
- GPS Track Line
- Area of Interest




Site Location in Florida

Image Source: USGS Orlando East Orthophoto, 1999.

Projection: UTM Zone 17 NAD83, Map Units in Meters, Distance Units in Feet.

2,000 1,000 0 2,000 Feet

PARSONS		U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER	
DESIGNED BY: BT		Orlando AAF Toxic Gas Storage Site Visit February, 2004	
DRAWN BY: BT			
CHECKED BY: JC	SCALE: As Shown	PROJECT NUMBER: 742675	
SUBMITTED BY: JC	DATE: February 2004	PAGE NUMBER:	
	FILE: x:\CWM_gis\gisMaps\ Orlando\sitevisit_photo.mxd		



**Photo 1 – Facing north from the parking lot of the community park**



**Photo 2 – Park facility under construction during site visit**

**FOR OFFICIAL USE ONLY**



**Photo 3 – The former toxic gas storage (TGS) area is now heavily developed**



**Photo 4 – Strip mall located on the eastern boundary of the former TGS area**

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## ***Orlando\_AAF\_General\_Info***

<b><i>District</i></b>	CESAJ
<b><i>State</i></b>	FL
<b><i>County</i></b>	Orange
<b><i>Project_Number</i></b>	I04FL0396
<b><i>Project_Name</i></b>	ORLANDO AAF TOXIC GAS
<b><i>PEAR_Code</i></b>	2FWSFL0396

## ***Orlando\_AAF\_Areas***

<b><i>Project_Name</i></b>	ORLANDO AAF
<b><i>Description</i></b>	Toxic Gas and Decontamination Yard
<b><i>Size</i></b>	220 acres
<b><i>Terrain</i></b>	flat
<b><i>CurrentUse</i></b>	Residential, county park
<b><i>Reuse</i></b>	same
<b><i>Notes</i></b>	The area was used for storage of chemical warfare agents, chemical warfare training, and demonstrations. Contained igloos and training buildings.
<b><i>Roads</i></b>	Good roads to and through site.
<b><i>Vegetation</i></b>	landscaped
<b><i>Hazards</i></b>	traffic

## ***Orlando\_AAF\_Contact\_List***

<b><i>Contact_Type</i></b>	Other
<b><i>Project_Name</i></b>	ORLANDO AAF
<b><i>Name</i></b>	Dan Baumer
<b><i>Organization</i></b>	DD Tree Landscape, Hardscap
<b><i>Title</i></b>	Site Manager
<b><i>Phone_Office</i></b>	407-824-0267
<b><i>Phone_Cell</i></b>	407-948-3333
<b><i>Fax</i></b>	407-824-0268
<b><i>eMail</i></b>	
<b><i>Address</i></b>	P.O. Box 22172
<b><i>City</i></b>	Lake Buena Vista
<b><i>State</i></b>	FL
<b><i>ZIP</i></b>	32830
<b><i>Notes</i></b>	Construction of new park in southwestern corner of site.

**GPS Data - Orlando AAF Site Visit**

Datum WGS 84

Name	Type	Time	Date	Latitude	Longitude
OTGYNE	CRTD	8:33	9-Feb-04	N28.53875	W81.28578
OTGYSE	CRTD	8:42	9-Feb-04	N28.53270	W81.28578
OTGYSW	CRTD	8:47	9-Feb-04	N28.53270	W81.29030
OTGYNW	CRTD	8:48	9-Feb-04	N28.53875	W81.29094
BOAORL	CRTD	8:52	9-Feb-04	N28.53803	W81.28622
PARK	CRTD	12:35	9-Feb-04	N28.53519	W81.29027
ORLNDO	CRTD	12:54	9-Feb-04	N28.53142	W81.29030
MALL	CRTD	13:07	9-Feb-04	N28.53562	W81.28616
ORLND1	CRTD	13:12	9-Feb-04	N28.53848	W81.29028
T001	CRTD	13:15	9-Feb-04	N28.53206	W81.28567
T002	CRTD	13:15	9-Feb-04	N28.53925	W81.28615
T003	CRTD	13:15	9-Feb-04	N28.53910	W81.30869

Header	Latitude	Longitude	Date	Time	Leg Length	Leg Time	Leg Speed	Course	
Trackpoint	N28.53203	W81.28567	2/9/2004	3:00:28 PM					
Trackpoint	N28.53201	W81.28567	2/9/2004	3:00:29 PM	6 ft	0:00:01	4 mph	180°	TRUE
Trackpoint	N28.53203	W81.28554	2/9/2004	3:00:37 PM	42 ft	0:00:08	3.6 mph	83°	TRUE
Trackpoint	N28.53210	W81.28554	2/9/2004	3:00:38 PM	26 ft	0:00:01	17.4 mph	356°	TRUE
Trackpoint	N28.53283	W81.28560	2/9/2004	3:00:44 PM	270 ft	0:00:06	30.7 mph	356°	TRUE
Trackpoint	N28.53516	W81.28565	2/9/2004	3:00:59 PM					
Trackpoint	N28.53673	W81.28569	2/9/2004	3:01:12 PM	575 ft	0:00:13	30.2 mph	359°	TRUE
Trackpoint	N28.53681	W81.28569	2/9/2004	3:01:13 PM	30 ft	0:00:01	20.7 mph	358°	TRUE
Trackpoint	N28.53696	W81.28583	2/9/2004	3:01:17 PM	69 ft	0:00:04	11.8 mph	321°	TRUE
Trackpoint	N28.53697	W81.28586	2/9/2004	3:01:18 PM	11 ft	0:00:01	7.5 mph	291°	TRUE
Trackpoint	N28.53698	W81.28594	2/9/2004	3:01:20 PM	25 ft	0:00:02	8.6 mph	279°	TRUE
Trackpoint	N28.53699	W81.28598	2/9/2004	3:01:21 PM	13 ft	0:00:01	8.6 mph	288°	TRUE
Trackpoint	N28.53702	W81.28612	2/9/2004	3:01:25 PM	47 ft	0:00:04	8 mph	283°	TRUE
Trackpoint	N28.53698	W81.28620	2/9/2004	3:01:42 PM	30 ft	0:00:17	1.2 mph	240°	TRUE
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Trackpoint	N28.53690	W81.28606	2/9/2004	3:01:48 PM	11 ft	0:00:01	7.7 mph	95°	TRUE
Trackpoint	N28.53674	W81.28595	2/9/2004	3:01:54 PM	71 ft	0:00:06	8 mph	149°	TRUE
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Trackpoint	N28.53585	W81.28594	2/9/2004	3:02:15 PM	174 ft	0:00:10	11.9 mph	179°	TRUE
Trackpoint	N28.53570	W81.28594	2/9/2004	3:02:21 PM	54 ft	0:00:06	6.1 mph	181°	TRUE
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Trackpoint	N28.53564	W81.28613	2/9/2004	3:02:29 PM	15 ft	0:00:02	5.2 mph	244°	TRUE
Trackpoint	N28.53564	W81.28613	2/9/2004	3:02:30 PM	3 ft	0:00:01	2 mph	180°	TRUE
Trackpoint	N28.53567	W81.28624	2/9/2004	3:04:09 PM	38 ft	0:01:39	0.3 mph	288°	TRUE
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Trackpoint N28.53544	W81.28640	2/9/2004	3:04:23 PM	85 ft	0:00:09	6.5 mph	195°	TRUE
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Trackpoint N28.52061	W81.31049	2/9/2004	3:17:38 PM	754 ft	0:00:12	42.9 mph	181°	TRUE
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Trackpoint N28.50771	W81.31036	2/9/2004	3:19:10 PM	153 ft	0:00:13	8 mph	180°	TRUE
Trackpoint N28.50674	W81.31035	2/9/2004	3:19:19 PM	356 ft	0:00:09	26.9 mph	180°	TRUE
Trackpoint N28.50526	W81.31036	2/9/2004	3:19:30 PM	539 ft	0:00:11	33.4 mph	180°	TRUE
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Trackpoint N28.49590	W81.31034	2/9/2004	3:20:37 PM	663 ft	0:00:14	32.3 mph	180°	TRUE
Trackpoint N28.49374	W81.31032	2/9/2004	3:20:51 PM	789 ft	0:00:14	38.4 mph	180°	TRUE
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Trackpoint N28.48332	W81.31023	2/9/2004	3:21:55 PM	813 ft	0:00:15	37 mph	179°	TRUE
Trackpoint N28.48224	W81.31023	2/9/2004	3:22:04 PM	393 ft	0:00:09	29.8 mph	180°	TRUE
Trackpoint N28.48157	W81.31022	2/9/2004	3:22:15 PM	244 ft	0:00:11	15.1 mph	180°	TRUE
Trackpoint N28.48149	W81.31022	2/9/2004	3:23:20 PM	30 ft	0:01:05	0.3 mph	178°	TRUE
Trackpoint N28.48107	W81.31021	2/9/2004	3:23:27 PM	154 ft	0:00:07	15 mph	179°	TRUE
Trackpoint N28.47994	W81.31021	2/9/2004	3:23:37 PM	413 ft	0:00:10	28.2 mph	180°	TRUE
Trackpoint N28.47758	W81.31020	2/9/2004	3:23:52 PM	859 ft	0:00:15	39.1 mph	180°	TRUE
Trackpoint N28.47465	W81.31019	2/9/2004	3:24:09 PM	0.2 mi	0:00:17	42.9 mph	180°	TRUE
Trackpoint N28.47172	W81.31018	2/9/2004	3:24:26 PM	0.2 mi	0:00:17	43 mph	180°	TRUE
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Trackpoint N28.46807	W81.31018	2/9/2004	3:25:46 PM	430 ft	0:00:10	29.3 mph	180°	TRUE
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Trackpoint N28.46415	W81.31015	2/9/2004	3:26:11 PM	731 ft	0:00:12	41.5 mph	180°	TRUE
Trackpoint N28.46142	W81.31011	2/9/2004	3:26:27 PM	996 ft	0:00:16	42.5 mph	179°	TRUE
Trackpoint N28.46070	W81.31011	2/9/2004	3:26:34 PM	263 ft	0:00:07	25.6 mph	180°	TRUE
Trackpoint N28.46059	W81.31010	2/9/2004	3:28:01 PM	40 ft	0:01:27	0.3 mph	178°	TRUE
Trackpoint N28.46050	W81.31008	2/9/2004	3:28:03 PM	34 ft	0:00:02	11.7 mph	167°	TRUE
Trackpoint N28.46029	W81.30965	2/9/2004	3:28:09 PM	157 ft	0:00:06	17.9 mph	119°	TRUE
Trackpoint N28.46028	W81.30938	2/9/2004	3:28:12 PM	89 ft	0:00:03	20.2 mph	92°	TRUE
Trackpoint N28.46028	W81.30912	2/9/2004	3:28:15 PM	82 ft	0:00:03	18.6 mph	91°	TRUE
Trackpoint N28.46012	W81.30901	2/9/2004	3:28:21 PM	70 ft	0:00:06	7.9 mph	149°	TRUE
Trackpoint N28.46011	W81.30913	2/9/2004	3:28:30 PM	40 ft	0:00:09	3 mph	269°	TRUE

