



U.S. Army Corps of Engineers
Southeast and Pacific IMA Region

FINAL
Site Specific Work Plan Addendum
to
The Programmatic Work Plan
Passage Key Air-to-Ground and Gunnery Range
Manatee County, Florida

FUDS Project No. I04FL040101
July 2007

In Support of

FUDS MMRP Site Inspections Project

Prepared By:

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July 13, 2007

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Subject: Contract W912DY-04-D-0005, Delivery Order 0008
MMRP SI for SE and Pacific IMA Region – Final SS-WP Addendum
Passage Key Air-to-Ground Gunnery Range, Manatee County, Florida

Dear Mr. Garretson:

Parsons has prepared this Final Site-Specific Work Plan (SS-WP) Addendum for the Passage Key Air-to-Ground Gunnery Range. Two copies have been provided for your records. We have simultaneously forwarded five copies of the document to Mr. Charles Fales of the Jacksonville District (to include distribution to the Florida Department of Environmental Protection (FDEP), and a single copy to the MM CX and the HTRW CX. Electronic copies have also been provided.

If you have any questions or comments, please contact me at (678) 969-2384 or (404) 606-0346 (cell) or the Project Manager (Ms. Laura Kelley) at (678) 969-2437.

Sincerely,

PARSONS



Don Silkebakken, P.E.
MMRP SI Project/Program Manager

cc: Charles Fales (CESAJ PM) – 5 copies/5 CDs
MM CX Betina Johnson / Deborah Walker – 1 copy/1 CDs
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TABLE OF CONTENTS

	Page
TABLE OF CONTENTS	i
LIST OF TABLES	iv
LIST OF FIGURES.....	iv
LIST OF ACRONYMS.....	v
CHAPTER 1 INTRODUCTION	1-1
1.1 Application	1-1
1.2 SI Project Objective.....	1-1
1.3 TPP Summary.....	1-3
1.4 Site-Specific Work Plan Organization	1-4
CHAPTER 2 PROJECT DESCRIPTION.....	2-1
2.1 Project Location.....	2-1
2.2 Site Description	2-1
2.2.1 Geology and Soils.....	2-1
2.2.2 Climate	2-1
2.2.3 Topography and Vegetation	2-2
2.2.4 Hydrology.....	2-2
2.3 General History	2-2
2.4 Current and Projected Land Use.....	2-3
2.5 Previous Investigation	2-3
2.5.1 1993 and 2000 Inventory Project Report (INPR).....	2-3
2.5.2 2002 Archives Search Report	2-3
2.5.3 2004 Archives Search Report Supplement	2-3
2.6 Munitions and Explosives of Concern.....	2-4
2.7 Project Organization/Points of Contact	2-11
2.8 Project Schedule	2-15
CHAPTER 3 FIELD INVESTIGATION PLAN.....	3-1
3.1 Technical Approach	3-1
3.1.1 Conceptual Site Exposure Model.....	3-1
3.1.2 Site Characterization Goals	3-1
3.1.3 Data Quality Objectives.....	3-1
3.1.3.1 Qualitative Reconnaissance DQO.....	3-2
3.1.3.2 Munitions Constituents DQO	3-2
3.1.3.3 Hazard Ranking System DQO	3-3
3.1.3.4 Military Response Site Prioritization Protocol DQO	3-3
3.2 SI Field Planning and Logistics.....	3-4

**TABLE OF CONTENTS
(CONTINUED)**

	Page
3.2.1 Historical Research and Review	3-4
3.2.2 Right-of-Entry.....	3-4
3.2.3 Sensitive Environments and Cultural Resources	3-4
3.2.4 Equipment.....	3-4
3.2.5 Communications	3-4
3.2.6 Training and Briefing	3-5
3.3 SI Field Data Collection	3-5
3.4 Qualitative Reconnaissance (QR).....	3-6
3.5 Munitions Constituents (MC) Sampling.....	3-6
3.6 Sample Collection	3-7
3.7 Analytical Procedures and Data Validation.....	3-7
CHAPTER 4 SAMPLING AND ANALYSIS PLAN	4-1
4.1 Introduction	4-1
4.2 Sample Collection.....	4-1
4.2.1 Soil Samples	4-1
4.2.2 Sample Containers.....	4-1
4.2.3 Quality Control (QC)/Quality Assurance (QA) Samples	4-2
4.2.4 Sample Shipment.....	4-2
4.3 Investigative Derived Waste	4-3
4.4 Nonmeasurement Data.....	4-3
4.5 Munitions Constituents Analysis	4-3
4.6 Analytical Methods.....	4-4
4.7 Data Quality Objectives	4-4
CHAPTER 5 ENVIRONMENTAL PROTECTION PLAN.....	5-1
5.1 Introduction.....	5-1
5.2 Endangered and Threatened Species.....	5-2
5.3 Sensitive Environments	5-2
5.4 Wetlands	5-2
5.5 Cultural and Archeological Resources	5-3
5.6 Water Resources	5-3
5.7 Coastal Zones	5-4
5.8 Trees and Shrubs	5-4
5.9 Waste Disposal Sites	5-4
5.10 Impact Mitigation Measures.....	5-4
CHAPTER 6 SITE-SPECIFIC ACCIDENT PREVENTION PLAN	6-1
6.1 Application.....	6-1
6.2 Medical Support.....	6-1
6.3 Hazards and Risks	6-1
6.4 Physical Hazards	6-2
6.4.1 Severe Weather.....	6-2

**TABLE OF CONTENTS
(CONTINUED)**

	Page
6.5 Biological Hazards	6-3
6.5.1 Snakes.....	6-3
6.5.2 Poisonous Insects.....	6-3
6.5.2.1 Spiders	6-3
6.5.2.2 Ticks.....	6-3
6.5.2.3 Chiggers	6-3
6.5.2.4 Fire Ants.....	6-3
6.5.2.5 Mosquitoes.....	6-3
6.5.2.6 Bees, Wasps, Hornets, and Other Insects.....	6-3
6.5.3 Poisonous Plants	6-4
6.5.4 Blood-borne Pathogens.....	6-4
 CHAPTER 7 REFERENCES	 7-1

- APPENDIX A TPP DOCUMENTATION
- APPENDIX B CONCEPTUAL SITE MODELS
- APPENDIX C UXO PROCEDURE – IGD 06-05

LIST OF TABLES

No.	Title	Page
2.1	Suspect or Known Munitions	2-4
2.2	Key Technical Contacts	2-13
3.1	Sampling Rationale.....	3-10
4.1	Sample Containers, Preservatives, and Holding Times	4-5
4.2	Sample Identification, Quality Control, and Quality Assurance Samples	4-6
4.3	Chemical Composition of MEC and Potential Munitions Constituents	4-7
4.4a	Target Analyte List for Explosives by LC/MS	4-9
4.4b	Target Analyte List for Inorganics by ICP, ICP/MS, and CVAA	4-10
4.5	Chemical-Specific Data Quality Objectives / Laboratory MDSs and PQLs for Soil Samples.....	4-11
5.1	State and Federally-listed Endangered and Threatened Species in Manatee County, Florida.....	5-5
6.1	Fire Extinguisher Requirements for Launches/Motorboats.....	6-2
6.2	Emergency Telephone Numbers.....	6-5

LIST OF FIGURES

No.	Title	Page
2.1	Site Location and Boundaries, former Passage Key Air-to-Ground Gunnery Range	2-16
2.2	Site Location and Boundaries, former Passage Key Air-to-Ground Gunnery Range	2-17
2.3	Schedule.....	2-18
3.1	Qualitative Reconnaissance and Sample Locations(topo map)	3-8
3.2	Qualitative Reconnaissance and Sample Locations(aerial map)	3-9
5.1	Wetlands, former Passage Key Air-to-Ground Gunnery Range.....	5-8
6.1	Hospital Directions	6-6

LIST OF ACRONYMS

AHA	Activity Hazard Analysis
AOC	Area of Concern
ASR	Archives Search Report
bgs	Below ground surface
CEHNC	U.S. Army Corps of Engineers, Huntsville District
CEMVS	U.S. Army Corps of Engineers, St. Louis District
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESAJ	U.S. Army Corps of Engineers, Jacksonville District
CHE	Chemical Hazard Evaluation
CSEM	Conceptual Site Exposure Model
CSM	Conceptual Site Model
CWM	Chemical Warfare Material
CZMP	Coastal Zone Management Program
DC	Design Center
DID	Data Item Description
DOACS	Department of Agriculture and Consumer Services
DoD	Department of Defense
DOI	Department of Interior
DQO	Data Quality Objective
EHE	Explosive Hazard Evaluation
EOD	Explosive Ordnance Disposal
EPP	Environmental Protection Plan
ER	Engineering Regulation
ERFPP	Emergency Response and Fire Prevention Plan
ESV	Ecological Screening Values
FAC	Florida Administrative Code
FDE	Findings and Determination of Eligibility
FDEP	Florida Department of Environmental Protection
FIP	Field Investigation Plan
FL-SHPO	Florida State Historic Preservation Office
FMSF	Florida Master Site File
FNAI	Florida Natural Areas Inventory
FSP	Field Sampling Plan
FTL	Field Team Leader
FTM	Field Team Member
FTS	Field Team Safety

FUDS	Formerly Used Defense Site
FUDSMIS	FUDS Management Information System
FWC	Fish and Wildlife Conservation Commission
GIS	Geographic Information System
GPS	Global Positioning System
HE	High Explosives
HEI	High Explosives Incendiary
HHE	Health Hazard Evaluation
HRS	Hazard Ranking System
HTW	Hazardous and Toxic Waste
IDW	Investigative Derived Waste
IMA	Installation Management Agency
INPR	Inventory Project Report
MC	Munitions Constituents
MD	Munitions Debris
MEC	Munitions and Explosives of Concern
MM	Military Munitions
MM CX	Military Munitions Center of Expertise
MM DC PM	Military Munitions Design Center Project Manager
MMRP	Military Munitions Response Program
mph	Miles per hour
MRA/MRS	Munitions Response Area or Site
MRS	Munitions Response Site
MRSPP	Munitions Response Site Prioritization Protocol
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NAATC	Naval Air Advanced Training Command
NAS	Naval Air Station(s)
NDAI	No DoD Action Indicated
NHA	National Heritage Area
NHL	National Historic Landmark
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRIS	National Register Information System
NWI	National Wetlands Inventory
NWRS	National Wildlife Refuge System
OCHP	Office of Cultural and Historical Programs
OE	Ordnance and Explosives
PA	Preliminary Assessment

PAPP	Programmatic Accident Prevention Plan
PDA	Personal Digital Assistant
PDF	Personal Flotation Device
PFSP	Programmatic Field Sampling Plan
POP	Period of Performance
PRG	Preliminary Remediation Goals
PSAP	Programmatic Sampling and Analysis Plan
PSHM	Parsons Safety and Health Manager
PWP	Programmatic Work Plan
PWS	Performance Work Statement
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
QR	Qualitative Reconnaissance
RAC	Risk Assessment Code
RCRA	Recreation Conservation Recovery Act
RI/FS	Remedial Investigation / Feasibility Study
ROE	Right-of-Entry
SHPO	State Historic Preservation Office
SI	Site Inspection
SOP	Standard Operating Procedure
SSAPP	Site-Specific Accident Prevention Plan
SSHO	Site Safety and Health Officer
SS-SAP	Site-Specific Sampling and Analysis Plan
SS-WP	Site-Specific Work Plan
SVT	Site Visit Team
T&E	Threatened and Endangered
TBD	To Be Determined
TCRA	Time Critical Removal Action
TESS	Threatened and Endangered Species
TPP	Technical Project Planning
USACE	U.S. Army Corps of Engineers
USAESCH	U.S. Army Engineering and Support Center, Huntsville
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UXO	Unexploded Ordnance
WD	War Department

CHAPTER 1 INTRODUCTION

1.1 APPLICATION

1.1.1 This Site-Specific Work Plan (SS-WP) has been prepared for the *former Passage Key Air-to-Ground Gunnery Range*, a small island located at the mouth of Tampa Bay, about ten miles northwest of the City of Bradenton, Manatee County, Florida (*Formerly Used Defense Site [FUDS] Project Number . I04FL040101*). The SS-WP serves as an extension to the Programmatic Work Plan (PWP) and Programmatic Sampling and Analysis Plan (PSAP) to conduct Site Inspections (SI) under the Military Munitions Response Program (MMRP) within the U.S. Army Corps of Engineers (USACE) Southeast and Pacific Military Munitions Design Center (MM DC) region. The reader is directed to the Final PWP (dated October 2005, prepared by Parsons) and Final PSAP (dated September 2005, prepared by USACE), inclusive of all subsequent addenda, for additional detail regarding the majority of SI procedures, resources, and methods that are common to most SI field actions. The PWP and PSAP have been reviewed and approved by USACE for use during implementation of the SI program.

1.1.2 The intent of this SS-WP is merely to augment the PWP and PSAP, as warranted, to present pertinent site-specific information and procedural deviations that could not be readily captured in the programmatic documents or were the result of the Technical Project Planning (TPP) Team agreements requiring modifications to the preliminary SI Technical Approach (see Subchapter 1.3 below). The PWP and PSAP are intended to be all-inclusive documents specifically tailored to address the foreseeable universe of potential SI actions. Conversely, the SS-WP has been prepared with emphasis on brevity and usability (with regard to the field implementation team) and is not intended to restate protocol already addressed elsewhere. It should be noted that the PWP and PSAP will accompany the SS-WP during the conduct of SI field activities.

1.2 SI PROJECT OBJECTIVE

1.2.1 The purpose and scope of this SI project is described in Subchapter 1.2 of the PWP. However, the primary objective can be summarized as the determination, through reconnaissance and munitions constituent (MC) sampling, as to whether the site should be recommended for immediate action (Time Critical Removal Action [TCRA]), subsequent characterization actions (such as a remedial investigation/feasibility study [RI/FS]), or no Department of Defense (DoD) Action Indicated (NDAI). An NDAI recommendation is limited exclusively to munitions and explosives of concern (MEC) and MC contamination issues and does not address Hazardous and Toxic Waste (HTW) concerns the site may pose. Additionally, if an NDAI recommendation is warranted and MEC and/or MC contamination issues are

subsequently identified, the site would be re-opened and would start the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process over again.

1.2.2 The key to performing a successful and cost effective SI is understanding that an SI is not designed to characterize or delineate (lateral or vertical extent) potential site contamination. It is merely a site screening initiative to address whether MEC, MC, or both are present at the site. Per Engineering Regulation (ER) 200-3-1 guidance for conducting SI, "The SI is not intended as a full-scale study of the nature and extent of contamination or explosive hazards" and only requires collection of "the minimum amount of information necessary" (USACE, 2004).

1.2.3 Frequently, sufficient data from prior studies, the Preliminary Assessment (PA), or the Archives Search Report (ASR) exists to support an anticipated recommendation for the site with regards to MEC, MC, or both. In such instances, data collection is tailored more towards providing compelling evidence in support of an NDAI assertion or for demonstrating a strategy for focusing an RI/FS to substantially smaller tracts within the site.

1.2.4 For the former Passage Key Air-to-Ground Gunnery Range, historical data indicates that a focused RI/FS might be appropriate for the site. The range is a small island at the mouth of Tampa Bay, about 10 miles northwest of Bradenton, Florida in Manatee County. In February of 1943, the 3rd Fighter command requested acquisition of the then 36.37 acre sand bar in the bay for use as a ground strafing range for their Replacement Training Unit program. The 337th Fighter Command had also used the island as a dive bombing range. It was agreed that use of the bombing and gunnery range would discontinue for three months each summer during the wild foul nesting season. The 3rd Air Force continued to use the island as a bombing range for practice skip bombing, dive bombing and strafing until October 1945. By 1946, the War Department relinquished the permit for Passage key and the island was returned to the Department of Interior. The U.S. Fish and Wildlife Service now manages the island as a wildlife refuge for migratory birds.

1.2.5 The TPP Project Team identified the island and the surrounding shallows as the only area of concern, as indicated by the 1993 Inventory Project Report (INPR) and the 2002 ASR, for sampling and QR during the SI. This area of concern has been reorganized to fit USACE's Munitions Response Site (MRS) determination for the Former Passage Key Air-to-Ground Gunnery Range. The MRS is provided in the ASR Supplement, with updated information provided in the Formerly Used Defense Sites Management Information System (FUDMIS) (Appendix D). The MRS listed below indicates changes from the TPP Memorandum to this SS-WP. Note that the area to be inspected remains the same. The MRS identified for this site is MRS 01 – Air-to-Ground Gunnery Range.

1.2.6 At the time of the TPP meeting the U.S. Fish and Wildlife Service stated that due to the constant gulf currents moving through Tampa Bay, the island shifts in size roughly every 3 months. Currently the island is approximately 20 ft by 20 ft in total size during high tide. There is no vegetation on the island and the birds no longer migrate to the island. The public now uses the shallows around the island as an anchorage for their boats. The island is still under U.S. Government jurisdiction, so the public are not permitted to go onto the island.

1.2.7 Since 1998 four MEC have been observed on or near the former Passage Key Air-to-Ground Gunnery Range and on each case Explosive Ordnance Disposal (EOD) units were called out to inspect and detonate each of the items. Due to the presence of potential munitions debris and the potential for MEC contamination, the fact that exposure pathways are complete, and a lack of access restriction, it was agreed the site visit and qualitative reconnaissance (QR) will focus on collecting sufficient data to proceed in a manner to focus a RI/FS recommendation. Therefore, environmental samples for this SI will be biased to the identified MRS areas, which represent the highest likelihood for the presence of residual MC contamination.

1.3 TPP SUMMARY

1.3.1 The former Passage Key Air-to-Ground Gunnery Range, falls under the purview of the USACE Jacksonville District (CESAJ). A TPP meeting was facilitated by CESAJ and held at the Fort DeSoto Park, 3500 Pinellas Bayway S., Tierra Verde, Florida 33715 on February 1, 2007. The meeting was attended by representatives of CESAJ, USACE Huntsville (CEHNC), Parsons, and Florida Department of Environmental Protection (FDEP), U.S. Fish and Wildlife Service, and Chassahowitzka National Wildlife Refuge Complex, and the Fort DeSoto Park. Unanimous TPP Team concurrence with the Technical Approach presented in the Final TPP Memorandum issued on March 01, 2007 was achieved (see Appendix A). This SS-WP reflects the TPP Team decisions resulting from the meeting as well as those directly resulting from follow-on actions. Key TPP facts and decisions are summarized below:

- The TPP Project Team concurred with the Technical Approach (likely an anticipated RI/FS) inclusive of number, type, and location of samples as well as sampling methodology and laboratory analyses.
- The TPP Project Team concurs with the Technical Approach (likely an anticipated RI/FS) as agreed at the TPP meeting on March 01, 2007 inclusive of number, type, and location of samples as well as sampling methodology and laboratory analyses.
- The TPP Project Team concurs with location of the two soil samples with the option of 3 discretionary samples. The location of the sample sites are shown on the attached Figure maps 3A and 3B, in the Conceptual Site Model (CSM) Section.
- TPP Project Team agreed to not have ambient samples or surface water samples collected for this site.
- No composite sampling will be conducted, but will be replaced with discrete sampling.
- TPP Project Team agreed to remove all but two samples and add 3 discretionary samples (if needed) from the sampling list due to the drastic reduction in the size of the island. Map Figures 3A and 3B are the most current licensed version showing the size of the island at the time of the aerial photo, no newer version have been located. Due to recent visual observations by the U.S. Fish and Wildlife officials, the island has been reduced by gulf current erosion to a size of 20 feet x 20 feet during high tide. The SI field team will attempt to visit the island during low tide which will constitute the possible need of discretionary samples.

- The TPP Project Team agrees that the Florida Administrative Code (FAC) 62-777, FDEP Soil Cleanup Target Levels for Direct Residential Exposure, Region 9 Residential Preliminary Remediation Goals (PRGs), and the Ecological Screening Values will be used for comparison of explosives and metals contamination on all samples.
- The TPP agreed that Jim Crane and Eric Nuzie should be designated as the regulator associated with the FDEP.
- U.S. Fish and Wildlife must have 30 day advance notice for Special Use Permit. Prior notice to the beginning of any field work so coordination can be arranged for the use of boat transportation to the island.
- Passage Key is currently a popular public gathering place, U.S. Fish and Wildlife requested that they should be present during the Field SI to deter any possible problems.
- U.S. Fish and Wildlife gave the coordinates to possible ordnance near the island (N 27 33.372', W 82 44.465').

1.3.2 For the former Passage Key Air-to-Ground Gunnery Range, this SS-WP has been written to address those items mentioned above and any other site-specific concerns needing further clarification of the PWP and PSAP.

1.4 SITE-SPECIFIC WORK PLAN ORGANIZATION

This SS-WP covers the investigation and all associated preparations necessary for SI activities at the former Passage Key Air-to-Ground Gunnery Range. The reader is referred to the PWP or PSAP for the general programmatic information intentionally excluded from this document. The SS-WP is organized as follows:

- Chapter 1 – Introduction
- Chapter 2 – Project Description
- Chapter 3 – Field Investigation Plan
- Chapter 4 – Sampling and Analysis Plan
- Chapter 5 – Environmental Protection Plan
- Chapter 6 – Site-Specific Health and Safety Plan
- Chapter 7 – References
- Appendices

CHAPTER 2

PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The former Passage Key Air-to-Ground Gunnery Range is located in Manatee County, Florida. Figures 2.1 and 2.2 show the island location and FUDS boundary.