FOR OFFICIAL USE ONLY

## Original Ranking Form

## Ranking of CWM FUDS

*The purpose of this procedure is to determine if current RAC scores are accurate and to rank each site within each RAC designation. If new information is found on a site the evaluators shall determine if it changes the current RAC. The TAG team process shall be used to assess if a RAC has changed.*

<p><i>Site Name:</i> Orlando Army Air Field</p> <p>a. Location: Orlando, Florida, Orange county</p> <p>b. Project Number: 104FL039600</p> <p>c. Contract/Task Order Number:</p> <p>d. Type of Action: ASR Review</p> <p>e. Current RAC (Score): 5</p>	<p><i>Division:</i> SAD</p> <p>POC: Sharon Taylor</p> <p>Phone: 404-562-5212</p> <p><i>District:</i> SAJ</p> <p>POC: RobertBridgers</p> <p>Phone: 904-232-3085</p>
---	--

*Site Description: Urban residential area with normal facilities such as shopping area churches schools parks and open terrain. Toxic gas yard has been develop into a single family dwelling subdivision. Located 76 miles east of the Orlando central business district.*

## ***Original Ranking Form***

## ***Ranking of CWM FUDS***

*Site History: 2100 acres open fields acquired by DOD during WW II in 1943. Some igloos for ordnance storage, warehouses, other support structures were build by the Army. Site closed in 1945. Issued a certificate of clearance 15 Nov 1944 for the Toxic Gas Yard area. Report states that demonstrations, training and instruction were done here.*

*It is likely that CS,CN possibly some CAIS kits were used. (Opinion, not in ASR)*

*Also indicate that defoliants were tested. During this time in history anything that was not HE was chemical. Under todays directives smokes, tear agents are not CWM.*

*It is unlikely that H or L were used.(Opinion, not ASR conclusions)*

*Previous Actions: ASR, site visits. Visual clearance certificate in 1945 and at time of closure.*

***Original Ranking Form***

***Ranking of CWM FUDS***

*Objectives:* The overall objective of this project is to rank each CWM FUDS within each RAC designation. All CWM FUDS sites currently on the FUDS database shall be ranked in this process.

Current Status: Extensive development, Commercial and Residential. Except near by swamp land.

Issues and Concerns: Swamp land would be a likely place for disposal of items. Very few records have been found detailing exactly what was stored at this site. It is know that Chemical demonstrations, training and instruction were held there, and based on the certificate of clearance received it is likely that chemical munitions were stored there.

## Continuation Section:

## Continuation Section:

Continuation Section:

## Original Ranking Form

## Ranking of CWM FUDS

Site Name: Orlando AAF

Project Number : 104FL039600

Date: May 2002

Name of person completing this form: Dave Becker

Title & Organization: Safety Specialist/CEHNC-OE-S

Name of person concurring with this form: Kim Meacham

Title & Organization: Tech Manager/CEHNC-ED-CS-P

Site QC: Hank Hubbard

Date: 3 Jun 2002

**Current RAC: 5**

**Phase (Check one):** ASR/INPR Review ☒ Site Visit ☐ New Data Review ☐ Expanded Site Visit ☐

<p>1a. Have the available historical records for this site been reviewed?</p> <p style="text-align: center;">Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>If the answer to 1a is yes, record all reference material and document dates in section 7 and proceed to 1b.</p> <p>If the answer to 1a is no, review the site information prior to completing this form.</p>	<p>1b. Is there any "post ASR" information (site visit, newspaper article, worker interview, etc.) that indicates a potential CWM hazard?</p> <p style="text-align: center;">Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p>If yes, indicate the source and the date in section 7 and proceed to 2.</p>																																														
<p>2. According to the records review, is this site known or suspected to have been used for:</p> <p><i>(check all applicable)</i></p>																																															
<table style="width: 100%;"> <tr> <td style="width: 80%;">2a. Individual Soldier Training</td> <td style="text-align: right;">Points</td> </tr> <tr> <td>Live fire of any ordnance with agent filler</td> <td style="text-align: right;">2 <input type="checkbox"/></td> </tr> <tr> <td>Liquid Agent Training</td> <td style="text-align: right;">5 <input type="checkbox"/></td> </tr> <tr> <td>Storage of CWM</td> <td style="text-align: right;">2 <input type="checkbox"/></td> </tr> <tr> <td>Disposal or Demilitarization of CWM</td> <td style="text-align: right;">2 <input checked="" type="checkbox"/></td> </tr> <tr> <td>Decontamination Training</td> <td style="text-align: right;">5 <input type="checkbox"/></td> </tr> <tr> <td>Transfer Operations</td> <td style="text-align: right;">2 <input checked="" type="checkbox"/></td> </tr> <tr> <td>Production Facility</td> <td style="text-align: right;">2 <input checked="" type="checkbox"/></td> </tr> <tr> <td>Research Facility</td> <td style="text-align: right;">3 <input type="checkbox"/></td> </tr> <tr> <td>Static Testing</td> <td style="text-align: right;">2 <input type="checkbox"/></td> </tr> <tr> <td>Agent Training with other than 385-61 agent</td> <td style="text-align: right;">2 <input type="checkbox"/></td> </tr> <tr> <td><b>Subtotal for 2a (select the highest value only)</b></td> <td style="text-align: right;"><b>2</b></td> </tr> </table> <p>2b. Is there any record of a TEU response action that confirmed CWM after closure? If yes, add 4 points to Subtotal 2a.</p> <p><b>Subtotal for 2a &amp; 2b</b> <span style="float: right;"><b>2</b></span></p>	2a. Individual Soldier Training	Points	Live fire of any ordnance with agent filler	2 <input type="checkbox"/>	Liquid Agent Training	5 <input type="checkbox"/>	Storage of CWM	2 <input type="checkbox"/>	Disposal or Demilitarization of CWM	2 <input checked="" type="checkbox"/>	Decontamination Training	5 <input type="checkbox"/>	Transfer Operations	2 <input checked="" type="checkbox"/>	Production Facility	2 <input checked="" type="checkbox"/>	Research Facility	3 <input type="checkbox"/>	Static Testing	2 <input type="checkbox"/>	Agent Training with other than 385-61 agent	2 <input type="checkbox"/>	<b>Subtotal for 2a (select the highest value only)</b>	<b>2</b>	<table style="width: 100%;"> <tr> <td style="width: 80%;">2c. Surface CWM contamination <i>expected</i></td> <td style="text-align: right;">Points</td> </tr> <tr> <td>Indicate the type of CWM</td> <td style="text-align: right;">25</td> </tr> <tr> <td><b>Subtotal for 2c</b></td> <td style="text-align: right;"><b>0</b></td> </tr> </table> <p>2d. Subsurface CWM contamination <i>expected</i></p> <table style="width: 100%;"> <tr> <td style="width: 80%;">Explosively configured &amp; fired CWM</td> <td style="text-align: right;">10 <input type="checkbox"/></td> </tr> <tr> <td>Explosively configured (not fired) CWM</td> <td style="text-align: right;">5 <input checked="" type="checkbox"/></td> </tr> <tr> <td>CWM mixed with conventional OE</td> <td style="text-align: right;">5 <input type="checkbox"/></td> </tr> <tr> <td>Containers of agent</td> <td style="text-align: right;">3 <input checked="" type="checkbox"/></td> </tr> <tr> <td>Non-explosively configured CWM</td> <td style="text-align: right;">3 <input type="checkbox"/></td> </tr> <tr> <td>Chemical Agent Identification Sets (CAIS)</td> <td style="text-align: right;">2 <input checked="" type="checkbox"/></td> </tr> <tr> <td>Agent-contaminated media</td> <td style="text-align: right;">0 <input type="checkbox"/></td> </tr> <tr> <td><b>Subtotal for 2d. (select the highest value only)</b></td> <td style="text-align: right;"><b>5</b></td> </tr> </table>	2c. Surface CWM contamination <i>expected</i>	Points	Indicate the type of CWM	25	<b>Subtotal for 2c</b>	<b>0</b>	Explosively configured & fired CWM	10 <input type="checkbox"/>	Explosively configured (not fired) CWM	5 <input checked="" type="checkbox"/>	CWM mixed with conventional OE	5 <input type="checkbox"/>	Containers of agent	3 <input checked="" type="checkbox"/>	Non-explosively configured CWM	3 <input type="checkbox"/>	Chemical Agent Identification Sets (CAIS)	2 <input checked="" type="checkbox"/>	Agent-contaminated media	0 <input type="checkbox"/>	<b>Subtotal for 2d. (select the highest value only)</b>	<b>5</b>
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<p>If the total points in 2a, 2b, 2c &amp; 2d are greater than 0, a site visit may be warranted. If the point total for 2a, 2b, 2c &amp; 2d are all 0, then the site may warrant an NDAI/NOFA. Proceed to Section 6.</p>																																															

## Original Ranking Form

## Ranking of CWM FUDS

3. Additional Documentation.	4. Current Land Use.
<p>3a. Indicate the reliability of the data that the information in Section 2 was based on.</p> <p>Official documentation (DoD, local law enforcement etc.)</p> <p>Complete documentation <input checked="" type="checkbox"/></p> <p>Incomplete documentation <input type="checkbox"/></p> <p>Interview confirmed by documentation (finding or documents) <input type="checkbox"/></p> <p>Interview not confirmed <input type="checkbox"/></p> <p>3b. Indicate if there is any record of a Site Clean up or intrusive activity after site closure.</p> <p>Official Report of Clean-up <input type="checkbox"/></p> <p>HTW or construction intrusive activities conducted <input type="checkbox"/></p> <p><i>(If the information in this section impacts the ranking score comment &amp; adjust in 5)</i></p>	<p>Is there any current information on the current land use and site dynamics? If no, a site visit may be warranted. Else, answer the following questions on the site use.</p> <p style="text-align: right;">Points</p> <p>4a. Current Land Use <b><i>(Check worst case)</i></b></p> <p>Grazing 5 <input type="checkbox"/></p> <p>Recreational Area 10 <input type="checkbox"/></p> <p>All of the land is capped (water, soil, pavement etc.) 0 <input type="checkbox"/></p> <p>Restricted area – no unauthorized access 0 <input type="checkbox"/></p> <p>All of the land have been developed 0 <input type="checkbox"/></p> <p>Land is remote (occasional visitor) 2 <input checked="" type="checkbox"/></p> <p>Remote area with developed recreational site 5 <input type="checkbox"/></p> <p>Development is planned within 10 years 5 <input type="checkbox"/></p> <p>Development is planned within 5 years 10 <input type="checkbox"/></p> <p>Development is planned within 2 years 15 <input type="checkbox"/></p> <p>Land undeveloped near population 5 <input type="checkbox"/></p> <p>Agricultural Field 10 <input type="checkbox"/></p> <p><b><i>Subtotal for 4 (Current land use)</i></b> <span style="float: right;"><b>2</b></span></p>
5. Summary <b><i>(Complete the summary below to determine the rank score)</i></b>	If the total points in 4 are 0, then the site will probably warrant a NDAI/NOFA or institutional controls. Proceed to Section 6. If the current site information is greater than 2 years old a site visit may be warranted.
<p>5a. Total Points from Site History &amp; Contaminant Section</p> <p>Points from 2a &amp; 2b 2</p> <p>Points from 2c 5</p> <p>Points from 2d 2</p> <p>5b. Total Points from Current Land Use</p> <p>Points from 4 2</p> <p><b>5c. Current RAC 5      Total Ranking Points 11</b></p>	<p><b>6. Recommendations</b> <b><i>(Recommend next phase for this site)</i></b></p> <p><input checked="" type="checkbox"/> Supplemental ASR*</p> <p><input type="checkbox"/> Supplemental Historical Picture Interpretation*</p> <p><input type="checkbox"/> Re-RAC</p> <p><input type="checkbox"/> Site Visit</p> <p><input type="checkbox"/> Institutional Controls</p> <p><input checked="" type="checkbox"/> NOFA (RCRA) or NDAI (CERCLA)</p> <p><input type="checkbox"/> Expanded Site Investigation</p> <p><input type="checkbox"/> Removal</p> <p>* Is there evidence that supplemental information may be found with a expanded ASR or historical photo analysis?</p> <p>Yes <input checked="" type="checkbox"/>      No <input type="checkbox"/></p>

***Original Ranking Form***

***Ranking of CWM FUDS***

Current RAC Score 5	Current RAC Score 5	Ranking Points 11
Review Concur <input checked="" type="checkbox"/> Non-Concur <input type="checkbox"/>	Reviewer 2 Concur <input type="checkbox"/> Non-Concur <input checked="" type="checkbox"/>	Non-Concur <input type="checkbox"/> Concur <input checked="" type="checkbox"/>

Comments: (Include all reference material reviewed and the dates of the reference material in this area.) ASR, July 1993, only documentation available.