2.2 SITE DESCRIPTION

2.2.1 The former Passage Key Air-to-Ground Gunnery Range, comprised of approximately 36.37 acres of island (information from the TPP meeting has the current size of the island at approximately 20 feet by 20 feet), that was owned by the Department of Interior (DOI) as a bird wildlife refuge are prior to any military use. By June of 1943 the War Department (WD) requested a temporary use permit from the DOI to use the island as a bombing range to be assigned to the Sarasota Army Air Field. Use permit was granted to the WD by August 1943.

2.2.2 The following sections dealing with site specific information were written based on the ASR.

2.2.1 Geology and Soils

The former Passage Key Air-to-Ground Gunnery Range is located in the Floridian Section of the Coastal Plain physiographic province. This peninsular area of Florida, has been divided into three physiographic zones: the Southern or Distal Zone, the Central or Mid-peninsular Zone, and the Northern or Proximal Zone. The range area falls within the Central Zone. One dominant geologic feature, the Ocala Uplift, controls the subsurface bedrock topography in this area. It is a gentle anticlinal flexure about 230 miles long and 70 miles wide exposed near the surface in west-central Florida. The Ocala Uplift is not expressed at the surface as the bedrock surface is buried beneath several hundred feet of unconsolidated sand deposits. The soils are composed mainly of sand and sandy material. The soils are to two basic types. The first type is beach sand. This soil is composed of slightly alkaline sand and shell fragments along the Gulf of Mexico shoreline. The majority of the beach deposits are under water during high tides. The second soil type is very similar. It typically has a surface layer that is 7 inches thick. It is composed of fine sand and about 10 percent sand-size shell fragments. There is little or no potential for frost development in the soils on the Passage Key Air-to-Ground Gunnery Range.

2.2.2 Climate

The climate in the former Passage Key Air-to-Ground Gunnery Range is part of the humid region of the United States and is sunny for 65 percent of the possible, with sunniest months being April and May. Afternoon humidity's are usually 60 percent or higher in the summer month, but range from 50 to 60 percent other remainder of the year. Prevailing winds are easterly,

but westerly afternoon and early evening sea breezes occur most months of the year. The outstanding feature of the areas climate is the summer thunderstorm season, thunderstorms occur in the late afternoon hours from June through September. The maximum temperature for the area was recorded at 99 degrees during the month of June while the minimum temperature was 18 degrees in December. Between the spring and fall, some 30 inches of rain, about 60 percent of the annual total, falls during the summer months. The greatest risk of hurricanes have been during the months of June through October being the most active. The highest frequency of dangerous lightning occurs during the months of June, July, and August.

2.2.3 Topography and Vegetation

The topography on the range is generally flat sandy land with an elevation of only a few feet about sea level. There is currently no vegetation on the island.

2.2.4 Hydrology

2.2.4.1 The western shoreline of Florida has a mixed tide, which consists of two unequal high waters and/or two unequal low waters each tidal day. In the Gulf of Mexico, the springtide usually ranges between 1 and 2 feet. The surface currents in the Gulf of Mexico at the former Passage Key Air-to-Ground Gunnery Range flow in a northwestern direction with a mean speed of about 0.9 mile per hour (mph). The primary type of sediment along the western shoreline of Florida consists of sand. In shallow waters the dominant minerals are quartz and feldspar, concentrations of heavy minerals or shell sands. In deeper water are for aminiferous remains.

2.2.4.2 The Floridan aquifer is the principal aquifer supplying most of the water used in the region, it is represented by limestone and dolomites of the Upper Floridan aquifer which includes the Avon park Limestone, Ocala Group limestones, (including the Suwannee Limestone). The top of the Floridan aquifer is defined as the first consistent limestone below which no clay confining beds occur. The configuration of the top of the aquifer is highly variable due to erosion and dissolution the limestones that form its upper surface. The elevation of the top of the aquifer within the area ranges from 300-450 feet below sea level. The regional direction of ground-water movement in the Floridan Aquifer is from east to west. Recharge of the Floridan aquifer occurs from overlying water-table aquifer in areas where it is in direct contact with the Floridan or through confining beds between the Floridan and the water-table aquifer.

2.3 GENERAL HISTORY

2.3.1 The former Passage Key Air-to-Ground Gunnery Ranges 36.37 acres were requisitioned from the DOI in February 1943 as a ground strafing and dive bombing range by the Headquarters 3rd Fighter Command as a Replacement Training Unit program. Sarasota Air Base was assigned the responsibility for constructing the bombing and strafing targets, maintenance, and operations. In accordance with the Use Permit for Passage Key Air-to-Ground Gunnery Range, use would be discontinued for three months each summer during the wild fowl nesting season. The 3rd Air Force continued to use the island for practice skip bombing, dive bombing, and strafing until October 1945, at that time they requested action to relieve them of their responsibility for the island. The War Department relinquished the permit for the Passage Key

Air-to-Ground Gunnery Range on March 1946 back to the Department of Interior, which then reverted back to a national Wildlife refuge for migratory birds.

2.3.2 The former Passage Key Air-to-Ground Gunnery Range had two banks of targets facing north and south, 500 feet apart, each having 6 targets. During the ASR site visit a rectangular concrete structure submerged in approximately six feet of seas water. This structure is thought to possibly be the remains of one of the former gunnery targets. Since 1998, there have been four ordnance item found on or around the island. Three of these items were 100 lb General Purpose bombs and one Photoflash bomb, all of which were detonated by either Navy or Air Force EOD units. A certificate of clearance dated 24 October 1945 stated that a thorough search had been made and that all duds, unexploded projectiles and bombs were disposed of and that decontamination of the island was deemed unnecessary.

2.4 CURRENT AND PROJECTED LAND USE

Currently, the former Passage Key Air-to-Ground Gunnery Range is being used by the DOI as a National Wildlife Refuge for migratory birds, operated by the U.S. Fish and Wildlife Service. During the TPP meeting the U.S Fish and Wildlife Service officer brought to the attention of the TPP members that the island is now too small to support migratory birds, but is still in their jurisdiction of control. The surrounding area is very shallow and is now used as a recreational area for boaters during the week and heavily used on the weekends. Access to the island is still restricted to the public.

2.5 PREVIOUS INVESTIGATIONS

2.5.1 1993 and 2000 Inventory Project Report (INPR)

CEHNC prepared an Inventory Project Report INPR in 1993 and 2000. The 1993 INPR recommendation gave the range a RAC score of 3 with a no further action, but in 2000 the INPR amended the RAC score to 2 due to the finding of bombs. The INPR recommended an OE investigation into the site which led to the subject ASR of 2002.

2.5.2 2002 Archives Search Report

2.5.2.1 The ASR was completed by USACE, St. Louis District (CEMVS) in August 2002. The ASR was prepared after reviewing available records, interviews, site inspection, analysis and reports that documented the history of the site. The ASR is the source of most of the historical information pertaining to site operations and identifies the key areas of focus for the SI. As part of this ASR, a site inspection (SI) team assessed the site for ordnance and explosives (OE) presence and potential. Four 100 lb bombs have been reported since 1998 just off the shore of the island with Explosive Ordnance Disposal (EOD) units responding to each bomb found.

2.5.3 2004 Archives Search Report Supplement

The ASR Supplement was prepared by CEMVS as a supplement to the 2002 ASR. The supplement provides site specific details such as range munitions used, periods of use, and coordinates of the site based on previous studies and investigations conducted on the former Passage Key Air-to-Ground Gunnery Range. It describes the findings of previous SIs and

affirms the findings of OE, OE debris or target type materials or debris within the site. The Risk Assessment Code (RAC) score of 2 (on a scale of 1 to 5, with 5 being the least risk) is listed and further explained in the RAC Scoring section of the ASR project file.

2.6 MUNITIONS AND EXPLOSIVES OF CONCERN

Information provided in the ASR, ASR Supplement, reported findings, visual observations, and other sources was used to develop the list of known or potential MEC items for the former Passage Key Air-to-Ground Gunnery Range. Table 2.1 show images and descriptions of munitions that may have been used on the site.

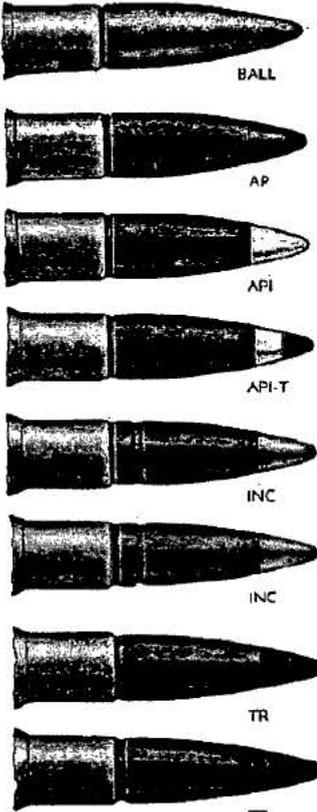
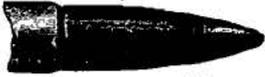
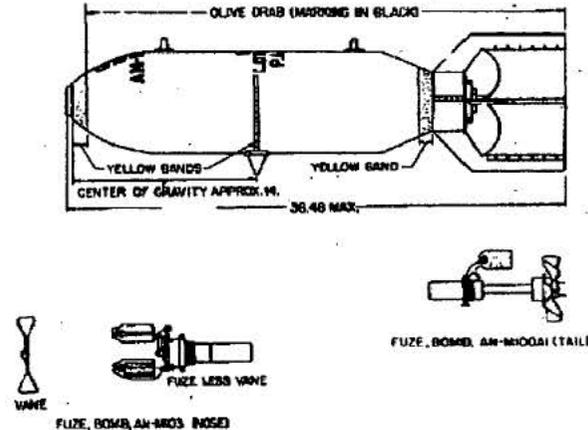
Table 2.1	
Suspect or Known Munitions	
 <p>DUMMY</p>	 <p>BLANK</p>
 <p>HIGH-PRESSURE TEST</p>	 <p>BALL</p> <p>AP</p> <p>API</p> <p>API-T</p> <p>INC</p> <p>INC</p> <p>TR</p>
	 <p>MU-D 73</p>
<i>Caliber .50 cartridges</i>	

Table 2.1
Suspect or Known Munitions

BOMB, GP, 100-POUND, AN-M30



Description. The GP and M series bombs of 100-pound weight have the same dimensions. The GP is distinguishable from the M-series by the fact that it has a base plug in the tail and a single suspension lug in addition to two Army lugs. The old GP bombs are a relatively thin-cased bomb with an ogival nose, parallel sidewalls, and a tapered aft section. It uses both the box type and conical type fin assembly. The box-type fin assembly is secured to the aft end of the bomb with a fin locknut, while the conical-type fin assembly is secured to the bomb body by means of a support tube. The two Army lugs are 14 inches apart, each 7 inches from the center of gravity. The single suspension lug is on the center of gravity 14 inches behind the nose. The weight of the case is 42.1 pounds and the fins weigh between 5.6 to 17.5 pounds. The filler is 50/50 amatol, TNT, or Tritonal. Percentage of filler is approximately 49 percent. The AN-M30 Bomb is fuze in the nose with the AN-M103 Fuze and in the tail with the AN-M100A2 Fuze. Alternate fuzes that may be used as substitutes or for special purposes are the M103, M118, or M119 Nose Fuzes, and the M112, M100, M106, or its modifications, or the AN-M100A1 Tail Fuzes.

Length, assembled bomb

Fin assembly AN-M103A1	40.26 inches
Fin assembly M135	54.2 inch
Diameter	8.18 inch

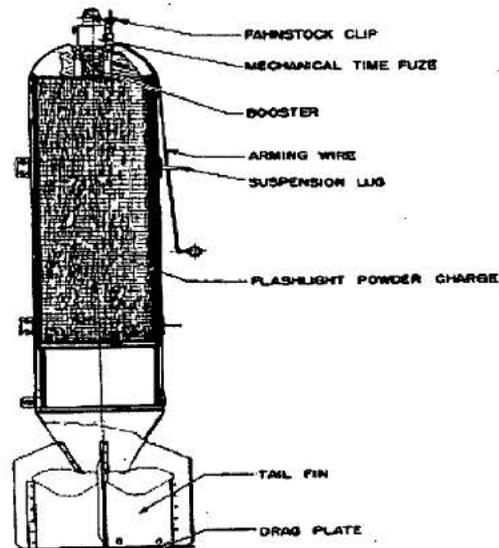
Weight of Filler

TNT	57 pound
Amatol	54 pound
Tritonal	62 pound
Fuze:	
Nose	AN-M103, M103, M118, M119
Tail	AN-M103, M112, M100, M106, AN-M100A1

Painting and Markings..... Olive drab with black stencil,
2 yellow bands (1aft, 1

Table 2.1
Suspect or Known Munitions

BOMB, PHOTOFLASH, AN-M46



Use. The photoflash bomb AN-M46 was developed so that planes engaged in night photography reconnaissance need not be limited to low altitudes.

Description. In appearance it resembles a conventional light-case bomb. Uses a Fuze M111A2 in the nose, but it is issued unfuzed. It also has two suspension bands for rack and shackle suspension.

Operation. When the bomb is dropped, the arming wire is pulled, starting the mechanical time fuze. When the time set on the fuze has elapsed, the fuze booster ignites the flashlight powder.

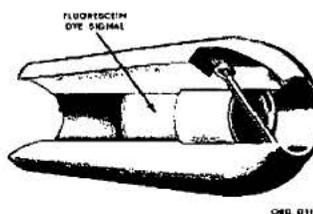
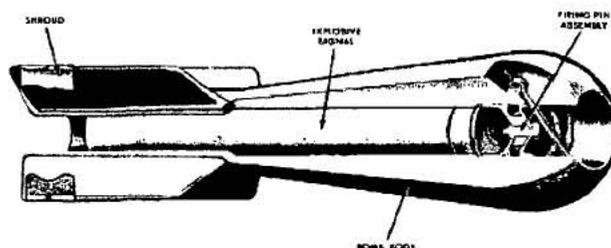
Remarks. Because of the brilliance of the flash, it is detrimental to the vision to watch the explosion of photoflash bombs. Extreme care should be exercised in handling these bombs, because the charge is very sensitive to friction, shock, and temperature.

Over-all length	48.4 inch
Body Diameter	8 inches
Weight	51.9 pound
Filler	Flash Powder
Weight of filler	25 pounds
Fuze	M111A2, AN-M146

Reference: NAVSEA OP 1664, Volume 1, *U.S. Explosive Ordnance*, May 1947

Table 2.1
Suspect or Known Munitions

MINIATURE PRACTICE BOMBS AN-Mk 5 Mod 1, AN-Mk 23, AN-Mk 43

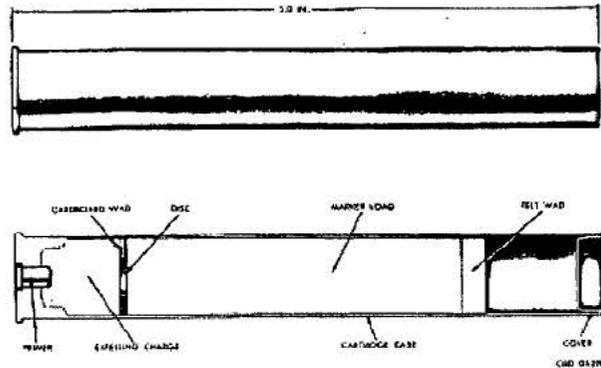


Description. These bombs are used for low-altitude horizontal, or dive-bombing practice. The three bombs are similar in physical appearance, but differ basically in the metal used to cast the body. Bombs are used with the AN-Mk 4 practice bomb signal that is a blank 10-gauge shotgun shell (extended length). Signals contain a black powder expelling charge and a red phosphorous pyrotechnic mixture. These bombs also are used with the MK5 signal that contains a fluorescein dye and is actuated by impact on water. When the Mk5 signal is installed, the firing pin assembly is not used.

Over-all length	8.25 inches
Body Diameter	2.18 inches
Fin Dimension	2.5 inches
Weight	AN-Mk 5 Mod 1 - 2 lb. 11 oz. \pm 1 oz
	AN-Mk 23 - 3 lb. \pm 2 oz
	AN-Mk 43 - 4 lb. 7 oz. \pm 2 oz.
Signal	AN-Mk 4, Black powder/pyro- Technic charge Mk 5, Fluorescein dye

Table 2.1
Suspect or Known Munitions

SIGNAL, PRACTICE BOMB, Mk 4 Mod 3 & 4



Description. Practice Bomb signals Mk 4 Mods 3 and 4 are essentially 10-gauge shotgun shells. They contain an expelling charge of smokeless powder and are primed with a commercial primer. A pyrotechnic or inert marker load is separated from the expelling charge by a disc and cardboard gun wad. Felt gun wads that are cemented to the cover close the end of the shell.

Use. The signals are used in either the miniature or the larger practice bombs. However, installed in the miniature practice bombs, the signals do not consistently produce a visible signal when dropped from an altitude of 10,000 feet or higher. Released from that height, the bomb enters the water or earth so quickly that the signal frequently does not have time to function.

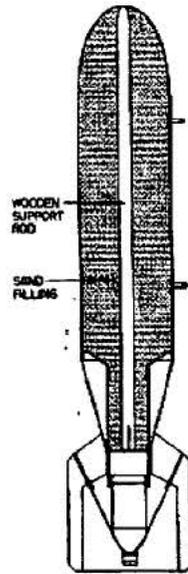
Functioning. When the practice bomb in which the signal is installed strikes water or the earth, impact causes the firing pin in the nose of the bomb to impinge upon the primer of the signal. The primer ignites the expelling charge, forcing the marker load out through an opening in the bomb. The resulting flash and puff of white smoke permit observation of bombing accuracy.

Differences. Signals Mk 4 Mod 0 was the first of this type developed. Mods 1 and 2 were procured later for issue to activities limited by environment to performing practice bombing in the vicinity of flammable areas. These signals contain inert materials that produce very little flash and are markedly inferior to the Mod 0. Mod 3 is similar to the Mod 0 but differs in that the cartridge case of the Mod 3 is extruded aluminum instead of paper; a primer mixture with improved storage characteristics has been used, a new pyrotechnic load has been incorporated. The Mod 4 signal is similar to the Mod 3 with the exception of an inert marker load of zinc oxide. In both Mods, the cover and cartridge case are cemented together; in Mod 3 the assembly also is staked in four equally spaced places.

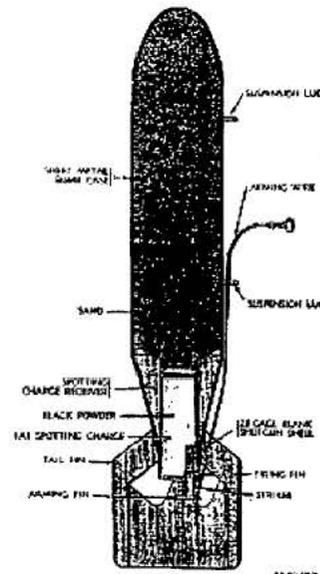
Length and diameter	6.0 in by 0.85 in
Expelling charge	Smokeless powder
Marker load	Mod 3 Stabilized Red Phosphorous Mod 4 Zinc Oxide

Table 2.1
Suspect or Known Munitions

BOMB, PRACTICE, 100 POUND, M38A2



with M5 spotting charge



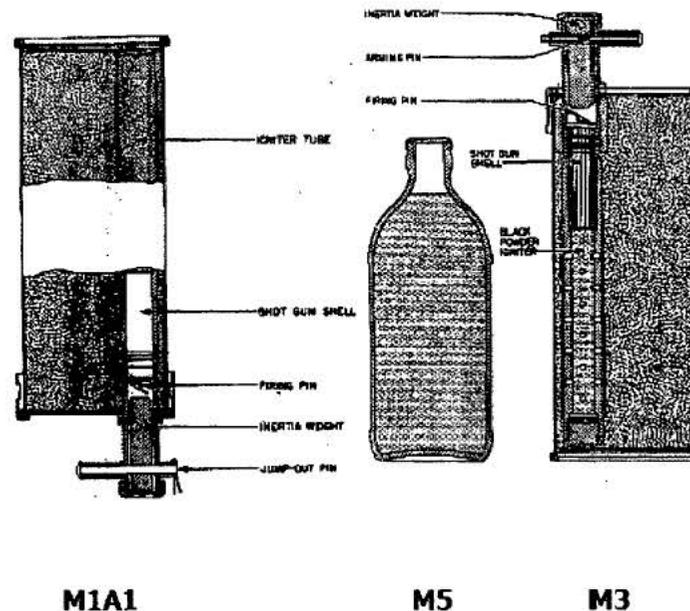
with M1A1 spotting charge

Description. This bomb simulates a General Purpose bomb of the same size. It is constructed of light sheet metal, approximately 22 gage, formed by rolling a rectangular sheet of metal into the form of a cylinder approximately 8 inches in diameter, and spot-welding the seam. The rounded nose is pressed from the same metal, as is the tail, which is formed in the shape of a cone. The tail portion ends in box type fins, which is welded to the cone. Inside of the smaller end of the conical tail section is welded the spotting charge receiver. The spotting charge is assembled in a sleeve at the base of the bomb, within the fin box. Authorized spotting charges are the M1A1, M3, and M5. When using the M5 spotting charge a wooden support rod is installed in the bomb. Two suspension lugs are bolted to the bomb body during fabrication. The Suspension Band M1 is provided for single suspension. The band is a separate component. The over-all length of the bomb body is 47.2 inches. When empty, the bomb body weighs approximately 14 pounds. When completely loaded with sand and spotting charge, the weight of the bomb is approximately 100 pounds.

Over-all length	47.5 inches
Diameter	8.13 inches
Weight empty	15.7 pounds
Weight sand loaded & spotting charge	100 pounds

Table 2.1
Suspect or Known Munitions

SPOTTING CHARGES, M1A1, M3, M5



M1A1

M5

M3

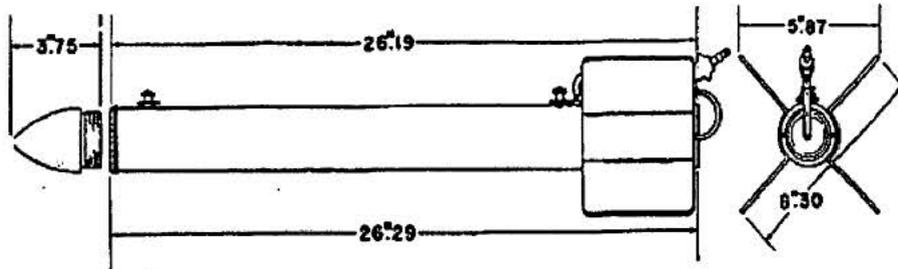
M1A1 Spotting Charge. This type of spotting charge fits in the after end of the 100-pound Practice Bomb M38A2. It produces a flash of flame and white smoke for observation of bombing accuracy. It is made from a large tin can, 11.18-inches long, 3.43-inches diameter, weighing 4.25-pounds. At the top of the can is a cover, which has a hole in it for the insertion of a 28-gage blank shotgun shell and firing mechanism. Upon impact, the inertia weight drives the firing pin into the shotgun-type primer, igniting the 3-pounds of black powder.

M3 Spotting Charge. The spotting charge has a 2 1/3-pound dark smoke filling and a black-powder igniter. It is 5/8 of an inch longer than the Spotting Charge M1A1, but otherwise similar. The M3, with its dark smoke filler, is well adapted for bombing practice over snow-covered terrain. The black-powder igniter charge contains approximately 425 grains. It is used in the M38A2 Practice bomb.

M5 Spotting Charge. The spotting charge consists of a glass bottle filled with FS smoke mixture. An ordinary bottle cap seals the mixture. The bottle is held to the Practice Bomb M38A2 by a wire twisted around the neck of the bottle and attached to the tail vanes. The charge assembly weighs 2.54 pounds.

Table 2.1
Suspect or Known Munitions

ROCKET, 2.25-INCH PRACTICE



Use. These rockets were used for practice firing against surface targets. The rocket is forward fired from aircraft and simulated the trajectories of the 5 inch rockets.

Description. The 2.25 inch practice rockets originally came in two different Marks (Mk) or models, the Mk II and Mk III. The acronym associated with them was SCAR, or sub-caliber aerial rocket. Other models followed. They consisted of a head, rocket motor, fins, igniter, and an electrical cable. The heads are solid steel, zinc die cast, or cast iron and contain no fuzes,

Motor. Mk 15 Mod 0,2, is 26.18 inches long and weighs to 10.90 pounds (max). The item's explosive hazard is the propellant (Mk 16 Mod 0,1) in the rocket motor and the igniter (Mk 112 Mod 0,1,2).

Weight 12.47 pounds
Diameter of Body 2.25 inches
Length 29.07 inches

2.7 PROJECT ORGANIZATION/POINTS OF CONTACT

2.7.1 The local USACE District for the former Passage Key Air-to-Ground Gunnery Range is located in Jacksonville, FL (CESAJ). The regulatory authority for this site is FDEP. To date, the U.S. Environmental Protection Agency (USEPA) has not participated in planning associated with this site and has deferred to FDEP. A list of key technical contacts involved in this SI study is included in Table 2.2.

2.7.2 The Parsons' SI Field Team for the former Passage Key Air-to-Ground Gunnery Range will be comprised of three dedicated persons each qualified in their area of expertise. The Team will be led by the Field Team Leader (FTL) who will be knowledgeable of the historical and logistical details regarding Passage Key Air-to-Ground Gunnery Range. The FTL will manage the Field Team and make decisions on behalf of the Parsons' Project Manager (or his representative). The FTL will be supported by an individual charged with implementation of the approved MC sampling protocol as well as the techniques of the QR. Lastly, the Field Team will include an unexploded ordnance (UXO) Technician III tasked with ensuring all aspects of field safety as well as identification of MEC, munitions debris (MD), or other military debris encountered are followed.

2.7.3 For the former Passage Key Air-to-Ground Gunnery Range, the Field Team will be comprised of the following individuals:

- Field Team Leader (FTL), Jeff Ulmer
- Field Team Member (sampling) (FTM), Tim Nowicki
- Field Team Safety (UXO Tech III) (FTS), TBD

Table 2.2
Key Technical Contacts
Former Passage Key Air-to-Ground Gunnery Range, Manatee County, Florida

Organization	Name	Telephone/FAX
U.S. Army Corps of Engineers, Jacksonville District (CESAJ) CESAJ-DP-H 701 San Marco Boulevard Jacksonville, FL 32207	Mr. Charles D. Fales Florida FUDS Manager / Project Manager <i>Email:</i> Charles.D.Fales@saj02.usace.army.mil	(904) 232-1017
U.S. Army Engineer Center Huntsville CEHNC-OE-DC 4820 University Square Huntsville, AL 35816-1822	Ms. Chris Cochran USACE MMRP SI Program Manager Southeast and Pacific USACE geographic region <i>Email:</i> Chris.Cochran@hnd01.usace.army.mil	(256) 895-1696 (256) 895-1378 (FAX) (256) 990-0888 (cell)
U.S. Army Engineer Center Huntsville CEHNC-ED-CS-P 4820 University Square Huntsville, AL 35816-1822	Mr. Mike Gooding Technical Manager <i>Email:</i> Michael.R.Gooding@hnd01.usace.army.mil	(256) 895-1635 (256) 895-1378 (FAX)
U.S. Army Engineer Center Huntsville CEHNC-OE-DC 4820 University Square Huntsville, AL 35816-1822	Mr. Doug Garretson USACE MMRP SI Project Manager <i>Email:</i> Douglas.M.Garretson@hnd01.usace.army.mil	(256) 895-1066 - Office (256) 895-1378 - (FAX) (256) 698-7683 - Cell
U.S. Fish and Wildlife Service 9500 Koger Blvd. Suite 102 St. Petersburg, FL 33702	Mr. Richard Meyers Assistant Refuge Manager <i>Email:</i> Richard-Meyers@fws.gov	(727) 423-1380
U.S. Fish and Wildlife Service 1502 SE Kingsbay Dr. Crystal River, FL 34429	Mr. Stan Garner <i>Email:</i> Stan_Garner@fws.gov	(352) 302-2376
Chassahowitzka National Wildlife Refuge Complex 1502 SE Kings Bay Drive Crystal River, FL 34429	Mr. Jim Kraus Refuge Manager <i>Email:</i> Jim_Kraus@fws.gov	(352) 563-2088 (352) 795-7961 (FAX)
U.S. Army Engineer Center Huntsville CEHND-ED-CS-P 4820 University Square Huntsville, AL 35816-1822	Ms. Becky Terry Project Chemist <i>Email:</i> Rebecca.K.Terry@hnd01.usace.army.mil	(256) 895-1460 (256) 895-1378 (FAX)
U.S. Army Engineer Center Huntsville CEHND-OE-CX 4820 University Square Huntsville, AL 35816-1822	Ms. Deborah Walker MC Advisor <i>Email:</i> Deborah.D.Walker@hnd01.usace.army.mil	(256) 895-1796 (256) 722-8709 (FAX) (256) 503-4766 (cell)

Table 2.2 (Continued)
Key Technical Contacts
Former Passage Key Air-to-Ground Gunnery Range, Manatee County, Florida

U.S. Army Corps of Engineers, Jacksonville District (CESAJ) CESAJ-RE-M 701 San Marco Boulevard Jacksonville, FL 32207	Ms. Bertha Miller Reality Specialist Email: Bertha.Miller@saj02.usace.army.mil	(904) 232-3727 (904) 232-2484 (FAX)
Florida Department of Environmental Protection 2600 Blair Stone Road Tallahassee, FL 32399-2400	Mr. Eric Nuzie Federal Facilities Coordinator Email: Eric.nuzie@dep.state.fl.us	(850) 245-8978
Florida Department of Environmental Protection 2600 Blair Stone Road Tallahassee, FL 32399-2400	Mr. Jim Crane Federal Facilities Coordinator Email: Jim.Crane@dep.state.fl.us	(850) 245-8983
Parsons 5390 Triangle Pkwy, Suite 100 Norcross, GA 30092	Mr. Don Silkebakken Project Manager Email: Don.Silkebakken@Parsons.com	(678) 969-2384 (770) 446-4910 (FAX) (404) 606-0346 (cell)
Parsons 5390 Triangle Pkwy, Suite 100 Norcross, GA 30092	Ms. Laura Kelley Deputy Project Manager Email: Laura.Kelley@Parsons.com	(678) 969-2437 (770) 446-4910 (FAX) (404) 934-1266 (cell)
Parsons 5390 Triangle Pkwy, Suite 100 Norcross, GA 30092	Mr. Jeffrey Ulmer Project Coordinator Email: Jeff.Ulmer@Parsons.com	(678) 969-22398 (770) 446-4910 (FAX) (770) 634-8561 (cell)
U.S. Army Engineer Center Huntsville CEHNC-OE-CW 4820 University Square Huntsville, AL 35816-1822	Ms. Betina Johnson Program Manager Email: betina.johnson@hnd01.usace.army.mil	(256) 895-1468 (256) 895-1518 (FAX)
U.S. Army Engineer Center Huntsville Safety Division 4820 University Square Huntsville, AL 35816-1822	Mr. Wayne H. Galloway Chief, OE Safety Email: Wayne.H.Galloway@hnd01.usace.army.mil	(256) 895-1582 (256) 895-1378 (FAX)
HQUSACE DoD Environmental Support Team 441 G Street NW US Government Offices, DC 20314	Mr. Jeff Waugh Email: Jeffrey.Waugh@us.army.mil	(202)-761-7263

2.8 PROJECT SCHEDULE

The former Passage Key Air-to-Ground Gunnery Range was awarded September 29, 2006 as part of the MMRP USACE Southeast and Pacific MM DC region program. The project schedule, shown on Figure 2.2, is dynamic but has been updated to reflect actual milestones achieved to date as well as incorporate government and regulator review cycles and submittals for pending milestones. The ending date for the period of performance (POP) to complete the SI for this site is April 24, 2008.

Figure 2.1

Site Location Passage Key Air-to-Ground Range FUDS Property No. I04FL040101

Manatee County

Legend

-  Air-to-Ground Gunnery Range Boundary
-  Bombing Range Boundary
-  Approximate FUDS Boundary



Image Source: USGS Topo Quadrangles, 1981
 Projection: UTM Zone 17 NAD83, Map Units in Meters



PARSONS

U.S. ARMY CORPS
OF ENGINEERS
HUNTSVILLE CENTER

DESIGNED BY
BT

DRAWN BY
BT

CHECKED BY
JU

SUBMITTED BY
DS

Site Location

SCALE As Shown

DATE: July 2007

PROJECT NUMBER
744647.43000

PAGE NUMBER
2-16



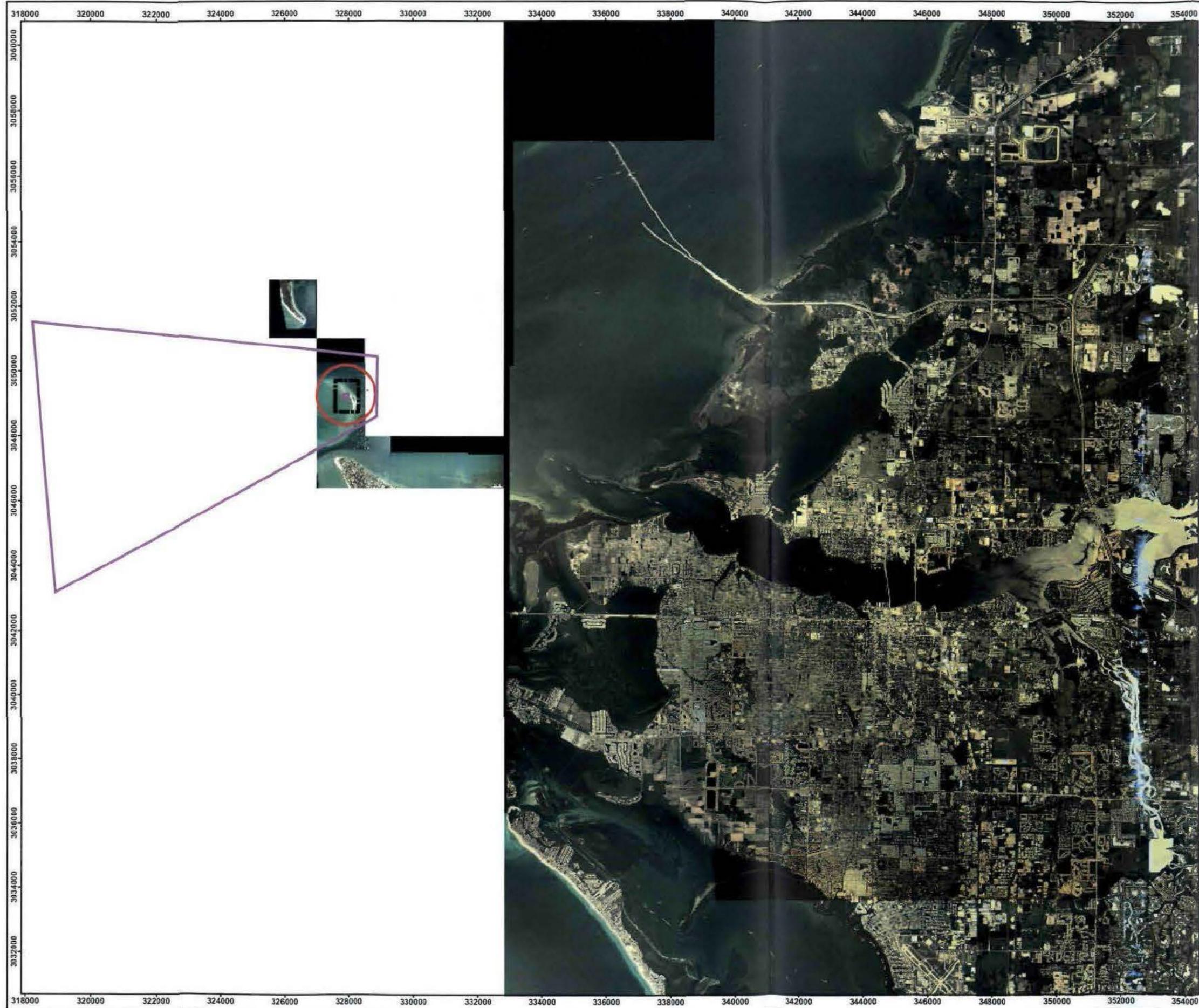



Figure 2.2
Site Location
Passage Key Air-to-Ground Range
FUDS Property No. I04FL040101
 Manatee County

Legend

-  Air-to-Ground Gunnery Range Boundary
-  Bombing Range Boundary
-  Approximate FUDS Boundary

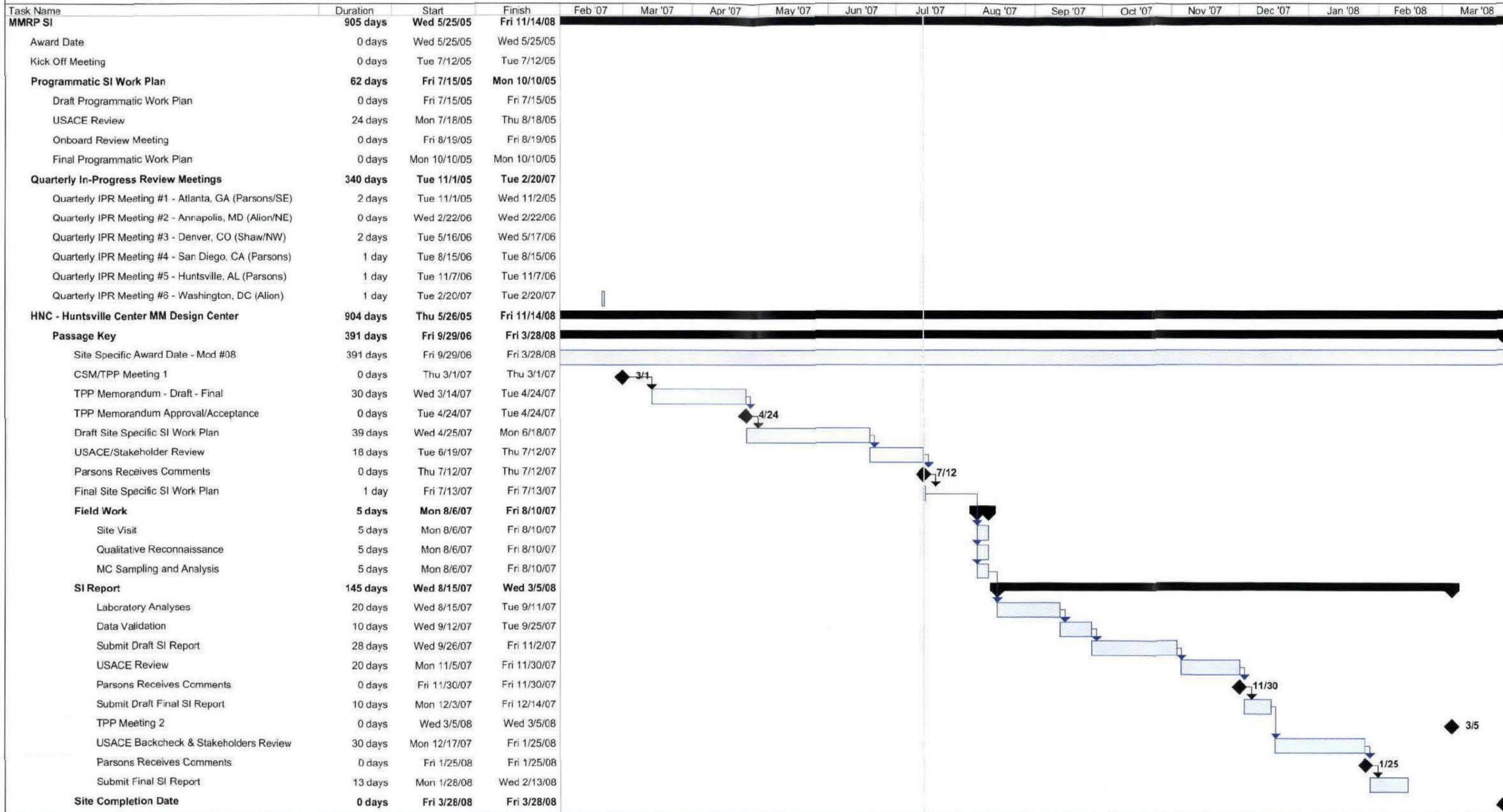


Image Source: Orthophotos, 2002, and 2006
 Projection: UTM Zone 17 NAD83, Map Units in Meters



PARSONS		U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER	
DESIGNED BY BT	Site Location		
DRAWN BY BT			
CHECKED BY JU	SCALE As Shown	PROJECT NUMBER 744647.43000	
SUBMITTED BY DS	DATE July 2007	PAGE NUMBER 2-17	
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**Figure 2.3
Project Schedule - Passage Key**



Project: MMRP SE Schedule Nov 061
Date: Fri 7/13/07

Task [] Milestone [◆] Summary [] Rolled Up Milestone [◇]

CHAPTER 3 FIELD INVESTIGATION PLAN

3.1 TECHNICAL APPROACH

The overall approach to munitions response activities is presented in Chapter 3, paragraph 3.1 of the PWP. As stated in Chapter 1, this Site Investigation is being conducted to support an anticipated RI/FS for the former Passage Key Air-to-Ground Gunnery Range. Therefore, the Technical Approach, as established during the March 1, 2007 TPP Meeting, will focus on a biased screening for the presence of MC in areas with the highest potential likelihood of contamination. In addition, a QR strategy will be employed to support a systematic justification for the RI/FS recommendation. Details of the site-specific MC and QR strategy for the Former Passage Key Air-to-Ground Gunnery Range are described in subsequent sections of this Chapter.

3.1.1 Conceptual Site Exposure Model

As part of the TPP process, a “living” Conceptual Site Exposure Model (CSEM) has been developed for the former Passage Key Air-to-Ground Gunnery Range. The current CSEM is provided in Appendix B of this SS-WP Addendum. The CSEM will be revised throughout the SI process and with each subsequent stage of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process as applicable.

3.1.2 Site Characterization Goals

The site characterization goals for the former Passage Key Air-to-Ground Gunnery Range are the same as those presented in Chapter 3, paragraph 3.1.1 of the PWP. Multiple MEC have been observed on and around the range in the recent past and MEC-related incidents are known to have occurred at the Passage Key Air-to-Ground Gunnery Range. Although there are access restrictions, exposure pathways are suspected to be complete due to the presence of MEC. Therefore, it was agreed by the Project Team, that the SI approach for the Passage Key Air-to-Ground Gunnery Range will focus on determining the potential for further MEC to either characterize the release for effective and rapid initiation of an RI/FS and to confirm the significant release is posed to public health and the environment in order to achieve an RI/FS.

3.1.3 Data Quality Objectives

3.1.3.1 As stated in subchapter 1.2, the primary objective of this SI project is to evaluate, through QR and MC sampling, the applicability of the next appropriate CERCLA phase. Secondary objectives of this SI also include collection of sufficient data

for USEPA's development of the site-specific Hazard Ranking System (HRS) Score as well as for the completion of the Munitions Response Site Prioritization Protocol (MRSPP).