Non-concur due to very limited records and swamp land close to the site that has not been developed. KKM

I have QC'd this document and it appears the review process was followed. There is a conflict between reviewers on the current RAC. 3/6/2002 Hank Hubbard


Additional Comments:

CERTIFICATE OF CLEARANCE

Jacksonville, Florida.

2 February 1950

All land in tract No. 51, cross-hatched in green as shown on the attached Record Drawing No. 3384-8 Dated 15 November 1944 containing approximately 220 Acres of the Toxic Gas & Decontamination Yard, Orlando Air Base, Orlando, Florida, has been given a careful visual inspection, and is clear of all dangerous and/or explosive materials reasonably possible to detect. It is recommended that this land be used for any purpose for which it is suited.

  
JOHN B. CAMPBELL  
Chief, Dedudding & Decontamination  
Branch

## DRAFT MRSPP

### Draft DoD Munitions Response Site Prioritization Protocol (MRSPP)

#### Overview

The DoD has proposed an MRSPP to implement the requirement established in Section 311(b) of the National Defense Authorization Act for Fiscal Year 2002 [codified at 10 U.S. Code (U.S.C.) § 2710(b)] for the Department to assign a relative priority for munitions responses to each location in the Department's inventory of defense sites known or suspected of containing UXO, DMM, or MC. The draft Protocol was released in the Federal Register on August 22, 2003, for public comment. The comment period closed on November 19, 2003. The Protocol evaluates explosive hazards posed by MEC, chemical hazards associated with the physiological effects of CWM, and relative risk to human health and the environment posed by munitions constituents or other incidental contaminants. These hazards are addressed by three hazard evaluation modules, each of which is specific to one type of hazard:

1. Explosives Hazard Evaluation (EHE) Module
2. CWM Hazard Evaluation (CHE) Module
3. Health Hazard Evaluation (HHE) Module

The CHE module was used to evaluate and assign a relative priority to sites under this study. The suspect CWM sites were not evaluated using the other two modules.

#### CHE Module

##### Overview

The CHE module provides an evaluation of the chemical hazards associated with the physiological effects of CWM. The CHE module is used only when CWM is known or suspected of being present at an MRS. USAESCH's original ranking process provided the basis for the MRSPP's CHE module.

For the purposes of the MRSPP, CWM (see definition, Chapter 3) includes four subcategories of specific materials:

- *CWM, explosively configured*, are all munitions that contain a CA fill and any explosive component. Examples are M55 rockets with CA, the M23 VX mine, and the M360 105-millimeter GB artillery cartridge.
- *CWM, nonexplosively configured*, are all munitions that contain a CA fill, but that do not contain any explosive components. Examples are any chemical munition that does not

contain explosive components (e.g., burster, fuse) and VX or mustard agent spray canisters.

- *CWM, bulk container*, are all non-munitions-configured containers of CA (e.g., 1-ton containers) and CAIS K941, toxic gas set M-1 and K942, and toxic gas set M-2/E11.
- *Chemical Agent Identification Sets (CAIS)* are military training aids containing small quantities of various CA and other chemicals. All forms of CAIS are scored the same in the proposed Protocol, except K941 (*toxic gas set M-1*) and K942 CAIS (*toxic gas set M-2/E11*), which are considered forms of *CWM (bulk container)* due to the relatively large quantities of agent contained in those types of sets.

The CHE module is not used to evaluate environmental media and debris containing CA (i.e., CA media and CA debris) because they are not considered CWM under current regulations and are evaluated using the HHE module instead.

Under the CHE module, nine data elements of MRS information comprising three major factors are evaluated:

- CWM Hazard
- Accessibility
- Receptors

The CWM Hazard factor is structured to evaluate the unique characteristics of CWM. The data elements in the Accessibility factor and Receptor factor are identical with those in the EHE Module.

### **CHE CWM Hazard Factor**

The *CWM Hazard* factor has two data elements, *CWM Configuration* and *Sources of CWM*, and constitutes 40% of the CHE score. The CWM Hazard factor is similar to the Explosive Hazard factor of the EHE module, but it has been modified to address the unique characteristics of CWM.

The *CWM Configuration* data element estimates the potential hazard based on the type of CWM known or suspected to be present, its likelihood to be dispersed, and the condition of the munition. Similar to the EHE's Munitions Type data element, DoD has also included an "evidence of no CWM" classification, which can only be used if, after investigation, the physical evidence indicates CWM is not present at the MRS or if the historical evidence indicates that CWM is not present at the MRS. The definition for "evidence of no CWM" is important because it requires DoD to investigate all MRS for the presence of CWM. Furthermore, DoD's adoption of the criteria for physical and historical evidence serves as an affirmation that the DoD components will collect information upon which to base decisions.

Table B.1 presents the classifications, definition for each classification, and associated numeric scores for the *CWM Configuration* data element.

**Table B.1**  
**CHE CWM Configuration Classifications**

Classification	Description	Score
CWM, explosive configuration, either UXO or damaged DMM	The CWM known or suspected of being present at the MRS is: Explosively configured CWM that are UXO (i.e., CWM/UXO) Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged	30
CWM mixed with UXO	The CWM known or suspected of being present at the MRS is comingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are DMM (undamaged)	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS is: Nonexplosively configured CWM/DMM Bulk CWM/DMM (e.g., 1-ton container).	15
CAIS K941 and CAIS K942	CWM/DMM known or suspected of being present at the MRS is CAIS K941, toxic gas set M-1, or CAIS K942, toxic gas set M-2/E11.	12
CAIS	Only CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	Following investigation, the physical evidence indicates that CWM are not present at the MRS or that the historical evidence indicates that CWM are not present at the MRS.	0
<b>Notes:</b> <i>CWM/UXO</i> means CWM that are UXO. <i>CWM/DMM</i> means CWM that are DMM and includes CAIS K941, toxic gas set M-1; and K942, toxic gas set M-2/E11. <i>CAIS/DMM</i> means CAIS, other than CAIS K941 and K942. <i>Historical evidence</i> means that the investigation: (1) found written documents or records, (2) documented interviews of persons with knowledge of site conditions, or (3) found and verified other forms of information. <i>Physical evidence</i> means: (1) recorded observations from onsite investigations such as finding intact UXO, DMM, munitions debris (e.g., fragments penetrators, projectiles, shell casings, links, fins), or range-related debris (e.g., targets), (2) the results of field or laboratory sampling and analysis procedures, or (3) the results of geophysical investigations.		

The *Sources of CWM* data element addresses the types of activities that were conducted at the MRS and how and to what extent CWM was used or may be present. The source expected to pose the greatest hazard is a range that supported live-fire testing or training using explosively configured CWM. An MRS where chemical munitions were only stored or transferred during transport poses the least hazard. As with the *CWM Configuration* data element, DoD has provided an “evidence of no CWM” classification for the *Sources of CWM* data element.

Table B.2 presents the classifications, definition for each classification, and associated numeric scores for the *Sources of CWM* data element.