3.1.3.1.2 The Data Quality Objectives (DQOs) have been developed for the former Passage Key Air-to-Ground Gunnery Range site in accordance with the process presented in Chapter 3, paragraph 3.1.2 of the PWP and are provided in Appendix A of this SS-WP Addendum.

3.1.3.1 Qualitative Reconnaissance DQO

3.1.3.1.1 For the 36.37-acre (per the ASR, but is significantly less due to recent observations by the U.S Fish and Wildlife Service) former Passage Key Air-to-Ground Gunnery Range, QR will be focused on the area of the island at the time of the field SI to evaluate the presence of MEC. Representative QR tracks are not shown on Figure 3.1 due to the unknown size of the island at the time the field SI will be conducted. The team will, as much as possible, cover as much of the island as possible. The team must proceed in single file with the UXO technician in the lead based on the potential MEC present and the associated hazards. The QR will be conducted by the site visit team (SVT) in a meandering path format traversing the project site from one sampling location to the next to include inspection of the various areas of concern (AOCs). Data collected during the QR will be used as "optimum" SI data for justification to proceed to an RI/FS.

3.1.3.1.2 In order to accomplish the QR SI component, the SVT (inclusive of a UXO qualified individual) will employ the QR protocol detailed in the PWP to document visual observations of field conditions (topography and vegetation) and evidence of MEC (or munitions debris indicative of MEC). In addition, the presence of targets and other pertinent site features will be recorded to support the SI recommendation. The Schonstedt GA-92 XLI has been selected to be used for detection of potential MEC and munitions debris that may be encountered throughout any portion of the range, as well as for anomaly avoidance for the QR paths or during sample collection.

3.1.3.2 Munitions Constituents DQO

3.1.3.2.1 For the former Passage Key Air-to-Ground Gunnery Range, the MC sampling will be conducted from 2 surface soil locations and up to 3 discretionary soil samples (if needed). The locations of the two soil samples are illustrated in Figure 3.1, and the rationale for each location is presented in Table 3.1. Analytical results from samples collected from two biased MC surface soil locations will be compared to Florida Administrative Code (FAC) 62-777, FDEP Soil Cleanup Target Levels for Direct Residential Exposure, Region 9 Residential PRGs, and the Ecological Screening Values (see Table 4.5a). If the presence of MC exceeds USEPA Region 9 Residential Soil PRG screening levels, FAC levels, or Ecological Screening Values, and/or otherwise poses a risk to receptors, then the project will proceed with the RI/FS (for MC).

3.1.3.2.2 In order to accomplish the MC SI component, the SVT (inclusive of a UXO qualified individual) will employ the MC sampling protocol detailed in the PWP, PSAP, and PSAP Addendum. For the former Passage Key Air-to-Ground Gunnery Range, MC sampling will consist of metals, as detailed in Tables 4.4 and 4.5. The Schonstedt GA-92i XT has been selected to be used for subsurface anomaly screening prior to soil sample collection.

3.1.3.2.3 The Parsons SI Project Chemist evaluated the composition of the munitions used on the range and developed the list of compounds/analytes. The list of munitions potentially used at the Passage Key Air-to-Ground Gunnery Range are presented in Table 2.1. A summary table of the munitions constituents known to occur or suspected at the former Passage Key Air-to-Ground Gunnery Range is provided in Table 4.3. The chemical-specific DQOs are discussed in Subchapter 4.7.

3.1.3.3 Hazard Ranking System DQO

This task is currently under review by USEPA and may be deleted as a task. The rationale being used by USEPA for deletion is the fact that only the MC portion of the HRS is being provided; therefore, USEPA can not complete the HRS scoring for a munitions response area or site (MRA/MRS), since the HRS scoring also includes HTW and other data necessary to complete the HRS. Until such time as we are informed by the contracting officer that the MC data for USEPA to prepare the HRS is not required, Parsons will proceed in accordance with the project work statement (PWS).

Specific input data will be collected for USEPA to populate the HRS score sheets. The data will be collected from existing document sources. Source documents for HRS information will include the 2002 ASR and 2004 ASR Supplement. Data gaps will be filled via MC sampling as well as collection from local/state agencies (demographics/population, groundwater well users and supply sources/served population, surface water within 2 miles, etc).

3.1.3.4 Military Response Site Prioritization Protocol DQO

Specific input data will be collected and the three modules for MRSP populated as part of the SI. The modules include Explosive Hazard Evaluation (EHE), Chemical Health Evaluation (CHE), of which Chemical Warfare Material (CWM) is a subset, and Health Hazard Evaluation (HHE). The data will be collected from existing document sources. Source documents for MRSP information will include the 2002 ASR, and 2004 ASR Supplement. Data gaps will be filled via QR, MC sampling, and data collection from local/state agencies. The Tax Assessor's Office will be contacted for property ownership information, State Historic Preservation Office (SHPO) for cultural resources, appropriate federal and state agencies for ecological information and other county agencies for receptor information, groundwater well users, and supply sources/served population, etc.

3.2 SI FIELD PLANNING AND LOGISTICS

3.2.1 Historical Research and Review

The existing body of information pertinent to the former Passage Key Air-to-Ground Gunnery Range were thoroughly reviewed in advance of the TPP Project Meeting in March 01, 2007 and summarized to the TPP Project Team as part of the development and concurrence of the selected Technical Approach for the site. Sampling locations and QR planning, as presented in this SS-WP Addendum, were the direct result of this review process. This information has been augmented with institutional knowledge and additional documentation provided by CESAJ or obtained by Parsons during coordination of the field effort. As part of mobilization preparation, the Field Team will be re-familiarized with all existing site information.

3.2.2 Right-of-Entry

For the former Passage Key Air-to-Ground Gunnery Range, the CESAJ will secure the Right-of-Entry (ROE) from the U.S. Fish and Wildlife Service. CESAJ has indicated that ROE for these locations will be obtained. Copies of the Special Use Permit for the property will remain in the custody of the FTL at all times during the conduct of the SI field activities.

3.2.3 Sensitive Environments and Cultural Resources

The former Passage Key Air-to-Ground Gunnery Range is in Manatee County, Florida and is currently owned by the U.S. Fish and Wildlife Service. There are no known archaeological/historical areas known on site. The SVT will be aware of the possibility of encountering threatened and endangered species and historical sites. The TPP Team agreed that identification of the specific locations of sensitive species information and archaeological areas will not be presented in this SS-WP; however, these data were utilized during sampling location and QR planning. In addition, the FTL will have access to this information during the SI field effort. Chapter 5 of this SS-WP addresses precautions and identification procedures to ensure the SI actions are tailored to minimize any impacts at the site.

3.2.4 Equipment

There are no site-specific changes to the general SI equipment presented in the PWP. Because the range is an island, a boat will also be acquired for travel to gain access to the nge. A Schonstedt® GA-92i XL magnetometer will be used for anomaly avoidance at this site. Garmin® Rino 120 Global Positioning System (GPS) units will also be utilized for finding sample locations and recording QR tracks and the Trimble® Unit will also be used to record sample and site observations.

3.2.5 Communications

The primary means of on-site communication will be cellular telephones and the Garmin® Rino 120 GPS, as this instrument also operates as a handheld 2-watt two-way radio. The three person Field Team will remain together throughout all aspects of the

field activities. The rally point for the team, in case of an emergency, will be the team boat since the team will not separate for the course of the SI.

3.2.6 Training and Briefing

Training and briefing requirements are presented in Chapter 3, paragraph 3.3.5 of the PWP. For the former Passage Key Air-to-Ground Gunnery Range any additional training will be conducted onsite during the Daily Tailgate Safety Briefing to include endangered species, culturally sensitive areas, and anticipated ordnance types. In addition, emphasis will be placed on the known presence on any known hazards related to the range. All site visitors that will be accompanying the SI Team, will need to be present for the morning Safety Briefing. Emergency site evacuation routes will follow the hospital emergency route map identified in Figure 6-1.

3.3 SI FIELD DATA COLLECTION

3.3.1 The SI field activities at the former Passage Key Air-to-Ground Gunnery Range site include both MC sampling and QR. No intrusive MEC investigations, explosives handling, or MEC detonation will be conducted. In the unlikely event that an MEC item is identified during the SI, the approved procedures for reporting will be implemented, as presented in the PWP.

3.3.2 The MC sampling will be conducted in areas previously selected by the Project Team during the TPP meeting. Extensive QR of the parcels will not be conducted beyond a cursory evaluation to further validate the lack of contamination in these areas. The exact location of the QR route will be determined in the field by the FTL based on visual observations and areas of predetermined focus. As stated previously, sensitive environments and culturally significant areas will be avoided.

3.3.3 The duration of the SI field effort, inclusive of QR and MC sampling, is anticipated to be approximately five days but will not be terminated until the objectives for the range are met. During this time, Parsons will implement the Technical Approach as described in the PWP and as established by the Project Team on March 01, 2007 during the TPP. In addition to MC sampling and QR, Parsons will conduct the following field components for the former Passage Key Air-to-Ground Gunnery Range:

- Ground truth and confirm (if possible);
- Document vegetation and topographic conditions;
- Evaluate potential exposure pathways;
- Qualitatively evaluate extent and density of ferrous contacts on the surface and subsurface (where MD is visible);
- Photograph the site and significant features;
- Collect necessary MC-related data to provide to the U.S. Environmental Protection Agency to conduct Hazard Ranking System scoring; and

- Collect all data necessary to complete the Munitions Response Site Prioritization Protocol.

3.3.4 Data will also be gathered to identify any potential limitations to subsequent response actions.

3.4 QUALITATIVE RECONNAISSANCE

3.4.1 An integral part of the SI field activities will be the performance of the QR in accordance with the baseline procedures described in Chapter 3, paragraph 3.4.3 of the PWP. For the former Passage Key Air-to-Ground Gunnery Range, QR will be conducted throughout the entire island to confirm the presence or absence of MEC/MD. Figure 3.1 include sample locations planned for the island. The QR transects for the SS-WP Addendum maps are not shown due to the unknown size of the island, but will be obtained during the field SI to provide a representative approximation of the level of effort and the emphasis of the QR.

3.4.2 To achieve the project objective, the field team must have the ability to remain flexible during the QR to navigate towards the areas indicating the highest likelihood of containing MEC. Visual indicators of suspect areas include (but are not limited to) distressed vegetation, stained soil, ground scars, bunker/target remnants, and visible MD. These areas will be inspected for information that will be useful for planning. The QR will incorporate the use of magnetometers, GPS, personal data assistants (PDA), and digital photography. See paragraph 3.4.3.4 of the PWP for details.

3.5 MUNITIONS CONSTITUENT (MC) SAMPLING

3.3.3.1 The PSAP has been developed by the Military Munitions Center of Expertise as part of the PWP. For the former Passage Key Air-to-Ground Gunnery Range, the TPP Team agreed during the TPP process that the collection of two soil samples and up to three discretionary soil samples (if needed) would meet the SI project objectives. The approximate soil locations are depicted on Figure 3.1. Table 3.1 provides the sample identifications, anticipated coordinates, munitions suspected, and rationale for selecting the sample locations.

3.3.3.2 The actual coordinates of the soil samples presented in Table 3.1 were not physically confirmed prior to performing the SI field activities but rather established based on review of aerial photographs, historical training maps, and professional judgment. As such, the SVT may navigate to a specified location and find that they are physically precluded from sampling at the location or otherwise adversely hindered by undesirable conditions (i.e., bedrock exposure, developed/cultivated area, presence of a man-made structure/road, etc.). Therefore, sample locations depicted on SS-WP maps should be considered "preliminary" in nature and the TPP Team supports the following sampling protocol with regards to final location selection.

3.3.3.3 The following guidelines will be adhered to when obtaining the actual sample locations. The SVT will navigate to the GPS coordinates specified in this SS-WP

as agreed to at the TPP Meeting. This action will be indirect as the QR activities and the MC sampling will be conducted concurrently. Upon arriving at a "preliminary" sample location, the SVT will survey the immediate visible area to select the most appropriate biased (toward finding MC) location based on the objective of the sample. Criteria considered to be indicative of a MC-biased sample location are visual signs of MEC/MD, possible ground scars, stained soils, disturbed vegetation or subsurface magnetic evidence of high metal (ferrous) content. For the reasons specified above, the SVT is authorized to move any sample up to 150 feet without prior consultation with the TPP Team for the former Passage Key Air-to-Ground Gunnery Range.

3.3.3.4 All soil sample locations must be screened and approved by the UXO Technician III (with regards to potential subsurface anomalies) prior to final location selection and sample collection. Each of the two biased MC sampling locations must be approved by the UXO Technician III prior to collection. The actual GPS coordinate for each soil sample location will be recorded and will be updated in the Geographic Information System (GIS) database. The process will be repeated for all soil sample locations.

3.6 SAMPLE COLLECTION

The sample collection procedures presented in the PSAP, the Parsons Final PSAP Addendum, and in the PWP will be followed. Two procedural variances will be implemented. All samples collected will be a discrete sample and not a composite sample and no ambient samples will be collected as per the TPP meeting members agreement for the former Passage Key Air-to-Ground Gunnery Range. Additional details regarding sample collection, investigative-derived waste (IDW) handling, and packaging are presented in Chapter 4 of the SS-WP Addendum.

3.7 ANALYTICAL PROCEDURES AND DATA VALIDATION

Analytical procedures and data validation are presented in Chapter 3, paragraph 3.5.3 of the PWP. The analytical methods to be used for the MC samples collected are listed in Chapter 4 of this SS-WP Addendum. In such cases, the potential source of the contamination will be discussed in the SI Report as well as the impact to the recommended areas of concern.

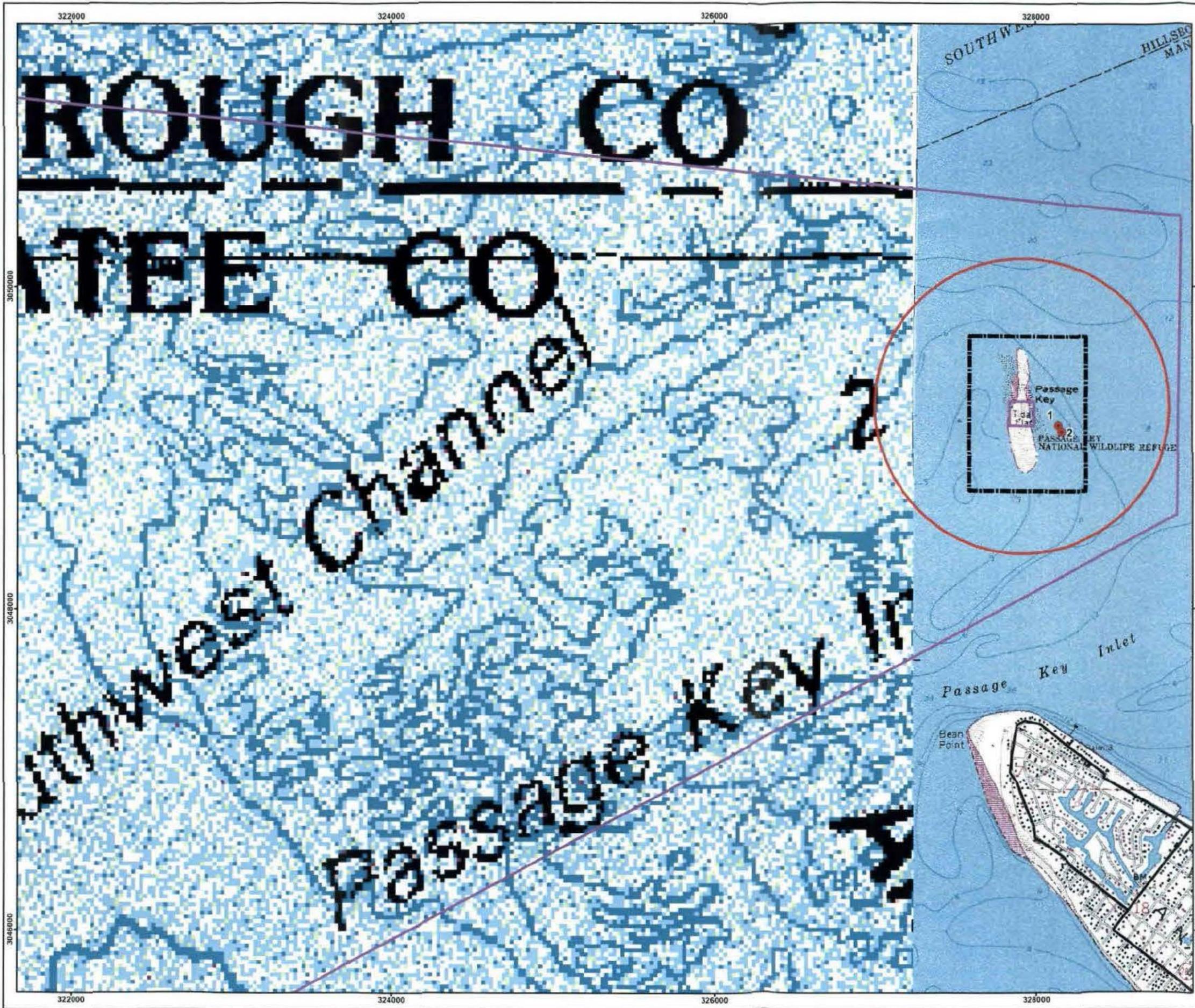


Figure 3.1

Qualitative Reconnaissance and Sample Locations Map
Passage Key Air-to-Ground Range
FUDS Property No. I04FL040101

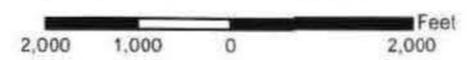
Manatee County

Legend

- Soil Sample Location (TBD)
- Air-to-Ground Gunnery Range Boundary
- Bombing Range Boundary
- Approximate FUDS Boundary



Image Source: USGS 7.5' Topo Quadrangles, 1981
 Projection: UTM Zone 17 NAD83, Map Units in Meters



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 U.S. ARMY CORPS OF ENGINEERS
 HUNTSVILLE CENTER

DESIGNED BY
BT
 DRAWN BY
BT
 CHECKED BY
JU
 SUBMITTED BY
DS

Qualitative Reconnaissance and Sample Locations Map

SCALE	As Shown	PROJECT NUMBER	744647.43000
DATE	July 2007	PAGE NUMBER	3-8
FILE	X:\GIS\Site_inspections_n\Manatee\PassageKey_FL\Fig1_1.mxd		

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Figure 3.2

**Qualitative Reconnaissance and
Sample Locations Map
Passage Key Air-to-Ground Range
FUDS Property No. I04FL040101**

Manatee County

Legend

-  Soil Sample Location (T8D)
-  Air-to-Ground Gunnery Range Boundary
-  Bombing Range Boundary
-  Approximate FUDS Boundary



Image Source: Orthophotos, 2002
Projection: UTM Zone 17 NAD83, Map Units in Meters



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DESIGNED BY: BT	Qualitative Reconnaissance and Sample Locations Map		PROJECT NUMBER: 744647.43000
DRAWN BY: BT			SCALE: As Shown
CHECKED BY: JU	DATE: July 2007	PAGE NUMBER: 3-9	
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**Table 3-1
SAMPLING RATIONALE
Passage Key Air-to-Ground Gunnery Range
Manatee County, Florida**

Sample ID	Sample Coordinates		Media	Analysis	Munitions		Rationale
	Longitude	Latitude					
PK-MRS01-SS-02-01	TBD	TBD	Surface soil	Explosives, Select Metals	50 Cal. Machine Gun; Small Arms, General; M30, General Purpose Bomb, 100 lbs.; M46, Photoflash Bomb, 100lb; 5, AN-Mk 23, AN-Mk 43, M38A2, Practice Bomb, 100 lbs; Signal, Mk 4; Spotting Charge, M1A1; Rocket	AN-AN-Mk Practice; Practice Bomb, 2.25 inch, Practice	Sample will be taken in the center mass area of the island biased to highest likelihood areas (near target center) strictly for screening for MC presence
PK-MRS01-SS-02-02	TBD	TBD	Surface soil	Explosives, Select Metals	50 Cal. Machine Gun; Small Arms, General; M30, General Purpose Bomb, 100 lbs.; M46, Photoflash Bomb, 100lb; 5, AN-Mk 23, AN-Mk 43, M38A2, Practice Bomb, 100 lbs; Signal, Mk 4; Spotting Charge, M1A1; Rocket	AN-AN-Mk Practice; Practice Bomb, 2.25 inch, Practice	Sample will be taken in the center mass area of the island biased to highest likelihood areas (near target center) strictly for screening for MC presence

CHAPTER 4

SAMPLING AND ANALYSIS PLAN

4.1 INTRODUCTION

The USACE Military Munitions Center of Expertise (MM CX) has prepared the PSAP (consisting of the Field Sampling Plan [FSP] and the Quality Assurance Project Plan [QAPP]) for the MMRP SI Program. A PSAP Addendum was developed to describe Parsons' specific activities and procedures to be conducted during SIs. The Addendum augments the Final PSAP, documenting Parsons' specific variances from the PSAP and presenting STL Denver's laboratory specific procedures, detection and quantization limits, and precision and accuracy criteria. This Site-Specific SAP is not meant to be a stand alone document and should be used in conjunction with the Final PSAP and the Final PSAP Addendum. This document only addresses information directly related to the site and any variances from the program-wide procedures presented in the PSAP or PSAP Addendum. The PSAP and PSAP Addendum are presented in Appendix E of the PWP and apply to all work performed by Parsons and its subcontractors.