**Table B.2**  
**CHE Sources of CWM Classifications**

<b>Classification</b>	<b>Description</b>	<b>Score</b>
Live Fire Involving CWM	<ul style="list-style-type: none"> <li>The MRS is a former military range that supported live fire of explosively configured CWM and the CWM/UXO are known or suspected of being present on the surface or in the subsurface.</li> <li>The MRS is a military range that supported live fire with conventional munitions, and CWM/DMM are on the surface or in the subsurface comingled with conventional munitions that are UXO.</li> </ul>	10
Damaged CWM/DMM Surface or Subsurface	<ul style="list-style-type: none"> <li>Damaged CWM/DMM are on the surface or in the subsurface at the MRS.</li> </ul>	10
Undamaged CWM/DMM Surface	<ul style="list-style-type: none"> <li>Undamaged CWM/DMM are on the surface at the MRS.</li> </ul>	10
CAIS/DMM Surface	<ul style="list-style-type: none"> <li>CAIS/DMM are on the surface.</li> </ul>	10
Undamaged CWM/DMM Subsurface	<ul style="list-style-type: none"> <li>Undamaged CWM/DMM are in the subsurface at the MRS.</li> </ul>	5
CAIS/DMM Subsurface	<ul style="list-style-type: none"> <li>CAIS/DMM are in the subsurface at the MRS</li> </ul>	5
Former CA or CWM Production Facilities	<ul style="list-style-type: none"> <li>The MRS is a facility that formerly engaged in production of CA or CWM, and CWM/DMM is suspected of being present on the surface or in the subsurface.</li> </ul>	3
Former Research, Development, Testing, and Evaluation (RDT&E) facility using CWM	<ul style="list-style-type: none"> <li>The MRS is at a facility that formerly was involved in non-live fire RDT&amp;E activities (including static testing), involving CWM, and CWM/DMM are suspected of being present on the surface or in the subsurface.</li> </ul>	3
Former Training facility using CWM or CAIS	<ul style="list-style-type: none"> <li>The MRS is a location that formerly was involved in training activities involving CWM and/or CAIS (e.g., training in recognition of CA, decontamination training), and CWM/DMM or CAIS/DMM are suspected of being present on the surface or in the subsurface.</li> </ul>	2
Former Storage or Transfer Points of CWM	<ul style="list-style-type: none"> <li>The MRS is a former storage facility or transfer point (e.g., intermodal transfer) for CWM.</li> </ul>	1

**Table B.2 (Continued)**  
**CHE Sources of CWM Classifications**

<b>Classification</b>	<b>Description</b>	<b>Score</b>
Evidence of No CWM	<ul style="list-style-type: none"> <li>Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.</li> </ul>	0
<p><b>Notes:</b></p> <p><i>CWM /UXO</i> means CWM that are UXO.</p> <p><i>CWM/DMM</i> means CWM that are DMM and includes CAIS K941, toxic gas set M-1; and K942, toxic gas set M-2/E11.</p> <p><i>CAIS/DMM</i> means CAIS, other than CAIS K941 and K942.</p> <p><i>Historical evidence</i> means the investigation: (1) found written documents or records, (2) documented interviews of persons with knowledge of site conditions, or (3) found and verified other forms of information.</p> <p><i>Physical evidence</i> means: (1) recorded observations from onsite investigations such as finding intact UXO, DMM, or munitions debris (e.g., fragments, penetrators, projectiles, shell casings, links, and fins), (2) the results of field or laboratory sampling and analysis procedures, or (3) the results of geophysical investigations.</p> <p><i>In the subsurface</i> means the CWM (i.e., a DMM or UXO) is (1) entirely beneath the ground surface, or (2) fully submerged in a water body.</p> <p><i>On the surface</i> means the CWM (i.e., a DMM or UXO) is (1) entirely or partially exposed above the ground surface (i.e., above the soil layer), or (2) entirely or partially exposed above the surface of a water body (e.g., as a result of tidal activity).</p>		

### **CHE CWM Accessibility Factor**

The Accessibility factor focuses on the potential for receptors to encounter the CWM known or suspected to be present on a MRS. This factor consists of three data elements: *Location of CWM*, *Ease of Access*, and *Status of Property*, and it constitutes 40% of the CHE score.

The data element *Information on the Location of CWM* is an evaluation of the following three conditions that were combined into one data element to best represent the potential for encountering CWM:

- The confirmed or suspected presence of CWM based on physical evidence (e.g., presence or absence of munitions fragments, firing records, anecdotal information).
- The likelihood for direct contact with CWM based on its proximity to the surface.
- The potential for the CWM to reach the surface due to dynamic site conditions (e.g., erosion).

This data element attempts to differentiate MRS where a true hazard is present as opposed to the numerous MRS where only CWM fragments (e.g., containers or portions of containers with no remaining CA) remain or where CWM were only transferred or stored. It also differentiates between “known” versus “suspected” evidence.

Table B.3 presents the classifications, definition for each classification, and associated numeric scores for the *Information on the Location of CWM* element.

**Table B.3**  
**CHE Information on Location of CWM Classifications**

<b>Classification</b>	<b>Description</b>	<b>Score</b>
Confirmed surface	<ul style="list-style-type: none"> <li>Physical evidence indicates that CWM are on the surface of the MRS</li> <li>Historical evidence (e.g., a confirmed incident report or accident report) indicates CWM are on the surface of the MRS.</li> </ul>	25
Confirmed subsurface, active	<ul style="list-style-type: none"> <li>Physical evidence indicates the presence of CWM in the subsurface of the MRS, the geological conditions at the MRS are likely to cause CWM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM.</li> <li>Historical evidence indicates that CWM are located in the subsurface of the MRS, the geological conditions at the MRS are likely to cause CWM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM.</li> </ul>	20
Confirmed subsurface, stable	<ul style="list-style-type: none"> <li>Physical evidence indicates the presence of CWM in the subsurface of the MRS, the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities are not likely to cause CWM to be exposed.</li> <li>Historical evidence indicates that CWM are located in the subsurface of the MRS, the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities occurring at the MRS are not likely to cause CWM to be exposed.</li> </ul>	15
Suspected (physical evidence)	<ul style="list-style-type: none"> <li>There is physical evidences, other than the documented presence of CWM, indicating that CWM may be present at the MRS.</li> </ul>	10
Suspected (historical evidence)	<ul style="list-style-type: none"> <li>There is historical evidence indicating that CWM may be present at the MRS.</li> </ul>	5
Subsurface, physical constraint	<ul style="list-style-type: none"> <li>There is physical or historical evidence indicating that CWM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the CWM.</li> </ul>	2

**Table B.3 (Continued)**  
**CHE Information on Location of CWM Classifications**

Classification	Description	Score
Evidence of no CWM	<ul style="list-style-type: none"> <li>Following investigation of the MRS, there is physical evidence that there is no CWM present or there is historical evidence indicating that no CWM are present.</li> </ul>	0
<p><b>Notes:</b></p> <p><i>Historical evidence</i> means the investigation: (1) found written documents or records, (2) documented interviews of persons with knowledge of site conditions, or (3) found and verified other forms of information.</p> <p><i>Physical evidence</i> means: (1) recorded observations from onsite investigations such as finding intact UXO, DMM, or munitions debris (e.g., fragments, penetrators, projectiles, shell casings, links, fins), (2) the results of field or laboratory sampling and analysis procedures, or (3) the results of geophysical investigations.</p> <p><i>In the subsurface</i> means the CWM (i.e., a DMM or UXO) is (1) entirely beneath the ground surface, or (2) fully submerged in a water body.</p> <p><i>On the surface</i> means the CWM (i.e., a DMM or UXO) is (1) entirely or partially exposed above the ground surface, or (2) entirely or partially exposed above the surface of a water body (e.g., as a result of tidal activity).</p>		

The *Ease of Access* data element focuses on the means for an encounter with CWM based on the extent of controls preventing access or entry to the MRS. Both natural obstacles (e.g., dense vegetation, rugged terrain, water) and manmade controls (e.g., fencing) are considered in this analysis. DoD deliberated over numerous data elements and associated definitions to best capture these conditions. DoD found the conditions within this data element difficult to capture, especially for large MRS that have not been characterized and had varying conditions across the MRS (e.g., short grass and dense swamp). The solution was to score the data element based on whether or not access to the MRS was complete and monitored, complete and unmonitored, incomplete, or no barrier to access.