4.2 SAMPLE COLLECTION

4.2.1 Soil Samples

Prior to the advancement of any sampling equipment, each sample location, will be screened by the UXO-qualified team escort to verify no metallic items are present in the subsurface. All surface soil samples will be collected using the procedures described in Subchapter 5.1.2 of the Programmatic Field Sampling Plan (PFSP) and Subchapter 5.1 of the PFSP Addendum. All surface soil samples will be transferred to the appropriate sample collection containers as presented in Table 4.1. All remaining soil will be returned to the discrete sample locations to assist the field team in restoring the site to its original condition.

4.2.2 Sample Containers

The samples will be collected in the appropriate sample containers and preservation as listed in Table 4.1. The sample containers for the explosives analysis will be filled first, followed by the sample containers for metals. The cap shall be secured tightly and the container clearly labeled as presented in Table 4.2. The sample containers will be placed on ice at the first immediate chance. The sample handling and packaging procedures presented in Chapter 7 of the PSAP will be followed for all sample containers.

4.2.3 Quality Control (QC)/ Quality Assurance (QA) Samples

For the former Passage Key Air-to-Ground Gunnery Range, QC samples will be collected at the required frequency as specified in the PSAP. Field duplicate samples will be collected at a frequency of 10% per matrix (one in ten samples) and matrix spike/matrix spike duplicate (MS/MSD) samples will be collected at a frequency of 5% per matrix (one in twenty samples). The QC and QA samples will be collected in accordance with the procedures identified in Subchapters 5.6 of the PFSP and PFSP Addendum. The sample identifications for the QC samples are included in Table 4.2. The QC samples will be analyzed for the same parameters as the parent sample and will be collected simultaneously with the parent sample. One QA Split sample will be collected at the request of the Military Munitions Design Center Project Manager (MM DC PM) or CESAJ PM. The sample will be collected immediately after the field QC sample and maintained on ice with the field samples until preparation for shipment to the laboratory. Equipment blanks will not be collected for the former Passage Key Air-to-Ground Gunnery Range SI since disposable sampling equipment will be used for sample collection. Temperature blanks will be included with each cooler sent to the laboratories.

4.2.4 Sample Shipment

4.2.4.1 The samples will be packaged and shipped in accordance with the procedures presented in Chapter 7 of the PFSP. The laboratory point of contact for the former Passage Key Air-to-Ground Gunnery Range is Ms. Lyn Benkers. Ms. Benkers' email address is lbenkers@testamericainc.com. The laboratory address for the field samples is:

TestAmerica
4955 Yarrow Street
Arvada, CO 80002
phone (800) 572-8958
fax (303) 431-7171

4.2.4.2 The QA samples will be sent to GPL Laboratories, Inc. as directed by USACE. The samples will be packaged identical to the field samples and sent via overnight courier to the laboratory. The point of contact for the QA laboratory will be Paul Ioannides. Mr. Ioannides phone number is (301) 509-0667. The shipping address for the QA laboratory is:

GPL Laboratory
Sample Custodian
7210A Corporate Court
Frederick, MD 21703
Phone (301) 694-5310

4.3 INVESTIGATIVE DERIVED WASTE

The field team will use disposable sampling equipment for the soil samples. Therefore, no IDW is anticipated to be generated with the exception of used gloves, paper, tape, etc. This IDW will be collected in trash bags and disposed of in a waste receptacle.

4.4 NONMEASUREMENT DATA

4.4.1 Nonmeasurement data will be collected for the former Passage Key Air-to-Ground Gunnery Range using the information found in the ASR and ASR Supplement. This initial information collected has been incorporated in the SS-WP. This site information will be supplemented using research via Internet searches, requests from agency contacts (i.e., State Historic Preservation Office, U.S. Forest Service, etc.), and site contacts, if applicable. Nonmeasurement data will include information relating to geology, climate, hydrogeology, federally- and state-listed threatened and endangered species known to be or potentially be onsite, sensitive habitats, wetlands, cultural and archeological resources, water resources, coastal zone management areas, trees and shrubs, waste disposal sites, and impact mitigation measures.

4.4.2 Further data collection will be conducted to fulfill the contract requirements to complete the MRSPP scoring sheets and to collect the pertinent MC-related HRS scoring information. The primary information needed to complete the MRSPP scoring, such as hazard type (i.e., explosive or chemical) and accessibility, will come from historical site documents (ASR, ASR Supplement, etc). To further supplement current on- and off-site information needed for receptor scoring, additional data collection will be conducted to fulfill the contract requirements to complete the MRSPP scoring sheets and to collect the MC-related HRS scoring information. Additional data will include information regarding current on- and off-site activities/structures, population density, CERLCA sites, RCRA sites, well locations, and water supply information. Once the soil sampling has been completed and samples analyzed the sediment data will be used to score the health hazard evaluation of the MRSPP.

4.5 MUNITIONS CONSTITUENTS ANALYSIS

The list of munitions constituents to analyze the samples for was derived based on the MEC suspected at the former Passage Key Air-to-Ground Gunnery Range. Each munition was broken down by case/cartridge and filler composition and those constituents were included in the analysis list. Table 4.3 presents the potential MEC for the site as well as the fillers and case composition. These are further broken down into specific explosives and select metals that would be indicative of the fillers. This table of constituents was used to develop the select metals list for samples collected from the Former Passage Key Air-to-Ground Gunnery Range. The samples will be analyzed for the full list of explosives as presented in the PSAP.

4.6 ANALYTICAL METHODS

All samples will be analyzed in accordance with the procedures presented in the PSAP Addendum. Table 4.4 lists the appropriate analysis for each constituent.

4.7 DATA QUALITY OBJECTIVES

4.7.1 The DQOs have been developed for the former Passage Key Air-to-Ground Gunnery Range in accordance with the process presented in Chapter 3, paragraph 3.1.2 of the PWP and are provided as part of the Final TPP Memorandum documentation, presented in Appendix A of this SS-WP. The chemical-specific DQOs as agreed upon by the TPP Project Team are presented in the Table 4.5. The soil sample DQOs consist of the most conservative value between the SSLs as determined by USEPA Region 9 PRGs, FAC 62-777 Table 2 FDEP Soil Cleanup Target Levels for Direct Residential Exposure, Ecological Screening Values (see Table 4.5a). The soil sample results will be compared to both the human health and ecological risk screening values.

Table 4.1
Sample Containers, Preservatives, and Holding Times
Former Passage Key Air-to-Ground Gunnery Range, Manatee County, Florida

Parameter	Sample Container	Preservative	Holding Time
SOIL SAMPLES			
Explosives	1 4 oz wide-mouth glass w/ Teflon-lined cap	Cool to 4°C	14/40 days ^a
Select Metals	1 4 oz wide-mouth glass w/ Teflon-lined cap	Cool to 4°C	28 days (Hg); 180 days (others)

(a) 14 days from sample collection to extraction / 40 days from extraction to analysis

Table 4.2
Sample Identification, Quality Control, and Quality Assurance Samples
Former Passage Key Air-to-Ground Gunnery Range, Manatee County, Florida

Location/ Sample Identification	Matrix		Analysis		QC Samples ⁽¹⁾			QA Sample
	Soil	Water	Explosives	Select Metals	Field Duplicate ⁽²⁾	MS ⁽³⁾	MSD ⁽³⁾	Splits ⁽⁴⁾
PK-MRS01-SS-02-01	X		X	X	X	X	X	X
PK-MRS01-SS-02-02	X		X	X				

(1) – The QC samples will be analyzed for the same parameters as the parent sample.

(2) – The sample number for the field duplicate will be replaced with a random number not already used, with the actual sample and the corresponding FD# recorded in the PDA/log.

(3) Any discretionary samples collected will be given the same sample ID but with the next consecutive number at the end.

(4) – MS/MSD will be noted in the Comments section of the Chain-of-Custody.

(5) – The QA split will be identified with the same ID as the parent sample with “QA” added at the end.

**Table 4.3
Chemical Composition of MEC and Potential Munitions Constituents
Former Passage Key Air-to-Ground Gunnery Range, Manatee County, Florida**

General Munition Type	Type/Model	Case Composition	Filler	Potential Constituent
Small Arms Ammunition .50 cal with gilding metal jacket	M2 Ball M2 Armor Piercing (AP) M1 Tracer M10 Tracer M17 Tracer M21 Tracer M1 Incendiary M23 Incendiary M1 Blank Propellant Primer, Percussion	Brass, steel, aluminum	Lead antimony Tungsten chrome steel Tracer Composition Tracer Composition Tracer Composition Tracer Composition Incendiary Composition Incendiary composition Single based powder Primer Composition	Calcium, iron, strontium, lead, magnesium, molybdenum, antimony, potassium, perchlorate
Miniature Practice Bomb,	AN-Mk 5, AN-Mk 23, AN-Mk 43	Cast Iron, Cast Lead, Zinc Alloy, Aluminum,	Inert	Lead, Iron, Aluminum, Zinc
Miniature Practice Bomb Signal	AN-Mk 4	,	Titanium Tetrachloride, Smokeless Powder, Red Phosphorus, Zinc Oxide	Nitrocellulose, Dinitrotoluene, Dibutylphalate, Diphenylamine, Zinc
100-lb Practice Bomb	M38A2	Sheet Metal	Sand, wet sand, or water	Iron
Spotting Charge	M1A1 M3 M5	Tin Tin Glass	3-lbs Black powder FS smoke mix	Potassium nitrate, Sodium nitrate, Charcoal, Sulfur, Titanium Tetrachloride
100-LB Bomb, GP	AN-M30	Steel	TNT	Trinitrotoluene

**Table 4.3
Chemical Composition of MEC and Potential Munitions Constituents
Former Passage Key Air-to-Ground Gunnery Range, Manatee County, Florida**

General Munition Type	Type/Model	Case Composition	Filler	Potential Constituent
Photoflash Bomb, 100-lb	M46	Metal	Magnesium dust, Mg Oxide, petroleum distillate, asphalt, gasoline, white phosphorus	Mg, Ph
2.25-inch Practice Rocket	Warhead: Mk1 Mod 0 Mk3 Mod 2 Rocket Motor: Mk 11 Mod 0&1 Igniter: Mk 112 Propellant: Mk 16, Mod 0	Steel, cast iron or zinc	Inert warhead (steel, cast iron or zinc)	Iron, zinc, magnesium, Nitrocellulose, nitroglycerin, potassium, strontium, calcium

Table 4.4a
Target Analyte List for Explosives by LC/MS
Former Passage Key Air-to-Ground Gunnery Range, Manatee County,
Florida

Parameter	Method
EXPLOSIVES	
Hexahydro-1,3,5-trinitro-1,3,5-triazine	SW8321A
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	SW8321A
2,4,6-Trinitrotoluene	SW8321A
1,3,5-Trinitrobenzene	SW8321A
1,3-Dinitrobenzene	SW8321A
2,4-Dinitrotoluene	SW8321A
2,6-Dinitrotoluene	SW8321A
2-Amino-4,6-dinitrotoluene	SW8321A
2-Nitrotoluene	SW8321A
3-Nitrotoluene	SW8321A
4-Amino-2,6-dinitrotoluene	SW8321A
4-Nitrotoluene	SW8321A
Nitrobenzene	SW8321A
Nitroglycerin	SW8321A
Methyl-2,4,6-trinitrophenylnitramine	SW8321A
Pentaerythritol Tetranitrate (PETN)	SW8321A

Table 4.4b
Target Analyte List for Inorganics by ICP, ICP/MS, and CVAA
Former Passage Key Air-to-Ground Gunnery Range, Manatee County,
Florida

Parameter	Method
METALS	
Aluminum	SW6010B
Antimony	SW6020
Copper	SW6020
Iron	SW6010B
Lead	SW6020
Zinc	SW6020

Table 4.5
Chemical-Specific Data Quality Objectives, Laboratory MDLs and PQLs for Soil Samples
Passage Key Air-to-Ground Gunnery Range, Manatee County, Florida

Analyte	Abbreviation	CAS #	Human Health Screening Values Soils (mg/kg)		STL Denver Method Detection Limits (MDL) and Practical Quantitation Limits (PQL) for Soil		Ecological Screening Values
			Florida Administrative Code 62-777	Region 9 PRG	STL MDL	STL PQL	Soil (mg/kg) ²
Hexahydro-1,3,5-trinitro-1,3,5-triazine	RDX	121-82-4	7.7	4.4	2.10E-02	1.20E-01	5.8 (A)
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	HMX	2691-41-0	-	3100	1.90E-02	1.20E-01	43 (H)
2,4,6-Trinitrotoluene	2,4,6-TNT	118-96-7	28	16	2.20E-02	1.20E-01	8 (B)
1,3,5-Trinitrobenzene	1,3,5-TNB	99-35-4	2000	1800	1.0E-02	1.20E-01	0.38 (F)
1,3-Dinitrobenzene	1,3-DNB	99-65-0	5.8	6.1	1.1E-02	1.20E-01	0.66 (F)
2,4-Dinitrotoluene ¹	2,4-DNT	121-14-2	1.2	0.72	1.9E-02	1.20E-01	1.28 (F)
2,6-Dinitrotoluene ¹	2,6-DNT	606-20-2	1.2	0.72	2.2E-02	1.20E-01	0.033 (F)
2-Amino-4,6-dinitrotoluene	2-Am-DNT	35572-78-2	-	12	2.1E-02	1.20E-01	5.3 (H)
2-Nitrotoluene	2-NT	88-72-2	400	0.88	2.2E-02	2.00E-01	4.1 (H)
3-Nitrotoluene	3-NT	99-08-1	640	730	2.5E-02	2.0E-01	5.3 (H)
4-Amino-2,6-dinitrotoluene	4-Am-DNT	19406-51-0	-	12	1.9E-02	1.20E-01	-
4-Nitrotoluene	4-NT	99-99-0	750	12	2.6E-02	2.0E-01	9.4 (H)
Nitrobenzene	NB	98-95-3	18	20	3.3E-02	1.2E-01	40 (C)
Nitroglycerin	NG	55-63-0	27	35	4.5E-02	1.4E-01	150 (H)
Methyl-2,4,6-trinitrophenylnitramine	Tetryl	479-45-8	790	610	2.1E-02	1.2E-01	2 (H)

Table 4.5
Chemical-Specific Data Quality Objectives, Laboratory MDLs and PQLs for Soil Samples
Passage Key Air-to-Ground Gunnery Range, Manatee County, Florida

Analyte	Abbreviation	CAS #	Human Health Screening Values Soils (mg/kg)		STL Denver Method Detection Limits (MDL) and Practical Quantitation Limits (PQL) for Soil		Ecological Screening Values
			Florida Administrative Code 62-777	Region 9 PRG	STL MDL	STL PQL	Soil (mg/kg) ²
Pentaerythritol Tetranitrate	PETN	78-11-5	-	-	1.5E+01	1.2E-01	21000(H)
Aluminum	Al	7429-90-5	80000	76000	8.4E+01	2.6E+02	50 (C)
Antimony	Sb	7440-36-0	27	31	1.7E+00	5.00E+00	0.30 (A)
Copper	Cu	7440-50-8	150	3100	5.60E-01	2.00E+00	40 (C)
Iron	Fe	7439-89-6	53000	23000	1.10E+02	3.30E+02	N/A
Lead	Pb	7439-92-1	400	400	8.80E-01	3.00E+00	16 (A)
Zinc	Zn	7440-66-6	26000	23000	1.60E+00	5.00E+00	50 (C)

(1) Carcinogenic DNT mixture values used if more conservative than noncarcinogenic isomer-specific values

N/A - Not Applicable

Region 9 PRGs, dtd 28 December 2004

Florida Administrative Code 62-777, Table 2 – FDEP Soil Cleanup Target Levels for Direct Residential Exposure dtd February 2005

- = Screening value has not been determined. Any detection of this compound will be evaluated in conjunction with all

supporting data on a case by case basis by the Project Team.

2) Eco Screening Value Sources:

A USEPA EcoSSLs, 2000;

B Los Alamos Nuclear Lab Screening Level

C USEPA Region 4 Screening Values,

D San Francisco Regional Water Quality Control Board Surface Water Screening Values

E USEPA Region 3 Freshwater Screening Benchmarks

F USEPA Region 5 Ecological Data Quality Levels;

G Talmage, et. Al. 1999

H Los Alamos National Laboratory(LANL),ECORISK Database, 2004

CHAPTER 5

ENVIRONMENTAL PROTECTION PLAN

5.1 INTRODUCTION

5.1.1 This Environmental Protection Plan (EPP) has been prepared for the Passage Key Air-to-Ground Gunnery Range site in accordance with Data Item Description (DID) MR-005-12 and the PWS. Procedures for avoiding, minimizing, and mitigating potential impacts to biological and cultural resources during site field activities are described below. Chapter 7 of the PWP contains extensive general procedures that will be adhered to by the SVT.

5.1.2 The following sources were consulted for identifying biological and cultural resources at the Passage Key Air-to-Ground Gunnery Range site:

- Topographic Map – U.S. Geological Survey (USGS)
- Wetlands Online Mapper – National Wetlands Inventory (NWI), U.S. Fish and Wildlife Service (USFWS)
- Threatened and Endangered Species System (TESS) – Endangered Species Program, U.S. Fish and Wildlife Service
- National Wildlife Refuge System (NWRS) – USFWS
- Florida Fish and Wildlife Conservation Commission (FWC)
- Florida Natural Areas Inventory (FNAI) – Manatee County
- National Register Information System (NRIS) – National Register of Historic Places (NRHP), National Park Service (NPS)
- List of National Historic Landmarks (NHL) – National Historic Landmarks Program, NPS
- List of National Heritage Areas (NHA) – National Heritage Areas Program, NPS
- Florida State Historic Preservation Office (FL SHPO) – Florida Office of Cultural and Historical Programs (OCHP) Florida Master Site File (FMSF)
- National Oceanic and Atmospheric Administration (NOAA) - Coastal Zone Management Program (CZMP)
- August 2002 ASR Findings for Passage Key Air-To-Ground Gunnery Range, Manatee, Florida

5.2 ENDANGERED AND THREATENED SPECIES

5.2.1 The state of Florida supports 112 federally-listed Threatened and Endangered (T&E) species consisting of 57 animals and 55 plants. According to FNAI, 15 of these federally listed species are known to exist in Manatee County. However, due to the site size, habitat, and location only five of these T&E species may potentially occur on site. These species are the green sea turtle (*Chelonia mydas*), loggerhead sea turtle (*Caretta caretta*), leatherback sea turtle (*Dermochelys coriacea*), Kemp's Ridley sea turtle (*Lepidochelys kempii*), and piping plover (*Charadrius melodus*). All federally and state listed species potentially occurring on site are shown on Table 5.1.

5.2.2 Parsons will ensure that the SI team is versed in identifying and avoiding these species and their habitat. And, if any are observed, care will be taken to not disturb them or their immediate habitat. Parsons will provide this species awareness training in the daily tailgate safety meetings. No T&E species are anticipated to be impacted by the SI sampling event.

5.3 SENSITIVE ENVIRONMENTS

5.3.1 The Passage Key Air-to-Ground Gunnery Range site is within a national wildlife refuge; however, it is not within a national park, national forest, or county park. The site is a very small island, (sometimes only 20 feet by 20 feet in size at high tide), that is located at the mouth of Tampa Bay, about ten miles northwest of the City of Bradenton, Florida in Manatee County. The site is only about five feet above mean sea level so is easily impacted by tides and storms.

5.3.2 The site is critical habitat for thousands of migratory and shore birds. The refuge is closed to the public but is a popular public gathering place for boaters. The site is only accessible by boat. The USFWS requested they be present during the SI effort to deter any possible problems.

5.3.3 Parsons SVT will take care so as to not impact any potential nesting areas during the SI sampling event. Parsons is performing soil sampling within a limited area on site (Figure 3A).

5.4 WETLANDS

5.4.1 The USFWS Wetlands Online Mapper, through the NWI, was used to identify wetlands within the Passage Key Air-to-Ground Gunnery Range site. There are two main wetland types located within the site. These wetland areas are shown in Figure 5.1. The main wetland types onsite are:

- PUBV - Palustrine, unconsolidated bottom, permanent tidal
- E2USM - Estuarine, intertidal, unconsolidated shore, irregularly exposed
- E2US2P - Estuarine, intertidal, unconsolidated shore, sand, irregularly flooded

5.4.2 The Mapper is used primarily for planning purposes and does not accurately indicate jurisdictional limits of wetlands that are Waters of the United States. Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies.

5.4.3 Other wetlands not identified in the Wetland Online Mapper may be present on the site. If wetlands are present within the sampling area, they will be avoided. If avoidance of wetlands is not possible, it will be necessary to delineate the wetlands according to the federal criteria of the USACE. The jurisdictional delineation will allow the degree of impact to be qualitatively and quantitatively determined and mitigation to be proposed.

5.4.4 During the SI effort care will be taken to not impact any known wetland areas. The wetland areas are not anticipated to be impacted by the SI sampling event or QR track.

5.5 CULTURAL AND ARCHEOLOGICAL RESOURCES

5.5.1 According to the NRIS, NHL, NRHP, and NHA databases there are no recorded archaeological or cultural areas within the Passage Key Air-to-Ground Gunnery Range site. Currently, according to the SHPO FMSF the area has not been completely surveyed; however, there are no previously recorded cultural resources on site. It is not anticipated that the two to six inch shallow sampling depth will adversely impact any potential archeological areas.

5.5.2 During the SI sampling event care will be taken to not impact any known archeological areas or archeological remnants discovered during soil sampling. If an archeological remnant is discovered or suspected during the SI sampling event soil sampling will cease in that area and the proper agency will be notified.

5.6 WATER RESOURCES

5.6.1 The site is bordered on all sides by the Gulf of Mexico and is effected daily by tides. The terrain of Passage Key Island is flat and marshy with the elevation only at about five feet above mean sea level or under. The surface currents in the Gulf of Mexico at the site flow in a northwestern direction with a mean speed of about 0.9 miles per hour (mph). Flooding may result from localized heavy rainfall and from hurricane conditions that remain after its track across the width of Florida.

5.6.2 The Floridan aquifer occurs within the site boundary. Most of the groundwater used for private, commercial, or municipal purposes is derived from the Floridan Aquifer. The depth to the top of the aquifer varies between 440 and 550 feet below ground surface (bgs). The regional direction of groundwater movement in the Floridan aquifer is from

east to west. There are no surface or groundwater samples planned for the Passage Key Air-to-Ground Gunnery Range site.

5.7 COASTAL ZONES

According to NOAA CZMP the Passage Key Air-to-Ground Gunnery Range site is within a coastal zone management area. The adjacent coastal waters are also a marine protected area due to the site being a wildlife refuge. The site is not adjacent to a national marine sanctuary, national estuarine reserve, national marine fisheries protected or management area.

5.8 TREES AND SHRUBS

Trees and shrubs are covered in the PWP. There are no site-specific changes to the tree and shrub policy for the Passage Key Air-to-Ground Gunnery Range site. Neither cutting nor pruning of vegetation is anticipated to be necessary at the site.

5.9 WASTE DISPOSAL SITES

5.9.1 There is one known burial pits within the Passage Key Air-to-Ground Gunnery Range site boundary.

5.9.2 Waste disposal policies are covered in the PWP. There are no site-specific changes for the Passage Key Air-to-Ground Gunnery Range site. In general, excess soil generated during sampling will be returned to the original sample location and the sample location restored as near as possible to its natural condition. Disposable sampling equipment and other garbage generated will be disposed of offsite.

5.10 IMPACT MITIGATION MEASURES

Impact mitigation measures are outlined in the PWP. There are no site-specific mitigation measures for the Passage Key Air-to-Ground Gunnery Range site.

Table 5.1
Federally and State-Listed Threatened and Endangered Species Potentially Within the Passage Key Air-to-Ground Gunnery Range Site

Common Name	Scientific Name	Federal Status	State Status
<p>Piping Plover</p> 	<p><i>Charadrius melodus</i></p>	<p>Threatened</p>	<p>Threatened</p>
<p>Green Sea Turtle</p> 	<p><i>Chelonia mydas</i></p>	<p>Endangered</p>	<p>Endangered</p>

Table 5.1
Federally and State-Listed Threatened and Endangered Species Potentially Within the Passage Key Air-to-Ground Gunnery Range Site

Common Name	Scientific Name	Federal Status	State Status
<p>Loggerhead Sea Turtle</p> 	<p><i>Caretta caretta</i></p>	<p>Threatened</p>	<p>Threatened</p>
<p>Leatherback Sea Turtle</p> 	<p><i>Dermochelys coriacea</i></p>	<p>Endangered</p>	<p>Endangered</p>

Table 5.1
Federally and State-Listed Threatened and Endangered Species Potentially Within the Passage Key Air-to-Ground Gunnery Range Site

Common Name	Scientific Name	Federal Status	State Status
<p>Kemp's Ridley Sea Turtle</p> 	<p><i>Lepidochelys kempii</i></p>	<p>Endangered</p>	<p>Endangered</p>

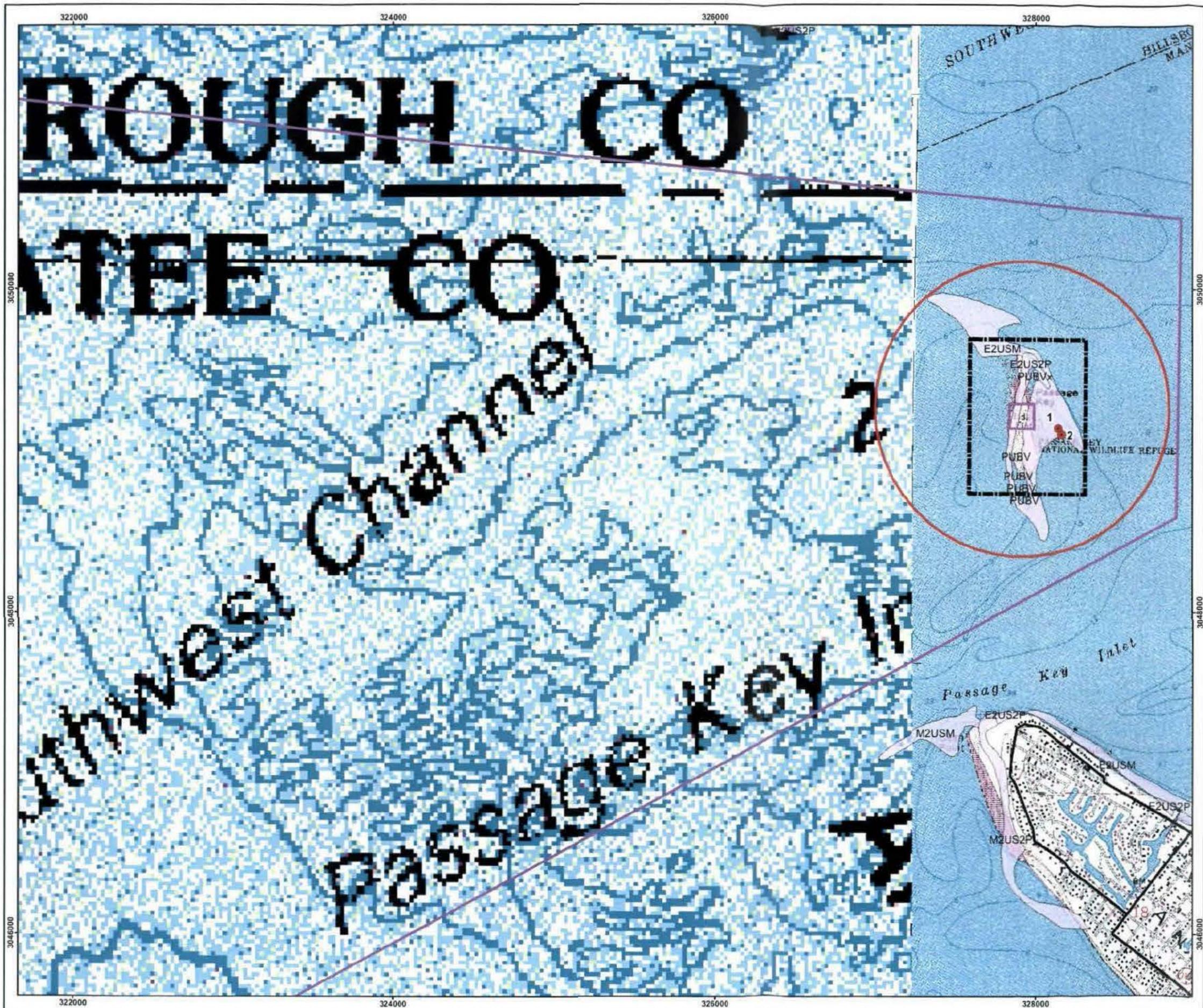


Figure 5.1
Wetlands
Passage Key Air-to-Ground Range
FUDS Property No. I04FL040101
 Manatee County

Legend

- Soil Sample Location (TBD)
- Air-to-Ground Gunnery Range Boundary
- Bombing Range Boundary
- Approximate FUDS Boundary
- Wetland (Obtained from U.S. Fish & Wildlife Service)

Predominant Wetland Types:

PUBV - Palustrine, unconsolidated bottom, permanent tidal
 E2USM - Estuarine, intertidal, unconsolidated shore, irregularly exposed
 E2US2P - Estuarine, intertidal, unconsolidated shore, sand, irregularly flooded



Image Source: USGS 7.5' Topo Quadrangles, 1981
 Projection: UTM Zone 17 NAD83, Map Units in Meters



PARSONS		U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER	
DESIGNED BY	BT	Wetlands	PROJECT NUMBER
DRAWN BY	BT		744647.43000
CHECKED BY	JU	SCALE	As Shown
SUBMITTED BY	DS	DATE	July 2007
		FILE	X:\GIS\Site_Inspections_n\Map\PassageKey_FL\Wetlands.mxd
		PAGE NUMBER	5-8



**CHAPTER 6
SITE-SPECIFIC ADDENDUM TO THE PROGRAMMATIC
ACCIDENT PREVENTION PLAN**

**PROGRAMMATIC WORK PLAN
SOUTHEAST AND PACIFIC IMA REGION
MILITARY MUNITIONS RESPONSE PROGRAM
FOR
PASSAGE KEY AIR-TO-GROUND GUNNERY RANGE
MANATEE COUNTY, FLORIDA**

Prepared for:

U.S. ARMY CORP OF ENGINEERS, JACKSONVILLE DISTRICT

and

U.S. ARMY ENGINEERING AND SUPPORT CENTER HUNTSVILLE

**Contract W912DY-04-D-0005
Delivery Order 0008**

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JULY 2007

**Project Manager:
Don Silkebakken, P.E.**



(Signature)

7/13/2007
(Date)

**Safety and Health Manager:
Ed Grunwald, CIH**



(Signature)

7/13/2007
(Date)

CHAPTER 6

ACCIDENT PREVENTION PLAN

6.1 APPLICATION

The intent of this chapter is to augment the Programmatic Accident Prevention Plan (PAPP), as warranted, and to present pertinent site-specific information and procedural deviations that could not be readily captured in the programmatic documents or were the result of TPP Project Team agreements requiring modifications to the preliminary SI Technical Approach (see Subchapter 1.3). It should be noted that the PAPP will accompany the SS-WP Addendum during the conduct of SI field activities.

6.2 MEDICAL SUPPORT

The PAPP documents the medical support plan for all sites associated with the Southeast and Pacific MM DC Region. Medical Support for the former Passage Key Air-to-Ground Gunnery Range site visit team will be provided by the UXO Technician and the Field Team Leader, both First Aid and CPR certified personnel. The local emergency contact numbers are listed in Table 6.1. The nearest hospital is the **Blake Medical Center** (941) 792-6611 in Bradenton, Florida. Figure 6.1 shows the map and directions to the hospital from the former Passage Key Air-to-Ground Gunnery Range. In an emergency situation, the team will follow the guidelines set forth in the Emergency Response and Fire Prevention Plan (ERFPP) in Appendix J of the PWP.

6.3 HAZARDS AND RISKS

6.3.1 The hazards associated with tasks being performed at the former Passage Key Air-to-Ground Gunnery Range and the procedures that are to be employed to prevent accidents, injuries, and illness are discussed in, Attachment A, Chapter 2 of the PAPP. The potential tasks associated with the former Passage Key Air-to-Ground Gunner Range SI requiring an Activity Hazard Analysis (AHA) include the following:

- Mobilization and Demobilization;
- Sample Collection and Packaging;
- Emergency Rescue;
- Motor Vehicle Operation;
- Boat Operation.

6.3.2 All of the AHAs are presented in Appendix D (PAPP), Attachment B of the PWP. Site Specific AHAs can also be found in Attachment 6.1.

6.3.3 For the former Passage Key Air-to-Ground Gunnery Range, the following boating guidelines will be observed :

- Check weather forecast and low or high tide tables daily, prior to commencing work.
- The number of personnel (including crew) shall not exceed the number of Personal Floation Devises (PFD) aboard.
- Man Overboard/Abandon Ship; Appendix D (PAPP), Attachment D, Chapter 11 of the PWP.
- Each boat shall have sufficient room, freeboard, and stability to safely carry the cargo and number of persons allowed with consideration given to the weather and water conditions in which it will be operated.
- The minimum number and rating of fire extinguishers that shall be carried on all launches and motorboats, including outboards, are shown in Table 6-1:

**Table 6-1
FIRE EXTINGUISHER REQUIREMENTS FOR
LAUNCHES/MOTORBOATS**

LENGTH	EXTINGUISHER
Less than 26 ft (7.9m)	One 1 – A:10-B:C
26 ft (7.9m) or more	Two 1 – A:10-B:C

- The SI field team leader will make a field judgment when confronted with any bad weather or rough waters prior to any travel to the island.

6.4 PHYSICAL HAZARDS

6.4.1 Severe Weather

During the course of the SI, severe weather may be encountered, including thunderstorms, rainstorms, and other unsafe weather conditions (i.e., high winds and tornadoes). A Severe Weather Procedure can be found in Appendix J (SOPs) of the PWP. Criteria indicating that severe weather conditions may exist include:

- High winds (> 40 miles per hour – depending on the tree cover and other site specific conditions);
- Tornado watch or warning in place for the area near the site;
- Extreme temperatures (e.g., greater than 100 degrees or less than 0 degrees F);
- Heavy rainfall that makes footing treacherous and visibility difficult;
- Hurricanes;
- Lightning;
- Heat Stress, found in Appendix D, Chapter 9 of the PWP;

6.5 BIOLOGICAL HAZARDS

6.5.1 Snakes

No venomous snakes are expected to be present on the former Passage Key Air-to-Ground Gunnery Range.

6.5.2 Poisonous Insects

Poisonous insects that may be encountered during the SI include the following:

- Mosquitoes;
- Bees (honeybees, bumble bees, wasps, and hornets); and
- Scorpions.

6.5.2.1 Spiders

No poisonous spiders are expected to be present on the former Passage Key Air-to-Ground Gunnery Range.

6.5.2.2 Ticks

No ticks are expected to be present on the former Passage Key Air-to-Ground Gunnery Range.

6.5.2.3 Chiggers

No Chiggers are expected to be present on the former Passage Key Air-to-Ground Gunnery Range.

6.5.2.4 Fire Ants

No Chiggers are expected to be present on the former Passage Key Air-to-Ground Gunnery Range.

6.5.2.5 Mosquitoes

West Nile virus is a virus that is spread by infected mosquitoes. The virus usually infects birds, but it can be spread to humans by mosquitoes that feed on infected birds and then bite humans. The virus cannot be spread by person-to-person contact.

6.5.2.6 Bees, Wasps, Hornets, and Other Insects

Symptoms of an insect bite are normally a sharp, immediate pain in the body part bitten followed by redness and swelling around the bite area. In the case of the Africanized Honey Bee, the sting is no different than the normal bee, but the exception is that they are highly aggressive, persistent, and they attack in swarms. The following are some practices to remember if encountered:

- Be careful around any lying debris.
- Have an escape plan in mind.

- Wear light-colored clothing.
- Do not wear floral or citrus perfumes or after shave lotions.
- Do not panic every time you see a few bees (not all want to attack you).

And if you are attacked:

- Quickly get into a car and turn the air conditioning on high, or just run, most people can outrun bees.
- Do not jump into water, they will always wait for you, not to mention the other possible hazards in the water.
- Protect your face at all costs, other parts of the body are less vulnerable.

6.5.3 Poisonous Plants

There is currently no vegetation growing on the former Passage Key Air-to-Ground Gunnery Range.

6.5.4 Blood-borne Pathogens

Blood-borne pathogens enter the human body through punctures, cuts, or abrasions of the skin or mucous membranes. They are not usually transmitted through ingestion (swallowing), through the lungs (breathing), or by contact with whole, healthy skin. However, under the principle of universal precautions, all blood should be considered infectious, and all skin and mucous membranes should be considered to have possible points of entry for pathogens.

Table 6.2
Emergency Telephone Numbers
Former Passage Key Air-to-Ground Gunnery Range, Manatee County, Florida

Blake medical Center	(941) 792-6611
Poison Control Center	1-800-222-1222
Manatee County Sheriff's Department	911 (emergency) (941) 747-3011 (non-emergency)
West Manatee County Fire and Rescue	911 (emergency) (941) 741-3900
U.S. Fish and Wildlife Stan Garner	(352) 302-2376
Project Safety and Health Manager Ed Grunwald	(678) 969-2394 (678) 429-6887 (cell)
MEC Technical Director Michael Short	(678) 969-2451
Field Team Leader Jeff Ulmer	(678) 969-2398 (770) 634-8561 (cell)
UXO Technician TBD	
CESAJ FUDS Manager / Technical Manager Charles Fales	(904) 232-1017 - office
USACE MMRP SI Project Manager Doug Garretson	(256) 895-1066 - office (256) 698-7683 - (cell)

Figure 6.1

Driving Directions: **Passage Key Air-to-Ground Gunnery Range**

to

Blake medical Center
 (941) 792-6611
 2020 Fifty-Ninth Street West
 Bradenton, FL 34209

Total Est. Time: 11 minutes Total Est. Distance: 5.52 miles

Board boat at Passage Key to local marina in Cortez, FL
 Start out going **SOUTH** on **123rd ST W** toward

CORTEZ RD W / FL-684 (**<0.1 mile**)

Turn **LEFT** onto **CORTEZ RD W / FL-684** (**2.3 miles**)

Turn **RIGHT** onto **86TH ST W** (**<0.1 mile**)

Turn **LEFT** onto **CORTEZ RD W / FL-684 E** (**1.7 miles**)

Turn **LEFT** onto **59TH ST W** (**1.3 miles**)

Arrive at **BLAKE MEDICAL CENTER.**



ATTACHMENT 6-1
ACTIVITY HAZARD ANALYSES

ACTIVITY HAZARD ANALYSIS

Activity: MOBILIZATION/DEMobilIZATION

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Install/Dismantle equipment	Slips, trips, and falls	Worker shall be aware of potential slippery surfaces and tripping hazards. If power tools are necessary, extension cords shall not be permitted to traverse high traffic areas (use battery operated tools if possible). Potential slip, trip, and fall hazards will be discussed during the daily toolbox meeting.
	Cold and heat stress injuries	SSHO will implement heat stress/cold injury control program.
	Biological hazards	Workers will avoid hazardous plants, snakes, and insects. Site workers that encounter potential "Hanta Virus" locations shall adhere to procedures described in the Programmatic Site Safety and Health Plan.
	Injury with Tools	Hand and power tools shall be used in accordance with manufacturer's instructions. Hand and power tools shall be inspected, tested, and determined to be in safe operating condition before use by the operator of the tool. Tools having defects shall be taken out of service until repaired.
	Vehicle operation in work area	Site personnel operating vehicles will possess a current driver's license. A Ground guide will be used when: 1) the point of operation is not in full view of the vehicle operator, 2) when the vehicle is backed more than 100 ft, 3) when the terrain is hazardous, 4) when two or more vehicles are backing in the same area.
	Eye and Hearing protection	Level D protection will be worn while operating tools (includes safety glasses). Hearing protection will be used when any member of the team cannot hear another in normal conversation voice levels, within a distance of 3 feet.
	Back injury	Proper lifting techniques will be reviewed by the SSHO. A hand truck shall be used to lift objects greater than 50lbs (two workers may be used to lift heavy objects (>50lbs) when the object can be easily gripped [i.e., have handles or grip hold]).

Equipment to be used: Common hand tools and vehicles

Inspection Requirements: All equipment will be inspected by workers prior to use. If during inspection or during use, equipment fails to function properly, the equipment shall be turned in for repair/ replacement. If power tools are used, tools designed to accommodate guards shall be equipped with such guards. All guards must be functional before tool is used.

Training Requirements: All Site personnel will be current in their OSHA HAZWOPER training (received 40-hr initial training and 8-hr refresher training within past 12 months) and be enrolled in a medical monitoring program. Operators will be trained in the safe use of required equipment and in the proper use of personal protective equipment. UXO Personnel must be certified as EOD-trained. SSHO will provide a review of proper lifting techniques and potential slip, trip, and fall hazards.

Approver Signature:  Date: 7/13/2007
 Ed Grunwald, Project Safety and Health Officer

ACTIVITY HAZARD ANALYSIS

Activity: SAMPLE COLLECTION AND PACKAGING

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Surface soil collection	Contact with hazardous chemicals	All personnel will don a modified level D ensemble. Personnel will be familiar with the potential chemical hazards that may be encountered during soil sampling.
	Unplanned Detonation	UXO awareness and avoidance training provided by SSHO. Intrusive operations will stop if MECs are encountered (only UXO technician has expertise to examine or confirm MEC).
	Slips, trips, and falls	Worker shall be awareness of potential slippery surfaces and tripping hazards. Potential slip, trip, and fall hazards will be discussed during the daily toolbox meeting.
	Cold and heat stress injuries	SSHO will implement heat stress/cold injury control program.
	Injury with Hand tools	The tool users will inspect the tools that they will use. No damaged equipment will be used until repaired or replaced.
	Biological hazards	Site personnel that encounter biological hazards will adhere to procedures described in this plan, and take precautions to prevent injuries from biological hazards. Site workers that encounter potential "Hanta Virus" locations shall adhere to procedures described in the Programmatic Site Safety and Health Plan.
	Back injury	Workers will be instructed in proper shoveling and auguring techniques. A hand truck shall be used to lift sample containers greater than 50lbs (two workers may be used to containers (>50lbs) when the objects can be easily gripped [i.e. have handles or grip hold]).
Surface water sample collection	Contact with hazardous chemicals	All personnel will don a modified level D ensemble. Personnel will be familiar with the potential chemical hazards that may be encountered during surface water sampling.
	Unplanned Detonation	UXO awareness and avoidance training provided by SSHO.
	Slips, trips, and falls	Worker shall be awareness of potential slippery surfaces and tripping hazards. Potential slip, trip, and fall hazards will be discussed during the daily toolbox meeting.
	Cold and heat stress injuries	SSHO will implement heat stress/cold injury control program.
	Injury with Hand tools	Sampling tools shall be used, inspected and maintained in accordance with manufacturer's instructions. No damaged equipment will be used until repaired or replaced. Personnel shall be familiar with proper operation of equipment.