Table B.4 presents the classifications, definition for each classification, and associated numeric scores for the *Ease of Access* data element.

**Table B.4**  
**CHE Ease of Access Classifications**

Classification	Description	Score
No barrier	No barrier prevents access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	A barrier prevents access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete, but not monitored	A barrier prevents access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5

**Table B.4**  
**CHE Ease of Access Classifications**

Classification	Description	Score
Barrier to MRS access is complete and monitored	A barrier prevents access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
<b>Notes:</b> <i>Barrier</i> means a natural obstacle or obstacles (e.g., difficult terrain, dense vegetation, deep or fast moving water), a manmade obstacle or obstacles (e.g., fencing), or a combination of natural and manmade obstacles.		

The last data element in the Accessibility factor is *Status of Property*. Its purpose is to differentiate between MRS that DoD controls and MRS that DoD does not control. Based on comments received during the consultation with the tribes, DoD revised the definition of non-DoD control to specifically include all Indian lands (i.e., trust lands, allotments, and Alaska Native Claims Settlement Act (ANCSA)-conveyed property). DoD also included property transferring from DoD control within 3 years in this data element to address those MRS that may be currently controlled by DoD but are planned for transfer to non-DoD entities in the near future. There are three classifications: DoD control, scheduled for transfer from DoD control, and non-DoD control.

Table B.5 presents the classifications, definition for each classification, and associated numeric scores for the *Status of Property* data element.

**Table B.5**  
**CHE Status of Property Classifications**

Classification	Description	Score
Non-DoD control	The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by the DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies.	5
Scheduled for transfer from DoD control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to control of another entity (e.g., a state, tribal, local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the DoD. With respect to property that is leased or otherwise possessed, DoD controls access to the property 24 hours per day, every day of the calendar year.	0

## Receptor Factor

The Receptor factor focuses on the human and ecological populations that may be impacted by the presence of CWM. It has the data elements *Population Density*, *Population Near Hazard*, *Types of Activities/Structures*, and *Ecological and/or Cultural Resources* and constitutes 20% of the CHE score.

The *Population Density* data element is used to both assess the number of persons who could potentially access the MRS and could potentially be at risk from CWM known or suspected to be present. Using 2000 U.S. Census Bureau data, it is based on the number of people per square mile in the county in which the MRS is located. If the MRS is located in more than one county, the largest population value among the counties is used. DoD selected county population density for this element because city population information was not consistently available for all MRSs, especially those in more rural or remote locations. If the MRS is within or borders on city limits, the population density of the city should be used instead of the county population density. During consultation with states, tribes, and other federal agencies, some agencies expressed a desire to use alternate and other readily available data (e.g., daily visitor counts to national recreational areas) in place of census data. DoD considered this approach but, for consistency in the Protocol's application, determined that such site-specific data would best be addressed in implementation guidance or considered as "risk plus" or "other" factors when determining the sequencing for MRS. DoD also initially considered differentiating between onsite and offsite populations but found such an approach unworkable.

Table B.6 presents the classifications, definition for each classification, and associated numeric scores for the *Population Density* data element.

**Table B.6**  
**CHE *Population Density* Classifications**

Classification	Description	Score
> 500 persons per square mile	There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	5
100 to 500 persons per square mile	There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	3
< 100 persons per square mile	There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	1
<b>Notes:</b> If an MRS is in more than one county, the DoD component will use the largest population value among those counties. If the MRS is within or borders a city or town, the population density for that city or town is used instead of the county population density.		

The *Population Near Hazard* data element is estimated based on the number of inhabited structures on the MRS and within a 2-mile distance extending out from the boundary of the MRS. Although this element is defined based on the number of inhabited structures, DoD's

focus is on the potential for human populations within the structures, not on the structures themselves.

Table B.7 presents the classifications, definition for each classification, and associated numeric scores for the *Population Near Hazard* data element.

**Table B.7**  
**CHE *Population Near Hazard* Classifications**

<b>Classification</b>	<b>Description</b>	<b>Score</b>
26 or more structures	26 or more inhabited structures are located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25	16 to 25 inhabited structures are located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15	11 to 15 inhabited structures are located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10	6 to 10 inhabited structures are located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5	1 to 5 inhabited structures are located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0	No inhabited structures are located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
<b>Notes:</b> <i>Inhabited structures</i> means permanent or temporary structures, other than military munitions-related structures, that are routinely occupied by one or more persons for any portion of a day.		

The *Types of Activities/Structures* data element is used to assess information about the population and activities near the hazard. Through this data element, DoD strives to address multiple factors, including the amount, type, intrusiveness of activities, and likelihood of people to congregate onsite and within a 2-mile radius of the MRS. Consideration is made to reflect the nature of the activities that may result in an encounter with CWM. Residential and recreational areas are weighted highest to reflect the types of activities and population (e.g., children) that may be in their vicinity. In response to tribal comments, DoD included subsistence activities in the highest classification.

Table B.8 presents the classifications, definition for each classification, and associated numeric scores for the *Types of Activities/Structures* element.

**Table B.8**  
**CHE Types of Activities/Structures Classifications**

Classification	Description	Score
Residential, educational, commercial, or subsistence	Activities are conducted or inhabited structures are located up to 2 miles from the MRS's boundary or within the MRS's boundary that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	Activities are conducted or inhabited structures are located up to 2 miles from the MRS's boundary or within the MRS's boundary that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	Activities are conducted or inhabited structures are located up to 2 miles from the MRS's boundary or within the MRS's boundary that are associated with agriculture or forestry.	3
Industrial or warehousing	Activities are conducted or inhabited structures are located up to 2 miles from the MRS's boundary or within the MRS's boundary that are associated with industrial activities or warehousing.	2
No known or recurring activities	No known recurring activities are occurring up to 2 miles from the MRS's boundary or within the MRS's boundary.	1
<b>Notes:</b> <i>Inhabited structures</i> means permanent or temporary structures, other than military munitions-related structures, that are routinely occupied by one or more persons for any portion of a day.		

Through the *Ecological and Cultural Resources* data element, DoD recognizes the importance of the ecological and cultural resources present on an MRS. This data element considers threatened and endangered species, critical habitat, sensitive ecosystems, natural resources, historical sites, cultural items, archeological resources, and American Indians or Alaska Natives spiritual sites (e.g., the MRS is deemed by American Indian or Alaska Natives to be of spiritual significance or there are areas that are used by American Indian and Alaska Natives for subsistence activities such as hunting or fishing). Requirements for determining if a particular feature is a cultural resource are found in the National Historic Preservation Act, Native American Graves Protection and Repatriation Act, Archeological Resources Protection Act, Executive Order 13007, and the American Indian Religious Freedom Act. The greatest weight is awarded to an MRS with both cultural and ecological resources.

Table B.9 presents the classifications, definition for each classification, and associated numeric scores for the *Ecological and Cultural Resources* data element.

**Table B.9**  
**CHE Ecological and/or Cultural Resources Classifications**

<b>Classification</b>	<b>Description</b>	<b>Score</b>
Ecological and cultural resources present	Both ecological and cultural resources are present on the MRS.	5
Ecological resources present	Ecological resources are present on the MRS.	3
Cultural resources present	Cultural resources are present on the MRS.	3
No ecological or cultural resources present	No ecological resources or cultural resources are present on the MRS.	0

**Notes:**

*Ecological resources* means that: (1) a threatened or endangered species [designated under the Endangered Species Act (ESA)] is present on the MRS, (2) the MRS is designated under the ESA as critical habitat for a threatened or endangered species, or (3) sensitive ecosystems are identified such as wetlands or breeding grounds and are present on the MRS.