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
	Biological hazards	Site personnel that encounter biological hazards will adhere to procedures described in this plan, and take precautions to prevent injuries from biological hazards. Site workers that encounter potential "Hanta Virus" locations shall adhere to procedures described in the Programmatic Site Safety and Health Plan.
	Back injury	Proper lifting techniques will be reviewed by the SSHO. A hand truck shall be used to lift sample containers greater than 50lbs (two workers may be used to containers (>50lbs) when the objects can be easily gripped [i.e. have handles or grip hold]).
	Boating accident	Personnel collecting samples from a boat shall utilize a Type III, Type V work vests, or better U.S. Coast Guard approved international orange personal flotation device in addition to appropriate dermal protection and PPE (gloves, non-slip boots, and safety goggles,). Samplers will be familiar with the proper operation of the boat. Passengers will remain seated will boat is being operated. Sampling operations will only occur during daylight hours. Manually operated boats shall not be used where waters are rough or swift. Boats will be inspected prior to each use.
Sediment Sampling	Contact with hazardous chemicals	All personnel will don a modified level D ensemble. Personnel will be familiar with the potential chemical hazards that may be encountered during sediment sampling.
	Unplanned Detonation	UXO awareness training provided by SSHO. Only UXO technicians will handle MEC items.
	Slips, trips, and falls	Worker shall be awareness of potential slippery surfaces and tripping hazards. Potential slip, trip, and fall hazards will be discussed during the daily toolbox meeting.
	Cold and heat stress injuries	SSHO will implement heat stress/cold injury control program.
	Back injury	Proper lifting techniques will be reviewed by the SSHO. A hand truck shall be used to lift sample containers greater than 50lbs (two workers may be used to lift containers (>50lbs) when the objects can be easily gripped [i.e. have handles or grip hold]).
	Injury with Hand tools	Sampling tools shall be used, inspected and maintained in accordance with manufacturer's instructions. No damaged equipment will be used until repaired or replaced. Personnel shall be familiar with proper operation of equipment.
	Boating accident	Personnel collecting samples from a boat shall utilize a Type III, Type V work vests, or better U.S. Coast Guard approved international orange personal flotation device in addition to appropriate dermal protection and PPE (gloves, non-slip boots, and safety goggles). Samplers will be familiar with the proper operation of the boat. Passengers will remain seated will boat is being operated. Sampling operations will only occur during daylight hours. Manually operated boats shall not be used where waters are rough or swift. Boats will be inspected prior to each use.

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Groundwater sample	Contact with hazardous chemicals	All personnel will don appropriate dermal protection and PPE (i.e. gloves, eye protection, etc). Personnel will be familiar with the hazards associated with potential chemical that may be encountered in soils.
	Slips, trips, and falls	Worker shall be awareness of potential slippery surfaces and tripping hazards. Potential slip, trip, and fall hazards will be discussed during the daily toolbox meeting.
	Injury with Hand tools	Hand tools shall be used, inspected and maintained in accordance with manufacturer's instructions. No damaged equipment will be used until repaired or replaced. Personnel shall be familiar with proper operation of tool.
	Back injury	Proper lifting techniques will be reviewed by the SSHO. A hand truck shall be used to lift sample containers greater than 50lbs (two workers may be used to lift containers (>50lbs) when the objects can be easily gripped [i.e. have handles or grip hold]).
	Biological hazards	Site personnel that encounter biological hazards will adhere to procedures described in this plan, and take precautions to prevent injuries from biological hazards. Site workers that encounter potential "Hanta Virus" locations shall adhere to procedures described in the Programmatic Site Safety and Health Plan.
	Cold and heat stress injuries	SSHO will implement heat stress/cold injury control program.
Sample packaging	Contact with hazardous chemicals	All personnel will don appropriate dermal protection and PPE (i.e. gloves, eye protection). Personnel will be familiar with the hazards associated with chemical that may be encountered (sample preservatives, solvents, UXO constituents).
	Biological hazards	Site personnel that encounter biological hazards will adhere to procedures described in this plan, and take precautions to prevent injuries from biological hazards. Site workers that encounter potential "Hanta Virus" locations shall adhere to procedures described in the Programmatic Site Safety and Health Plan.
	Back injury	Proper lifting techniques will be used during debris removal. A hand truck shall be used to lift objects greater than 50lbs (two workers may be used to lift heavy objects (>50lbs) when the object can be easily gripped [handles]).
	Injury with Hand tools	The tool users will inspect the tools that they will use. No damaged equipment will be used until repaired or replaced. Personnel shall be familiar with proper operation of tool.

Equipment to be used: shovel, hand auger, boat, samplers

Inspection Requirements: An inspection of PPE by workers will be conducted before each use. Equipment will be inspected daily by workers prior to use in accordance with the manufacturer's instructions. If during inspection or during use, equipment fails to function properly, equipment is to be turned in for repair/replacement.

Training Requirements: All on-site personnel will be current in OSHA training in accordance with 29 CFR 1910.120 (HAZWOPER), and be enrolled in a medical monitoring program in accordance with 29 CFR 1910.120(f). UXO Personnel must be certified as EOD-trained. If boats are used for surface water sampling personnel shall be familiar with the proper operation of the vessel. Personnel in charge of packaging and shipping will have completed DOT Hazmat packaging and shipping training.

Approver Signature: Edward Grunwald Date: 7/13/2007
Ed Grunwald, Project Safety and Health Officer

ACTIVITY HAZARD ANALYSIS

Activity: EMERGENCY RESCUE

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Treat injured personnel	Contact with blood borne pathogen	At least two members of field team will be current in their CPR/First aid training. First aid/CPR trained personnel will be familiar with the blood borne pathogen program and will utilize appropriate PPE when handling injured personnel. CPR/First aid trained personnel shall be familiar with emergency response procedures and the location of the nearest medical center.
	Slips, trips, and falls	Worker shall be awareness of potential slippery surfaces and tripping hazards. Potential slip, trip, and fall hazards will be discussed during the daily toolbox meeting.
	Cold and heat stress injuries	SSHO will implement heat stress/cold injury control program.
	Biological hazards	Site personnel have received blood-borne pathogen training during site-specific training.

Equipment to be used: First aid kit

Inspection Requirements: At least one Type II, 16unit first aid kit will be available onsite. The first aid kit will be inspected daily to ensure that it is fully stocked.

Training Requirements: At least two members onsite will hold current certification in first aid and CPR. CPR/First aid trained personnel will also be current in OSHA training in accordance with 29 CFR 1910.120 (HAZWOPER), and be enrolled in a medical monitoring program in accordance with 29 CFR 1910.120(f). CPR/First aid trained personnel will also receive UXO awareness as a component of their site-specific training.

Approver Signature:  Date: 7/13/2007
 Ed Grunwald, Project Safety and Health Officer

ACTIVITY HAZARD ANALYSIS

Activity: MOTOR VEHICLE OPERATIONS

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Pre-operations inspection	Failure to identify and correct mechanical problems that may degrade vehicle safety	Prior to operation of vehicle. The driver shall check, at a minimum, brakes, steering mechanism, seat and shoulder belts, lights, signals, wipers, horn, back-up alarm (if applicable), mirrors, glass, and fluids. If cargo is being transported, restraints to prevent movement shall be employed. Vehicles with safety/ mechanical problems shall be removed from service until repaired.
Safe operation of vehicle.	Accident	Vehicle operator shall possess a current valid driver's license for the equipment being used. Seat belts and shoulder restraints shall be used by all vehicle occupants. Operator will obey posted speed limit and be vigilant for unsafe road conditions (reduced speed during rain or snow storms).
Vehicle Maintenance and Repair	Improper vehicle maintenance or repair	Vehicle maintenance and repair shall be performed IAW manufacturer's instruction and schedule. Maintenance and repairs are only to be performed by qualified mechanics.

Equipment to be used: Automobile or pick-up truck.

Inspection Requirements: Vehicles will be inspected daily by the operator to ensure that the vehicle is in safe operating condition and free of apparent damage that could cause failure while in use.

Training Requirements: All vehicle operators will receive defensive driving training. Operators will be current in OSHA training in accordance with 29 CFR 1910.120 (HAZWOPER), and be enrolled in a medical monitoring program in accordance with 29 CFR 1910.120(f).

Approver Signature:  Date: 7/13/2007
 Ed Grunwald, Project Safety and Health Officer

ACTIVITY HAZARD ANALYSIS

Activity: BOAT OPERATIONS

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Transportation of personnel/equipment	Exceeding capacity of Boat/ Preventing damage to equipment	Do not exceed the passenger or weight limits as designated on Capacity Plate of vessel. The number of personnel on boat shall not exceed the number of personal floatation devices (PFD) aboard. Distribute the load evenly fore and aft as well as either side of vessel. Fasten gear to prevent shifting or missile hazards. .
	Float Plan (required if boating activity to exceed 4 hours in length).	Plan to be filed with field team leader or SI Project Manager. The plan shall contain: A. Vessel information (make/model of boat), B. Personnel on-board, C. Activity to be performed, D. Expected time of departure, route and expected time of return, and E. Means of communication.
	Cold and heat stress injuries	SSHO will implement heat stress/cold injury control program. Sun screen will be worn when UV index exceeds 5.
	Noise	Operator and Crew shall wear hearing protection when craft is in operation
	Slips, trips, and falls	Potential slip, trip, and fall hazards will be discussed during the boating safety briefing. Non-slip footwear should be worn where possible.
	Man Overboard	Prior to leaving dock ensure that there is one PFD for each boat member. While underway all personnel will remain seated, no standing in boat.
	Fire	Smoking is not permitted during fueling operations (the engine shall also be turned off). At a minimum, craft that are less than 26 feet in length will have one fire extinguisher, if the airboat is greater than 26 feet in length two fire extinguishers are required. Extinguishers shall be of type 1-A:10B:C. Any spilt fuel shall be clean up immediately.

Equipment to be used: Type I life jacket (1/passenger or crew), Fire extinguisher(s), cell phones and/or two way radios, air horn, GPS, gaff hook, and paddle.

Inspection Requirements: Prior to leaving the docks, crew members shall inspect their personal floatation device for defects that could alter its strength or buoyancy. Defective devices shall be removed from service. Fire extinguishers to be inspected at least one a month by boat owner (verified by SSHO). Prior to use the operator of the boat will inspect: the propeller and torque bolt; gas, coolant and oil levels; damage to hull (hull intact, no loose skid panels) and the battery charge.

Training Requirements: The Airboat operator shall attend a boating safety course meeting the criteria of the USCG Auxiliary, National Association of Safe Boating Law Administrators (NASBLA), or equivalent; and shall be familiar with the handling the airboat. A boating safety briefing will be conducted by the SSHO prior to leaving the docks.

Approver Signature: Ed Grunwald Date: 7/13/2007

Ed Grunwald, Project Safety and Health Office

Vehicle Inspection Checklist

Vehicle Inspection, ON-SITE			
This form must be filled out for any motor vehicle.			
DRIVERS NAME		LICENSE NUMBER	
COMPANY			
TYPE OF VEHICLE		VEHICLE NUMBER	
INSPECTION DATE/TIME		INSPECTOR	
PART INSPECTED	SAT.	UNSAT.	COMMENT
HORN			
STEERING SYSTEM			
WIPERS			
COUPLING DEVICE (IF APPLICABLE)			
MIRRORS			
FIRE EXTINGUISHER (10. ABC)			
FUILDS (OIL, WIPER, COOLANT)			
REFLECTORS			
EMERGENCY FLASHERS			
LIGHTS			
ELECTRIC WIRING			
FUEL SYSTEM			
EXHAUST SYSTEM			
BRAKE SYSTEM			
SUSPENSION			
CARGO SPACE/ CARGO RESTRAINS			
TIRES, WHEELS, RIMS			
TAILGATE			
SEAT / SHOULDER BELTS			
INSPECTION RESULTS (INSPECTOR INITIALS)			
ACCEPTED:			
REJECTED:			
REMARKS			
INSPECTORS SIGNATURE/DATE			

Attachment 6-2
Field Personnel Certifications

CHAPTER 7 REFERENCES

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FINAL

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APPENDIX A
TPP DOCUMENTATION



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Huntsville, US Army Engineering
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Technical Project Planning Memo:

Subject: FUDS Military Munitions Response Program (MMRP) Documentation of Technical Project Planning Project Team Concurrence for Site Inspection Phase

Site: Passage Key Air-to-Ground Gunnery Range, I04FL040101, Manatee County, Florida

Contract: Contract Number W912DY-04-D-0005, Delivery Order 0008

This document is intended to provide a record of Technical Project Planning (TPP) for the *Passage Key Air-to-Ground Gunnery Range, Manatee County, Florida*. The Project Team members listed below indicated concurrence with the Site Inspection (SI) Technical Approach as developed during the TPP meeting held at the Fort DeSoto Park, 3500 Pinellas Bayway S, Tierra Verde, FL on March 01, 2007. An initial Technical Approach (as presented) was developed using the collaborative experience of Parsons and USACE technical experts in conjunction with available site information including the Archives Search Report (ASR) Supplement, and other pertinent documents and interviews. The Project Team discussed and refined the initial Technical Approach during the course of the TPP meeting yielding a Final Technical Approach for implementation at the *Passage Key Air-to-Ground Gunnery Range*. The Project Team's agreed upon Final Technical Approach is documented herein and will be further detailed in the forthcoming Draft Site-Specific Work Plan (SS-WP). The Draft SS-WP will be submitted to the Project Team members for review to ensure the key aspects of the TPP Meeting resolutions are fully captured. The details of the TPP meeting incorporated in this TPP Memorandum document include sample location maps, revised TPP Worksheets, and a revised Conceptual Site Exposure Model (CSEM).

The Passage Key Air-to-Ground (ATG) Gunnery Range (FUDS project number I04FL040101) is a small, uninhabited island at the mouth of Tampa Bay, about 10 miles northwest of the City of Bradenton, in Manatee County, Florida. The 36-acre island was used for practice dive bombing, skip bombing, and strafing from 1943 to 1945, with use discontinued for three months each summer due to the wild fowl nesting season. Two banks of targets were known to be present at the site. The property is currently a wildlife refuge under the control of the U.S. Fish and Wildlife Service, Department of the Interior, and is accessible only by boat.

Due to the presence of munitions and the potential for MEC contamination it was agreed by the Project Team that at this time, the SI approach for the Passage Key Air-to-Ground Gunnery Range will proceed in a manner to support a Remedial Investigation/Feasibility



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Study (RI/FS) recommendation. In the event that no Munitions and Explosives of Concern (MEC) or Munitions Constituents (MC) (above levels of concern as discussed below) are identified during the SI, the Project Team will evaluate the applicability of the RI/FS recommendation in light of the findings. If warranted, the SI information may be used to determine the applicability of no further action or a No Department of Defense (DoD) Action Indicated (NDAI) scenario.

To accomplish the primary SI project objective (anticipated RI/FS), the TPP Project Team has agreed that the SI data collection efforts will focus on placement of MC sampling locations on parts of island with the greatest mass (due to the constant changing of the island from tidal currents) at the time of SI Visit that represent the highest likelihood for the presence of MC contamination. Two discrete shallow soil samples (#1 and #2), with the option of collecting 3 additional discretionary samples from 2 to 6 inches in depth will be collected from site locations with maximum bias for the presence of MC contamination. The sample locations selected by the project team are depicted on the attached site maps. All environmental samples collected during this SI will be analyzed for metals and explosives on all samples as defined in the attached documentation.

The Qualitative Reconnaissance (QR) will be performed to primarily focus on the current remaining areas of the island during the SI Visit but also will be inclusive of the entire site to further confirm the absence of MEC. The QR will implement the use of magnetometers, Trimble™ global positioning systems (GPS), Garmin™ handheld global positioning systems (GPS) with two-way radio, and digital photography in an integrated format. The QR and MC field efforts will be performed so as to minimize any intrusion on any environmental or ecological factors on the island. Procedural details of the field work will be provided in a Draft Site-Specific Work Plan (an addendum to the Programmatic Work Plan) for stakeholder review and comment. The U.S. Army Corps of Engineers, Jacksonville District (CESAJ) will coordinate the rights of entry (ROE) to the site, as applicable.

In addition to the above listing TPP Project Team determinations stated above, the following issues and resolutions are noted:

- The TPP Project Team concurs with the Technical Approach (likely an anticipated RI/FS) as agreed at the TPP meeting on March 01, 2007 inclusive of number, type, and location of samples as well as sampling methodology and laboratory analyses.
- The TPP Project Team concurs with location of the two soil samples with the option of 3 discretionary samples. The location of the sample sites are shown on the attached Figure maps 3A and 3B, in the Conceptual Site Model Section.
- TPP Project Team agreed to not have ambient samples or surface water samples collected for this site.



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- No composite sampling will be conducted, but will be replaced with discrete sampling.
- TPP Project Team agreed to remove all but two samples and add 3 discretionary samples (if needed) from the sampling list due to the drastic reduction in the size of the island. Map Figures 3A and 3B are the most current licensed version showing the size of the island at the time of the aerial photo, no newer version have been located. Due to recent visual observations by the U.S. Fish and Wildlife officials, the island has been reduced by gulf current erosion to a size of 20 feet x 20 feet during high tide. The SI field team will attempt to visit the island during low tide which will constitute the possible need of discretionary samples.
- The TPP Project Team agrees that the Florida Administrative Code (FAC) 62-777, FDEP Soil Cleanup Target Levels for Direct Residential Exposure, Region 9 Residential Preliminary Remediation Goals (PRGs), and the Ecological Screening Values Listed in Table 1 will be used for comparison of explosives and metals contamination on all samples.
- The TPP agreed that Jim Crane and Eric Nuzie should be designated as the regulator associated with the FDEP.
- U.S. Fish and Wildlife must have 30 day advance notice for Special Use Permit. Prior notice to the beginning of any field work so coordination can be arranged for the use of boat transportation to the island.
- Passage Key is currently a popular public gathering place, U.S. Fish and Wildlife requested that they should be present during the Field SI to deter any possible problems.
- U.S. Fish and Wildlife gave the coordinates to possible ordnance near the island. (N 27 33.372' W 82 44.465')

All QR and MC results will be fully documented in an SI Report for the TPP Project Team and other stakeholder review. The SI Technical Approach described above will not be modified without consultation and agreement by the TPP Project Team whose names appear below.

All QR and MC results will be fully documented in an SI Report for stakeholder review. The SI Technical Approach described above will not be modified without consultation and agreement by the project team whose names appear below.



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Mr. Charles Fales
USACE, Jacksonville District
Project Manager

Ms. Chris Cochran
USAESCH
Program Manager

Mr. Jim Crane
Florida Department of Environmental Protection (FDEP)
Project Manager

Mr. Eric Nuzie
Florida Department of Environmental Protection (FDEP)
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Mr. Jim Kraus
Chassahowitzka National Wildlife Refuge Complex
Project Leader

Mr. Jeff Ulmer
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Project Coordinator

Mr. Tim Nowicki
Parsons
Project Coordinator

Mr. Mike Gooding
USAESCH
Lead OE Engineer

Mr. Doug Garretson
USAESCH
Project Manager

Mr. Richard Meyers
U.S. Fish & Wildlife Service

Mr. David McCullough
USACE, Jacksonville District

Mr. Michael Goff
Fort DeSoto Park
Park Naturalist

Mr. Stan Garner
U.S. Fish & Wildlife Service

Passage Key Air-To-Ground Range

7/13/2007

TPP Team			EM 200-1-2, Paragraph 1.1.1		
Decision Makers					
Customer		USACE Jacksonville District (CESAJ)			
Project Manager		Charles Fales (CESAJ)			
Regulators		Florida Department of Environmental Protection			
Primary Stakeholders		United States Fish and Wildlife			
Data Types		Data Users		Data Gatherer	
Demographics/Land Use		Risk, Responsibility, and Compliance Perspectives		Parsons (Senior Scientist, Risk Specialist)	
Site Conditions		Remedy Perspective		Parsons (Geologist, Senior Scientist)	
Munitions and Explosives of Concern (MEC)		Risk and Remedy Perspectives		Parsons (UXO Technician III or higher, Risk Specialist, Senior Scientist)	
Munitions Constituents (MC)		Risk and Remedy Perspectives		Parsons (Chemist, Risk Specialist, Senior Scientist)	
Archaeology		Compliance and Remedy Perspectives		CESAJ, Parsons (Staff Scientist, Senior Scientist)	
Endangered Species		Risk and Compliance Perspectives		CESAJ, Parsons (Staff Scientist, Risk Specialist)	

CUSTOMER'S GOALS			EM 200-1-2, Paragraph 1.1.2		
Area of Concern (AOC)	Contaminant Issues	Future Land Use	Site-specific Closeout Goal (if applicable)		
Air-to-Ground Gunnery Range	MEC/MC	Wildlife Refuge	See below		
Site Closeout Statement					
To manage the munitions and explosives of concern (MEC) and munitions constituents (MC) risk through a combination of removal/remediation, administrative controls, and public education; thereby rendering the site as safe as reasonably possible to humans and the environment and conducive to the anticipated future land use.					
Customer's Schedule Requirements					
Site Inspection and Reporting Complete by 24 April, 2008					
Customer's Site Budget					
Site Inspection and Reporting: Fully Funded Through SI Phase					

IDENTIFY SITE APPROACH		
EXISTING SITE INFORMATION & DATA EM 200-1-2, Paragraph 1.1.3 and 1.2.1		
Attachment(s) to Phase I TPP Memorandum	Located at Repository	Preliminary Conceptual Site Model
Preliminary Assessment (Archives Search Report)	N/A for SI Phase; Implemented in post-SI Phase as warranted	No
Site-Specific SI Work Plan	N/A for SI Phase; Implemented in post-SI Phase as warranted	Yes
POTENTIAL POINTS OF COMPLIANCE EM 200-1-2, Paragraph 1.2.1.3		
Determination of absence or presence of MEC/MC		
If MC is detested, comparison against Florida Administrative Code (FAC) 62-777, Table 2, FDEP Soil Cleanup Target Levels for Direct Residential Exposure, the Region 9 Residential Preliminary Remediation Goals (PRGs), and Ecological Screening Values to determine if further MC evaluation during RI/FS is warranted.		
Avoidance of sensitive conditions: wetlands, endangered species, archaeological sites		
MEDIA OF POTENTIAL CONCERN EM 200-1-2, Paragraph 1.2.1.4		
Qualitative review of MEC presence.		
Quantitative screening of MC in soil		
SITE OBJECTIVES EM 200-1-2, Paragraph 1.2.2		
Collection of sufficient MEC and MC data to determine if concentrations are high enough to warrant further study or action.		
Eliminate from further consideration those releases that pose no significant threat to public health or the environment.		
Collection of sufficient data to perform MRSPP scoring and for EPA to complete MC-related HRS scoring.		
Complete the SI		
<i>See Programmatic and Site-Specific Work Plan</i>		
<i>See Attached Worksheets Developed by the Project Team</i>		
REGULATOR AND STAKEHOLDER PERSPECTIVES EM 200-1-2, Paragraph 1.2.3		
Regulators	Community Interests	Others
TBD	TBD	TBD
PROBABLE REMEDIES EM 200-1-2, Paragraph 1.2.4		
NDAI		
RI/FS characterization, if necessary		
Institutional Controls / Public Education		
EXECUTABLE STAGES TO SITE CLOSEOUT EM 200-1-2, Paragraph 1.2.5		
Site Inspection (SI)		
Remedial Investigation/Feasibility Study (RI/FS)		
Proposed Plan		
Decision Document		
Remedial Design (RD)		
Remedial Action (as necessary)		
Recurring Review		
Time Critical Removal Action (as required)		

PROJECT OBJECTIVES WORKSHEET

SITE: **Air-to-Ground Gunnery Range**
 PROJECT: **Passage Key Air-to-Ground Gunnery Range, Florida**

Site Objective ^a				Data Needs	Data Collection Methods	Data User(s)	Project Objective	
Number	Executable Stage ^b		Description					Source ^c
	Current	Future						
1	Yes		Determine presence/lack thereof of MEC	ASR, Recon	Are there any MEC? If so what type, where and hazard posed. Current and future LU.	Qualitative Reconnaissance	Risk and Remedy Perspectives	Basic
2	Yes		Determine if the concentration of MC is high enough to pose a risk to human health or the environment	surface soil	Is there any MC present in samples # 1 and # 2 or in any discretionary samples taken? If present what is it, to what degree is it present, and the analytical results will be compared to Florida Administrative Code (FAC) 62-777, Table 2, FDEP, Soil Cleanup Target Levels for Direct Residential Exposure, Region 9 Residential Preliminary Remediation Goals (PRGs), and the Ecological Screening Values for munitions explosives and metals constituents? Future LU.	Sample collection IAW SAP	Risk and Remedy Perspectives	Basic
3								
4								

a Refer to EM 200-1-2, Paragraph 1.2.2
 b Refer to EM 200-1-2, Paragraph 1.2.5
 c For example, Meeting with Customer/stakeholder/Regulator, State Regulation ____.
 d Classification of project objectives can only occur after the current project has been identified. Refer to EM 200-1-2, Paragraph 1.3.3.

ASR - Archives Search Report
 IAW - In accordance with
 LU - Land Use
 MEC - Munitions and Explosives of Concern

MC - Munitions Constituents
 SAP - Sampling and Analysis Plan
 SSL - Soil Screening Level
 FAC - Florida Administrative Code

MC DATA QUALITY OBJECTIVE WORKSHEET

Site: Passage Key Air-to-Ground Gunnery Range, FL

Project: MMRP Site Inspection / FUDS No. I04FL040101

DQO Statement Number: 1 of 4

<p>Intended Data Use: (Which project objective(s) will be satisfied?) Determination of next step, is there MC contamination present in concentrations that are high enough to pose a risk to human health or the environment, collection of sufficient data to perform MRSPP scoring, for EPA to complete MC-related portion of HRS, and completion of the SI.</p>	<p>Soil sampling will be conducted based on field observations. Analytical results will be compared to Region 9 Preliminary Remediation Goal (PRGs) - Residential Soils and Florida Administrative Code (FAC) 62-777, Table 2, FDEP Soil Cleanup Target Levels for Direct Residential Exposure for munitions constituents (explosives only). Sample results comparison will be used to identify whether additional investigations or implementation of a remedy may be necessary. Collection of sufficient data to determine applicability of RI/FS or other action. Completion of the SI.</p>
<p>Data need requirements: (What data do you need to collect?) Is there MC contamination? Sufficient data to complete MRSPP, for EPA to complete MC-related portion of HRS, and for completion of SI.</p>	<p>Determine the type of MC on the site. Complete the MRSPP worksheets and collect the input parameters for EPA to complete the MC-related portions of the HRS worksheets. Completion of the SI.</p>
<p>Are data: basic, optimal, or excessive need?</p>	<p>Basic</p>
<p><i>How much data is enough?</i></p>	<p>2 surface soil sample with 3 discretionary surface soil samples (if necessary tested for presence and/or concentration of MC. All data for MRSPP worksheets and the MC-related data for HRS</p>
<p>How will these data be collected?</p>	<p>By the collection of surface soil and surface water samples at designated locations. MC samples will be analyzed as follows: Explosives - SW8321A; Metals SW6010B or SW6020;. Data for MRSPP and MC-related HRS worksheet parameters will be compiled on PDA menu-driven forms.</p>
<p>Was DQO attained?</p>	<p>TBD</p>
<p>Where are supporting data maintained?</p>	<p>Will be included in the SI Report.</p>

MEC DATA QUALITY OBJECTIVE WORKSHEET

Site: Passage Key Air-to-Gound Gunnery Range, FL

Project: MMRP Site Inspection / FUDS No. I04FL040101

DQO Statement Number: 2 of 4

Intended Data Use: (Which project objective(s) will be satisfied?) Determination of next step, is there MEC contamination present, and completion of the SI.	Collection of sufficient data to determine applicability of RI/FS or other action.
Data need requirements: (What data do you need to collect?) Is there MEC contamination? Sufficient data for completion of SI.	Determine the presence and type of MEC on the site, if applicable. Completion of the SI.
Are data: basic, optimal, or excessive need?	Basic
<i>How much data is enough?</i>	Qualitative Reconnaissance path to be determined in field. The presence or lack thereof of MEC. Confirmation of MEC is sufficient (but not required) to justify further response action(s). Circumstantial evidence may also be sufficient.
How will these data be collected?	Visual survey of the suspect areas documented by site observations on PDA/GPS menu-driven forms. Qualitative Reconnaissance (limited) with the Schonstedt GA-92 XLi Magnetometer
Was DQO attained?	TBD
Where are supporting data maintained?	Will be included in the SI Report

MRSPP Data Quality Objective Worksheet

Site: Passage Key Air-to-Gound Gunnery Range, FL
Project: MMRP Site Inspection / FUDS No. I04FL040101
DQO Statement Number: 3 of 4

Module	Table #	Table Description	Known Data	Current Data Gap	Data Source
Explosive Hazard Evaluation (EHE)	1	Munitions Type	X		Historical Records/Findings
	2	Source of Hazard	X		Historical Maps
	3	Location of Munitions		X	Historical or Field Findings
	4	Ease of Access		X	Field Findings
	5	Status of Property	X		Historical Records
	6	Population Density		X	U.S. Census Bureau
	7	Population Near Hazard		X	Field Findings
	8	Types of Activities/Structures		X	Regional Zoning
	9	Ecological and/or Cultural Resources		X	State Historic Preservation Office
	10	Determining the EHE		X	Scores from Tables 1 through 9
Chemical Warfare Materiel (CWM) Hazard Evaluation (CHE)	11	CWM Configuration	X		Historical Records/Findings
	12	Sources of CWM	X		Historical Records/Findings
	13	Location of CWM		X	Historical or Field Findings
	14	Ease of Access		X	Field Findings
	15	Status of Property	X		Historical Records
	16	Population Density		X	U.S. Census Bureau
	17	Population Near Hazard		X	Field Findings
	18	Types of Activities/Structures		X	Regional Zoning
	19	Ecological and/or Cultural Resources		X	State Historic Preservation Office
	20	Determining the CHE		X	Scores from Tables 11 through 19
Health Hazard Evaluation (HHE)	21	Groundwater Data		X	Groundwater Sampling Results
	22	Surface Water - Human Endpoint		X	Surface Water Sampling Results
	23	Sediment - Human Endpoint		X	Sediment Sampling Results
	24	Surface Water - Ecological Endpoint		X	Surface Water Sampling Results
	25	Sediment - Ecological Endpoint		X	Sediment Sampling Results
	26	Surface Soil		X	Surface Soil Sampling Results
	27	Supplemental Contaminant Hazard Factor		X	All MC Sampling Results
	28	Determining the HHE		X	Scores from Tables 21 through 27
	29	MRS Priority		X	Scores from Tables 10, 20, and 28
	A	MRS Background Information	X		DoD Databases

HRS Data Quality Objective Worksheet

Site: Passage Key Air-to-Gound Gunnery Range, FL
Project: MMRP Site Inspection / FUDS No. I04FL040101
DQO Statement Number: 4 of 4

Data Description	Known Data	Current Data Gap	Data Source
Source Type	X		Historical Records/Findings
Estimated Volume or Area		X	Field Findings
Hazardous Substance	X		Constituents of Suspected Munitions
Groundwater Sample Concentration		X	Sample Results
Groundwater Use		X	Well Records/Municipal Data
Surface Water Sample Concentration		X	Sample Results
Surface Water Pathways		X	Field Findings
Soil Sample Concentration		X	Sample Results
Soil Pathways		X	Municipal Data
Sensitive Environments		X	State Historic Preservation Office, US Fish and Wildlife Service, various government agencies
Attractiveness/Accessibility		X	Field Findings/Land Use Records

APPENDIX B
CONCEPTUAL SITE MODELS

**CONCEPTUAL SITE MODEL
PASSAGE KEY AIR-TO-GROUND GUNNERY RANGE
MANATEE COUNTY, FLORIDA**

Subsite/Range	Acreage	Suspect Past DoD Activities	Potential MEC/MD Presence	MEC/MD Found Since Closure	Previous Investigation/Clearance Actions	Post-DoD Land Use and Current Land Use	Potential Receptors	Potential Source and Receptor Interaction	Field Sampling/Qualitative Reconnaissance
AIR TO-GROUND RAC SCORE: 2	36.37 (island)	Strafing and bombing	Small Arms General: 50 Cal. Machine Gun AN-M30, General Purpose Bomb, 100 lbs AN-M46, Photoflash Bomb, 100 lbs AN-Mk 5, AN-Mk 23, AN-Mk 43, Practice M38A2, Practice Bomb, 100 lbs Signal, Practice Bomb, Mk 4 Spotting Charge, M1A1 2.25-inch, Practice Rocket	USAF EOD detonated 1 100 lb photoflash bomb and 1 100 lb General Purpose bomb Nov, 1998 US Navy EOD detonated 2 projectile Dec, 1998	None	Wildlife Refuge	US Fish and Wildlife attempt to restrict Public Access due to the nesting birds on the island, but the island remains an open area.	Yes - Intrusive or non-intrusive activity, MEC at surface and subsurface, access available.	Surface soil samples # 1 and # 2 with 3 discretionary samples/ and associated QR path
ACRES OF RANGE IN WATER	13,110.35								
TOTAL ACREAGE OF RANGE	13146.72								

Source
1 = Private account - nonconfirmed
2 = EOD response
3 = ASR
4 = ASR Supplement
5 = Other government correspondence

ASR = Archives Search Report
DoD = Department of Defense
EOD = Explosives Ordnance Disposal
MEC = Munitions and explosives of concern
N/A = Not Available
TBD = To be determined
QR = Qualitative Reconnaissance

PRE-MC SAMPLING CONCEPTUAL SITE EXPOSURE MODEL

Site: PASSAGE KEY AIR-TO-GROUND GUNNERY RANGE
MANATEE COUNTY, FLORIDA

Completed By: PARSONS
 Date Completed: 7/13/2007

(1) Check the media that could be directly affected by the release.

(2) For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Briefly list other mechanisms or reference the report for details.

(3) Check exposure media identified in (2).

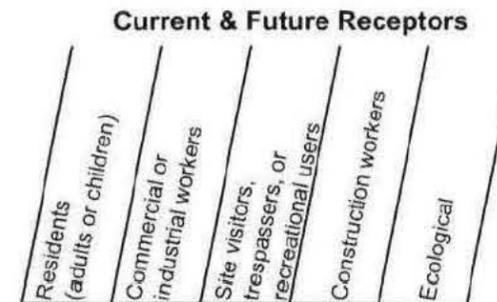
(4) Check exposure pathways that are complete or need further evaluation.

(5) Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, or "C/F" for both current and future receptors.

Media	Transport Mechanisms
<input checked="" type="checkbox"/> Surface Soil (0-2 ft bgs)	Direct release to surface soil <i>check soil</i> <input checked="" type="checkbox"/> Migration or leaching to subsurface <i>check soil</i> <input type="checkbox"/> Migration or leaching to groundwater <i>check groundwater</i> <input type="checkbox"/> Volatilization <i>check air</i> <input type="checkbox"/> Runoff or erosion <i>check surface water</i> <input checked="" type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____
<input type="checkbox"/> Subsurface Soil (0-15 ft bgs)	Direct release to subsurface soil <i>check soil</i> <input type="checkbox"/> Migration to groundwater <i>check groundwater</i> <input type="checkbox"/> Volatilization <i>check air</i> <input type="checkbox"/> Other (list): _____
<input type="checkbox"/> Groundwater	Direct release to groundwater <i>check groundwater</i> <input type="checkbox"/> Volatilization <i>check air</i> <input type="checkbox"/> Flow to surface water body <i>check surface water</i> <input type="checkbox"/> Flow to sediment <i>check sediment</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____
<input type="checkbox"/> Surface Water	Direct release to surface water <i>check surface water</i> <input type="checkbox"/> Volatilization <i>check air</i> <input type="checkbox"/> Sedimentation <i>check sediment</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____
<input type="checkbox"/> Sediment	Direct release to sediment <i>check sediment</i> <input type="checkbox"/> Resuspension, runoff, or erosion <i>check surface water</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____

Exposure Media
<input checked="" type="checkbox"/> soil
<input type="checkbox"/> groundwater
<input type="checkbox"/> air
<input type="checkbox"/> surface water
<input type="checkbox"/> sediment
<input checked="" type="checkbox"/> biota

Exposure Pathways	Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Ecological
<input checked="" type="checkbox"/> Incidental Soil Ingestion			C/F		C/F
<input checked="" type="checkbox"/> Dermal Absorption of Contaminants from Soil			C/F		C/F
<input type="checkbox"/> Ingestion of Groundwater					
<input type="checkbox"/> Dermal Absorption of Contaminants in Groundwater					
<input type="checkbox"/> Inhalation of Outdoor Air					
<input type="checkbox"/> Inhalation of Indoor Air					
<input type="checkbox"/> Inhalation of Fugitive Dust					
<input checked="" type="checkbox"/> Ingestion of Surface Water					
<input checked="" type="checkbox"/> Dermal Absorption of Contaminants in Surface Water					
<input checked="" type="checkbox"/> Direct Contact with Sediment					
<input checked="" type="checkbox"/> Ingestion of Wild Foods			C/F		C/F



APPENDIX C
UXO ENCOUNTER PROCEDURES – IGD 06-05



DEPARTMENT OF THE ARMY
HUNTSVILLE CENTER, CORPS OF ENGINEERS
P.O. BOX 1600
HUNTSVILLE, ALABAMA 35807-4301

REPLY TO
ATTENTION OF:

MAR 16 2006

CEHNC-OE-CX

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Procedure for Preliminary Assessment (PA) and Site Inspection (SI) Teams that Encounter Unexploded Ordnance (UXO) While Gathering Non-UXO Field Data, Military Munitions Center of Expertise (MM CX) Interim Guidance Document (IGD) 06-05

1. **PURPOSE:** This procedure describes the responsibilities of project teams during the preliminary assessment and site investigation phases should unexploded ordnance (UXO) be discovered.
2. **APPLICABILITY:** This guidance is applicable to the geographic military Districts, Military Munitions Response Program (MMRP) Design Centers, Major Subordinate Commands (MSCs), and designated Remedial Action Districts performing MMRP response actions.
3. **REQUIREMENTS AND PROCEDURES:**
 - a. During site visits to formerly used defense site (FUDS) properties to gather PA or SI information, in the rare instance that a UXO-qualified individual identifies an item that is an explosive hazard, the following actions will occur:
 - (1) The property owner or individual granting rights of entry to the property will be notified of the hazard and advised to call the local emergency response authority (i.e., police, sheriff, or fire department). The individual will also be informed that if they do not call the local response authority within 1 hour, the individual who identified the UXO item will notify the local emergency response authority.
 - (2) The local response authority will decide how to respond to the reported incident, including deciding not to respond (e.g., if the local response authority is already aware of the hazards on the property). If the local response authority decides to respond, the individual who identified the item or his designee will mark the location of the item and provide accurate location information to the emergency response authority. The individual who identified the item or his designee will generally remain in the area until the local response authority arrives, unless specifically indicated by the appropriate response authority that the individual may leave the area.
 - (3) During the SI, the state regulator may also be notified at their request.

MAR 1 6 2006

CEHNC-OE-CX

SUBJECT: Procedure for Preliminary Assessment (PA) and Site Inspection (SI) Teams that Encounter Unexploded Ordnance (UXO) While Gathering Non-UXO Field Data, Military Munitions Center of Expertise (MM CX) Interim Guidance Document (IGD) 06-05

b. During site visits to active installations or Base Realignment and Closure (BRAC) sites to gather PA or SI information, in the rare instance that a UXO-qualified individual identifies an item that is an explosive hazard, the following actions will occur:

(1) The installation point of contact (POC) or the BRAC coordinator will be notified of the hazard and requested to notify explosive ordnance disposal (EOD) through their channels.

(2) The installation/EOD will make the determination if they are going to respond to the incident. The installation/EOD may be aware of the hazards at the site and make the decision not to respond. If the installation/EOD decides to respond, the individual who identified the item or his designee will mark the location and provide accurate location information to the installation/EOD unit and will remain in the area unless the installation/EOD unit requests otherwise.

c. Neither the US Army Corps of Engineers personnel, nor their contractors have the authority to call EOD to respond to an explosive hazard. This call is the responsibility of the local emergency response authority for FUDS properties and it must come through the proper chain of command on installations.

d. AR 75-14 and AR 75-15 contain the information on how EOD responds to explosives hazards.

4. EFFECTIVE DATES: The requirements and procedures set forth in this interim guidance are effective immediately. They will remain in effect indefinitely, unless superseded by other policy or regulation.

5. POINT OF CONTACT: If you need additional information, please contact Mr. Brad McCowan at 256-895-1174.



CAROL A. YOUKEY, P.E.
Chief, Center of Expertise for Ordnance
and Explosives Directorate

APPENDIX D
MISCELLANEOUS INFORMATION

I04FL0401 PASSAGE KEY AIR-TO-GROUND GUN - 01 - MMRP - USFWS REFUG
Table A

MRS Background Information

DIRECTIONS Record the background information below for the MRS to be evaluated. Much of this information is and DoD databases, such as RMIS. If the MRS is located on a FUDS Property, the suitable FUDS should be substituted. In the **MRS summary**, briefly describe the **UXO, DMM, or MC** that are kn present, the **exposure setting (the MRS's physical environment)**, any other incidental non-m contaminants (e.g., bezene, trichloroethylene) found at the MRS, and any potentially expose ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Air to Ground Gunnery Range
Component: FUDS/SAD/Jacksonville District (SAJ)
Installation/Property Name: FL49799F722000 PASSAGE KEY AIR-TO-GROUND GUN
Location (City, County, State): ANNA MARIA, MANATEE, FL
Site Name/Project Name (Project No.): USFWS REFUGE PUBLIC AREA (01)

Date Information Entered/Updated:
Point of Contact (Name/Phone): Public Affairs 904-232-2235
Project Phase:

<input checked="" type="checkbox"/> PA	<input checked="" type="checkbox"/> SI	<input checked="" type="checkbox"/> RI/FS	<input checked="" type="checkbox"/> EE/CA	<input checked="" type="checkbox"/> IRA	<input checked="" type="checkbox"/> RmD
<input checked="" type="checkbox"/> RmA-C	<input checked="" type="checkbox"/> RD	<input checked="" type="checkbox"/> RA-C	<input checked="" type="checkbox"/> RA-O	<input checked="" type="checkbox"/> LTM	<input checked="" type="checkbox"/> PCO

Media Evaluated:

<input checked="" type="checkbox"/> Groundwater	<input checked="" type="checkbox"/> Sediment (human receptor)
<input checked="" type="checkbox"/> Surface soil	<input checked="" type="checkbox"/> Surface Water (ecological receptor)
<input checked="" type="checkbox"/> Sediment (ecological receptor)	<input checked="" type="checkbox"/> Surface Water (human receptor)

MRS Summary::
MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, type of munition, if known) or munitions constituents (by type, if known) known or suspected to be present):

[Empty text area for MRS Description]

Description of Pathways for Human and Ecological Receptors:

[Empty text area for Pathways]

Description of Receptors (Human and Ecological):

[Empty text area for Receptors]