*Cultural resources* means there are recognized cultural, spiritual, traditional, religious, or historical features (e.g., structures, artifacts, symbolism) on the MRS. Requirements for determining if a particular feature is a cultural resource are found in the National Historic Preservation Act, Native American Graves Protection and Repatriation Act, Archeological Resources Protection Act, Executive Order 13007, and the American Indian Religious Freedom Act. For example, American Indians or Alaska Natives deem an MRS to be of religious significance; there are areas that are used by American Indians or Alaska Natives for subsistence activities (e.g., hunting, fishing).

**CHE Module Rating**

As described earlier in discussion of the CHE module, each data element provides a numeric score, and the sum of these scores (i.e., the CHE module score) is used to determine the CHE rating. Table B.10 illustrates the CHE module score that results in an MRS being placed into one of seven ratings.

**Table B.10**  
**Determining CHE Rating from CHE Module Score**

<b>MRS Overall CHE Module Score</b>	<b>CHE Rating<sup>1</sup></b>
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
Less than 38	G

**Table B.10**  
**Determining CHE Rating from CHE Module Score**

MRS Overall CHE Module Score	CHE Rating <sup>1</sup>
<sup>1</sup> No meaning is assigned to the CHE rating in the CHE module. The rating is simply used as a category for the results.	

In addition, there are three other possible outcomes:

- *Evaluation pending.* This category is used when CWM is known or suspected but sufficient information is not available to populate the nine data elements of the CHE module.
- *No longer required.* This category is reserved for MRSs that no longer require a priority because DoD has conducted a response, all response objectives set out in the decision document for the MRS have been achieved, and no further action is required, except for long-term management and recurring reviews.
- *No known or suspected CWM Hazard.* This category is reserved for MRSs that do not require evaluation under the CHE module.

# CWM FUDS

Orlando AAF, Toxic Gas Ya

**Table 11**  
**Classifications within the CHE CWM Configuration Data Element**

Classification	Description	Score
<b>CWM, explosive configuration, either UXO or damaged DMM</b>	The CWM known or suspected of being present at the MRS is: - Explosively configured CWM that are UXO (i.e., CWM/UXO) - Explosively configured CWM that are DMM that have been damaged (CWM/DMM)	<b>0</b>
	- The CWM known or suspected of being present at the MRS are CWM/DMM that are co-mingled with conventional munitions that are UXO.	<b>0</b>
<b>CWM, explosive configuration that are DMM (unused)</b>	- The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	<b>0</b>
<b>CWM, not-explosively configured or CWM, bulk container</b>	The CWM known or suspected of being present at the MRS is: - Non-explosively configured CWM/DMM - Bulk CWM/DMM (e.g., ton container).	<b>15</b>
<b>CAIS K941 and CAIS K942</b>	- The CWM/DMM known or suspected of being present at the MRS is K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	<b>0</b>
<b>CAIS (chemical agent identification sets)</b>	- The CWM known or suspected of being present at the MRS are only CAIS/DMM. The CAIS present cannot include CAIS K941, toxic gas set M-1; and K942, toxic gas set M-2/E11 for the MRS to be assigned this rating.	<b>0</b>
<b>Evidence of no CWM</b>	- Following investigation, the physical evidence indicated that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	<b>0</b>

## Notes:

- The notation CWM/DMM means CWM that are DMM.
- The term CWM/UXO means CWM that are UXO.
- Historical evidence means that the investigation; (1) found written documentation or records, or (2) documented interviews of persons with knowledge of site conditions, or (3) found and verified other forms of information.
- Physical evidence means: (1) recorded observations from on-site investigations, such as finding intact UXO or DMM, or components, fragments, or other pieces of military munitions, or (2) the results of field or laboratory sampling and analysis procedures, or (3) the results of geophysical investigations.

**Table 12**  
**Classifications within the CHE Sources of CWM Data Element**

Classification	Description	Score
<b>Live-fire involving CWM:</b>	<ul style="list-style-type: none"> <li>- The MRS is a range that supported live-fire of explosively configured CWM and the CWM/UXO are known or suspected of being present on the surface or in the subsurface.</li> <li>- The MRS is a range that supported live-fire with conventional munitions, and CWM/DMM are on the surface or in the subsurface co-mingled with conventional munitions that are UXO.</li> </ul>	<b>0</b>
<b>Damaged CWM/DMM or CAIS/DMM, surface or subsurface:</b>	- There are damaged CWM/DMM on the surface or in the subsurface at the MRS.	<b>0</b>
<b>Undamaged DWM/DMM or CAIS/DMM, surface:</b>	- There are undamaged CWM/DMM on the surface at the MRS.	<b>0</b>
<b>Undamaged CWM/DMM, or CAIS/DMM, subsurface</b>	- There are undamaged CWM/DMM in the subsurface at the MRS.	<b>0</b>
<b>Production facilities of CWM or CAIS:</b>	- The MRS is a facility that engaged in production of CWM, and there are CWM/DMM suspected of being present on the surface or in the subsurface.	<b>0</b>
<b>RDTE facility using CWM or CAIS:</b>	- The MRS is at a facility that was involved in non-live fire Research, Development, Testing, and Evaluation (RDTE) activities (including static testing) involving CWM, and there are CWM/DMM suspected of being present on the surface or in the subsurface.	<b>0</b>
<b>Training Facility using CWM or CAIS:</b>	- The MRS is a location that was involved in training activities involving CWM and/or CAIS (e.g., training in recognition of CWA, decontamination training) and CWM/DMM are suspected of being present on the surface or in the subsurface.	<b>2</b>
<b>Storage or transfer points of CWM:</b>	- The MRS is a former storage facility or transfer point (e.g., inter-modal transfer) for CWM.	<b>0</b>
<b>Evidence of no CWM:</b>	- Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	<b>0</b>

**Notes:**

- The notation CWM/DMM means CWM that are DMM.
- The term CWM/UXO means that CWM that are UXO.
- Historical evidence means that the investigation; (1) found written documentation or records, or (2) documented interviews of persons with knowledge of site conditions, or (3) found and verified other forms of information.
- Physical evidence means: (1) recorded observations from on-site investigations, such as finding intact UXO or DMM, or components, fragments, or other pieces of military munitions, or (2) the results of field or laboratory sampling and analysis procedures, or (3) the results of geophysical investigations.
- In the subsurface means the CWM (i.e., a DMM or UXO) is: (1) entirely beneath the ground surface, or (2) fully submerged in a water body.
- On the surface means the CWM (i.e., a DMM or UXO) is: (1) entirely or partially exposed above the ground surface, or (2) entirely or partially exposed above the surface of a water body (e.g., as a result of tidal activity).

**Table 13**  
**Classifications within the CHE Information on the Location of CWM Data Element**

Classification	Description	Score
<b>Confirmed surface:</b>	<ul style="list-style-type: none"> <li>- Physical evidence indicates there are CWM on the surface of the MRS.</li> <li>- Historical evidence (e.g., a confirmed incident report or accident report) indicates there are CWM on the surface of the MRS.</li> </ul>	<b>0</b>
<b>Confirmed subsurface, active:</b>	<ul style="list-style-type: none"> <li>- Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM to be exposed in the future by naturally occurring phenomena (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or there are on-going intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM.</li> <li>- Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM to be exposed in the future by naturally occurring phenomena (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or there are on-going intrusive activities (e.g., plowing, construction, dredging) at the MRS that are likely to expose CWM.</li> </ul>	<b>0</b>
<b>Confirmed subsurface, stable:</b>	<ul style="list-style-type: none"> <li>- Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed in the future by naturally occurring phenomena, or there are on-going intrusive activities at the MRS that are likely to cause CWM to be exposed.</li> <li>- Historical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed in the future by naturally occurring phenomena, or there are on-going intrusive activities at the MRS that are likely to either occur, or if the activities do occur, are likely to cause CWM to be exposed.</li> </ul>	<b>0</b>
<b>Suspected (physical evidence):</b>	<ul style="list-style-type: none"> <li>- There is physical evidence other than the documented presence of CWM, indicating that CWM may be present at the MRS.</li> </ul>	<b>0</b>
<b>Suspected (historical)</b>	<ul style="list-style-type: none"> <li>- There is historical evidence indicating that CWM may be present at the MRS.</li> </ul>	<b>0</b>
<b>Subsurface, physical constraint:</b>	<ul style="list-style-type: none"> <li>- There is physical or historical evidence indicating the CWM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the CWM.</li> </ul>	<b>2</b>
<b>Evidence of no CWM:</b>	<ul style="list-style-type: none"> <li>- Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.</li> </ul>	<b>0</b>

**Notes:**

- Historical evidence means that the investigation; (1) found written documentation or records, or (2) documented interviews of persons with knowledge of site conditions, or (3) found and verified other forms of information.
- Physical evidence means: (1) recorded observations from on-site investigations, such as finding intact UXO or DMM, or components, fragments, or other peices of military munitions, or (2) the results of field or laboratory sampling and analysis procedures, or (3) the results of geophysical investigations.
- In the subsurface means the CWM (i.e., a DMM or UXO) is: (1) entirely beneath the ground surface, or (2) fully submerged in a water body.
- On the surface means the CWM (i.e., a DMM or UXO) is: (1) entirely or partially exposed above the ground surface, or (2) entirely or partially exposed above the surface of a water body (e.g., as a result of tidal activity).
- The term small arms ammunition means solid projectile ammunition that is .50 caliber or smaller and shotgun shells.

<b>Table 14</b>		
<b>Classifications within the CHE Ease of Access Data Element</b>		
<b>Classification</b>	<b>Description</b>	<b>Score</b>
<b>No barrier:</b>	- There is no barrier preventing access to all parts of the MRS (i.e., all parts of the MRS are accessible).	<b>10</b>
<b>Barrier to MRS access is incomplete:</b>	- There is a barrier preventing access to parts of the MRS but not the entire MRS.	<b>0</b>
<b>Barrier to MRS access is complete, but not monitored:</b>	- There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	<b>0</b>
<b>Barrier to MRS access is complete and monitored:</b>	- There is a barrier preventing access to all parts of the MRS, and there is active continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	<b>0</b>
<b>Notes:</b> - Barrier means a natural obstacle or obstacles (e.g., difficult terrain, dense vegetation, deep or fast moving water), a man-made obstacle or obstacles (e.g., fencing), or a combination of natural and man-made obstacles.		

<b>Table 15</b>		
<b>Classifications within the CHE Status of Property Data Element</b>		
<b>Classification</b>	<b>Description</b>	<b>Score</b>
<b>Non-DoD control:</b>	- The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by the DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by American Indian or Alaskan Native Tribes, or State or local governments; and lands or water bodies managed by other Federal agencies.	<b>5</b>
<b>Scheduled for transfer from DoD control:</b>	- The MRS is on land or is a water body that is owned by, leased to, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to control of another entity (e.g., State, American Indian, Alaskan Native, or local government; a private party; another Federal agency) within 3 years from the date the Protocol is applied.	<b>0</b>
<b>DoD control:</b>	- The MRS is on land or is a water body that is owned by, leased to, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD controls access to the property 24-hours per day, every day of the calendar year.	<b>0</b>

**Table 16**  
**Classifications within the CHE Population Density Data Element**

Classification	Description	Score
<b>&gt;500 persons per square mile:</b>	-There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	<b>5</b>
<b>100-500 persons per square mile:</b>	-There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	<b>0</b>
<b>&lt;100 persons per square mile:</b>	-There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	<b>0</b>

**Notes:**

-If an MRS is in more than one county, the DoD Component will use the largest population value among the counties. If the MRS is within or borders a city or town, the population density for the city or town instead of the county population density is used.

**Table 17**  
**Classifications within the CHE Population Near Hazard Data Element**

Classification	Description	Score
<b>26 or more structures:</b>	-There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or	<b>5</b>
<b>16 to 25:</b>	-There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	<b>0</b>
<b>11 to 15:</b>	-There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	<b>0</b>
<b>6 to 10:</b>	-There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	<b>0</b>
<b>1 to 5:</b>	-There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	<b>0</b>
<b>0:</b>	-There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	<b>0</b>

**Notes:**

- The term inhabited structures means permanent or temporary structures, other than DoD munitions-related structures, that are routinely occupied by one or more persons for any portion of a day.

<b>Table 18</b> <b>Classifications within the CHE Types of Activities/Structures Data Element</b>		
<b>Classification</b>	<b>Description</b>	<b>Score</b>
<b>Residential, educational, commercial, or subsistence:</b>	-Activities are conducted or inhabited structures are located up to 2 miles from the MRS's boundary that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, play grounds, community gathering areas, religious sites or sites used by subsistence hunting, fishing, and gathering.	<b>5</b>
<b>Parks and recreational areas:</b>	- Activities are conducted or inhabited structures are located up to 2 miles from the MRS's boundary or within the MRS's boundary that are associated with parks, nature preserves or other recreational uses.	<b>0</b>
<b>Agricultural, forestry:</b>	- Activities are conducted or inhabited structures are located up to 2 miles from the MRS's boundary or within the MRS's boundary that are associated with agriculture or forestry.	<b>0</b>
<b>Industrial or warehousing:</b>	- Activities are conducted or inhabited structures are located up to 2 miles from the MRS's boundary or within the MRS's boundary that are associated with industrial activities or warehousing.	<b>0</b>
<b>No known or recurring activities:</b>	- There are no known recurring activities occurring up to 2 miles from the MRS's boundary or within the MRS's boundary.	<b>0</b>
<b>Notes:</b> - The term inhabited structures means permanent or temporary structures, other than DoD munitions-related structures, that are routinely occupied by one or more persons for any portion of a day.		

<b>Table 19</b> <b>Classifications within the CHE Ecological and/or Cultural Resources Data Element</b>		
<b>Classification</b>	<b>Description</b>	<b>Score</b>
<b>Ecological and cultural resources present:</b>	- There are both ecological and cultural resources present on the MRS.	<b>0</b>
<b>Ecological resources present:</b>	- There are ecological resources present on the MRS.	<b>3</b>
<b>Cultural resources present:</b>	- There are cultural resources present on the MRS.	<b>0</b>
<b>No ecological or cultural resources present:</b>	- There are no ecological or cultural resources present on the MRS.	<b>0</b>
<b>Notes:</b> - Ecological resources means that: (1) a threatened or endangered species (designated under the Endangered Species Act (ESA)) is present on the MRS; or (2) the MRS is designated under the ESA as a critical habitat for a threatened or endangered species; or (3) there are identified sensitive ecosystems such as wetlands or breeding grounds present on the MRS. - Cultural resources means there are recognized cultural, spiritual, traditional, religious, or historical features (e.g., structures, artifacts, symbolism) on the MRS. For example, American Indians or Alaska Natives deem the MRS to be of spiritual significance or there are areas that are used by American Indians or Alaska Natives for subsistence activities (e.g., hunting, fishing). Requirements for determining if a particular feature is a cultural resource are found in the National Historic Preservation Act, Native American Graves Protection and Repatriation Act, Archeological Resources Protection Act, Executive Order 13007, and the American Indian Religious Freedom Act.		

**Table 20**  
**Classifications within the CHE Rating from the CHE Module Score**

<b>Overall CHE Module Score</b>	<b>CHE Rating</b>
The MRS has an overall CHE module score from 92 to 100:	
The MRS has an overall CHE module score from 82 to 91:	
The MRS has an overall CHE module score from 71 to 81:	
The MRS has an overall CHE module score from 60 to 70:	
The MRS has an overall CHE module score from 48 to 59:	<b>CHE Rating E</b>
The MRS has an overall CHE module score from 38 to 47:	
The MRS has an overall CHE module score less than 38:	